

Global climate change is highly local: Perception and adaptation  
of the international climate change discourse in Peru – a case  
study of the Southern Peruvian Andes

Inaugural-Dissertation  
zur Erlangung des Doktorgrades  
an der Fakultät für Angewandte Informatik  
Institut für Geographie  
der Universität Augsburg

vorgelegt von

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2017

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Tag der mündlichen Prüfung: 15. Januar 2018

## Executive Summary

Based on an empirical, ethnographic case study set in the Southern Peruvian Andes, the present study analyses the connections between the global climate change discourse and local perceptions in the Global South. Here, the national (Peru), regional (Cusco), and local (Chumbivilcas) discourses on climate change are analysed and outlined. The argumentation is based on the assumption that not only climate change processes influence ecosystems, economies, and societies all over the world, but that the discourse alone impacts livelihoods and daily routines worldwide. In this study, I argue that it is necessary to understand how the global climate change discourse is transmitted, processed, and adapted under specific local and socio-cultural circumstances and the evolution of its entanglement with local discourses.

Grounded in a *Critical Discourse Analysis* approach, the empirical research results show the connection between the international climate change discourse, with its prevailing power structures, and local perceptions and adaptations, which are based on entanglements of external and place-specific discourses. This study shows how the international climate change discourse is embedded in national and local discourses, such as the Peruvian post-colonial discourse, investigating how humans are attached to existent assumptions and behaviours. Furthermore, the discourse acts within existing global structures and runs the risk of sustaining or even reinforcing inequalities. The case study demonstrates how the global climate change discourse excludes those who are considered to be the most vulnerable.

The study demonstrates that local knowledge, perceptions, and discursive adaptations must be acknowledged and given more influence, and that local knowledge must be recognised and seen as an equal aspect of (inter)national knowledge communication, thus, creating a new balance in an equal and integrative way. For the development of the global discourse, the (inter)national knowledge communication, and the local implementation of projects this implies the need to consider national and/or local discourses, existing power structures, and prevailing worldviews in which perceptions of time, environment, and climate are embedded.

## Zusammenfassung

Auf der Grundlage einer empirischen ethnographischen Fallstudie in den südperuanischen Anden analysiert die vorliegende Arbeit die Zusammenhänge zwischen dem globalen Klimawandel und dessen Wahrnehmungen auf lokaler Ebene im *Globalen Süden*. Im Mittelpunkt der Betrachtung stehen dabei die nationalen (Peru), regionalen (Cusco) und lokalen (Chumbivilcas) Diskurse zum Klimawandel. Die Argumentation der Arbeit basiert auf der Prämisse, dass nicht nur Klimawandelprozesse Ökosysteme, Ökonomien und Gesellschaften weltweit beeinflussen, sondern auch, dass bereits der Diskurs über den Klimawandel Auswirkungen auf die Sicherung des Lebensunterhalts und auf alltägliche Routinen weltweit hat. Deshalb ist es notwendig zu verstehen, wie der globale Klimawandeldiskurs unter bestimmten

lokalen und soziokulturellen Gegebenheiten übertragen, verarbeitet und angepasst wird und wie er mit anderen lokalen und regionalen Diskursen verflochten ist.

Die empirischen Forschungsergebnisse basieren auf dem Ansatz der *Kritischen Diskursanalyse* und zeigen die Beziehung zwischen dem internationalen Klimawandeldiskurs mit seinen vorherrschenden Machtstrukturen und den örtlichen Wahrnehmungen und Aneignungen auf. Diese zeichnen sich wiederum durch Verstrickungen von externen und ortsspezifischen Diskursen aus. Die Studie legt dar, wie der internationale Klimawandeldiskurs in nationale und lokale Diskurse – wie beispielsweise der peruanische post-koloniale Diskurs – eingebettet ist und wie Menschen an bestehende Vorstellungen und Verhaltensweisen gebunden sind. Darüber hinaus bewegt sich der Klimawandeldiskurs in bestehenden globalen Strukturen und läuft Gefahr, Ungleichheiten zu perpetuieren oder sogar zu verstärken. Die Ergebnisse der Fallstudie führen vor Augen, wie im globalen Klimawandeldiskurs genau die Positionen derer ausgeschlossen werden, die als am meisten durch den Klimawandel gefährdete Bevölkerungsgruppen gelten.

Schließlich zeigt die Arbeit, dass lokales Wissen, Wahrnehmungen und diskursive Aneignungen verstärkt Anerkennung und Einfluss bekommen müssen, und verweist im Ergebnis darauf, dass lokales Wissen wahrgenommen und als gleichberechtigter Aspekt der (inter)nationalen Wissenskommunikation angesehen werden muss. Nur dadurch kann eine Balance in einer gleichberechtigten und integrierenden Weise geschaffen werden. Bei der Entwicklung des globalen Diskurses, der (inter)nationalen Wissenskommunikation sowie der Umsetzung lokaler Projekte sollten nationale oder lokale Diskurse, bestehende Machtstrukturen und vorherrschende Weltbilder berücksichtigt werden, in denen auch kulturelle Wahrnehmungen von Zeit, Umwelt und Klima eingebettet sind.

## Acknowledgements

This thesis is based on the results of five months of empirical research in Chumbivilcas, Cusco in Peru, conducted between 2012 and 2014. There were many people involved in making my research a profound and unforgettable experience, and I appreciate every type of conversation I had; they all helped step-by-step to develop my ideas and my thesis, for which I would like to thank each of you. In particular, I am grateful to my interview partners, especially those in Chumbivilcas, and those who accompanied and supported me with translation, both linguistically and culturally. Doing fieldwork usually means receiving and taking much more than one is able to give back. Even trying to give as much as possible back, what I received from my interview partners – which were many times much more than “just” that – I was only able to partially pay back. My gratitude for the openness, the ideas, and the inspiration, as well as the friendships and the trust placed in me accompanied me while writing this work. In this context, the written research results are also a way of saying thank you to all my interview partners and supporters, as I have tried to meet and reflect all the different perspectives and opinions they shared with me on the topics covered. In this context, I would also like to express my special gratitude to the organisation CADEP – Carmen Alvarez Ponce de León, the executive director; and its staff members, Ernesto, Jacinto, Robert, Felipe, Mirian, Miguel, Ronald, Levin, Fabiola, Pascal, Renate, and Raphaël – who offered me great support, sharing their space and knowledge and arranging field logistics and contacts in the communities, but who also provided me with companionship and shared their ideas with me. Here, a specific thanks is extended to the project leader in Chumbivilcas, Clotilde Laime Sotelo.

I am particularly grateful to my supervisor Matthias Schmidt for accompanying my idea from the very beginning until the end. He supported me in difficult moments and always gave me the feeling that I would be able to finish this work, which gave me strength throughout the process. Particular thanks also go to the foundation of the Humboldt-University for their two years support through the doctoral scholarship programme on “Climate Impact Research,” and to the German Academic Exchange Service (DAAD) for providing me a scholarship for doctoral students for my field research in 2013.

Last, but by no means least, I would like to thank Martin Trippmacher, who created four self-made, specialised maps of my research region, Mary Beth Wilson for her fabulous editing, and my family and friends for listening, sharing, and inspiring me. Thank you, Cesar, for your support and patience and for never letting me give up.

*For my father*

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## Acronyms

AEICD	Agencia Española de Cooperación Internacional para el Desarrollo / Spanish Agency for International Development Cooperation
ALBA	Alianza Bolivariana para los Pueblos de Nuestra América / Bolivarian Alliance for the Peoples of Our America
AMC	Interview code for local municipality officers
AMSAT	Asociación de Municipalidades de la Cuenca del Río Santo Tomás / Association of Municipalities of the Sub-River Basin of Santo Tomas
AR	Assessment Report
AW	Interview code for Anja Weber-Alvarez
B	Interview code for local population
BH	Interview code for returned “urban migrants”
BMZ	Bundesministerium für wirtschaftliche Zusammenarbeit und Entwicklung / Federal Ministry for Economic Cooperation and Education
CADEP-JMA	Centro Andino de Educación y Promoción – José María Arguedas / Andean Center for Education and Promotion – José María Arguedas
CAF	Development Bank of Latin America
CAN	Comunidad Andina / Andean Community
CAM	Comisión Ambiental Municipal / Municipal Environmental Commission
CBC	Centro de Estudios Regionales Andinos Bartolomé de Las Casas / Centre for Andean Regional Studies Bartolomé de Las Casas
CDE	Centre for Development and Environment
CDM	Clean Development Mechanism
CEBCAR	Centro Básico de Capacitación Rural / Basic Rural Training Centre
CELAC	Community of Latin American and Caribbean States
CEPLAN	Centro Nacional de Planeamiento Estratégico / National Centre of Strategic Planning
CFC	Chlorofluorocarbons
CIAS	Consortio de Investigación Económica y Social / Economic and Social Research Consortium
CLACSO	Consejo Latinoamericano de Ciencias Sociales / Latin American Council of Social Sciences

CIEL	Climate Impact Equity Lens
CIPCA	Centro de Investigación y Promoción del Campesinado / Centre for Peasant Research and Promotion
CNCC	Comisión Nacional de Cambio Climático / National Commission on Climate Change
CNUMAD	Conferencia de las Naciones Unidas sobre el Medio Ambiente y el Desarrollo / United Nations Conference on Environment and Development
CONAM	Consejo Nacional del Ambiente / National Council on Environment
CONDESAN	Consortio para el Desarrollo Sostenible de la Ecoregión Andina / Consortium for the Sustainable Development of the Andean Ecoregion
CONFIEP	Confederación Nacional de Instituciones Empresariales Privadas / National Confederacy of Private Business Institutions
CONCYTEC	Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica / National Council on Science, Technology and Technical Innovation
COP	Conference of the Parties
COREMI	Mesa Técnica Ambiental del Corredor Minero Sur Andino / Environmental Technical Table of the South Andean Mining Corridor
CRED	Center for Research on Environmental Decisions
DAAD	Deutscher Akademischer Austauschdienst / German Academic Exchange Service
DESCO	Centro de Estudios y Promoción del Desarrollo / Centre for Studies and Development Promotion
DGCCDRH	Dirección General de Cambio Climático, Desertificación y Recursos Hídricos / Department of Climate Change, Desertification and Water Resources
E	Interview code for external experts
EI	Interview code for local experts
ECA	Escuelas Campesinas Rurales / Rural Peasant Schools
EIRL	Empresa Individual de Responsabilidad Limitada / Individual Company of Limited Liability
ENCC	Estrategia Nacional de Cambio Climático / National Climate Change Strategy
ERCC	Estrategia Regional Frente al Cambio Climático / Regional Strategy on Climate Change

FAO	Food and Agriculture Organization of the United Nations
FARTAC	Federación Agraria Revolucionaria Túpac Amaru / Tupac Amaru Revolutionary Agrarian Federation
FDCC	Confederación Campesina del Perú / Peasant Conferderation of Peru
FONAM	Fondo Nacional del Ambiente / National Fund of Environment
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GHG	Greenhouse Gases
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH / German Corporation for International Cooperation
GNH	Gross National Happiness (Index)
GORE	Gobierno Regional / Regional Government
GPI	Genuine Progress Index
GRRNGMA	Gerencia Regional de Recursos Naturales y Gestión del Medio Ambiente / Regional Management of Natural Resources and Environmental Management
GRULAC	Group of Latin American and Caribbean States
HEKS	Hilfswerk der evangelischen Kirchen Schweiz / The Swiss Protestant Association
IAC	Instituto de Animación Campesina Luis Vallejos Santoni / Institute of Peasant Animation Luis Vallejos Santoni
I&D	Investigation and Development
IEP	Instituto de Estudios Peruanos / Institute of Peruvian Studies
IFEA	Instituto Francés de Estudios Andinos / French Institute of Andean Studies
IGP	Instituto Geofísico del Perú/Geophysical Institute of Peru
IIUR	Instituto de Investigación Universidad y Región / University and Region Research Institute
INGO	International Non-Governmental Organisation
INEI	Instituto Nacional de Estadística e Información / National Institute of Statistics and Informatics
INRENA	Instituto Nacional de Recursos Naturales / National Institute of National Resources

INTE-PUCP	Instituto de Ciencias de la Naturaleza, Territorio y Energías Renovables de la Pontificia Universidad Católica del Perú / Institute of Natural Science, Territory and Renewable Energy of the Pontifical Catholic University of Peru
InterCLIMA	Annual conference in Lima, an event for meetings and exchange for Peruvian and international stakeholders working on climate change related topics like adaptation and mitigation
IPCC	Intergovernmental Panel on Climate Change
ITDG	Intermediate Technology Development Group (now Practical Action)
LAC	Latin American Countries
LDC	Least Developed Country
MAXQDA	Software for computer-assisted qualitative data and text analysis
MDG	Millennium development goal
MEF	Ministerio de Economía y Finanzas / Ministry of Economy and Finance
MINAGRI	Ministerio de Agricultura y Riego / Ministry of Agriculture and Irrigation
MINAM	Ministerio de Ambiente / Ministry of Environment
MINEM	Ministerio de Energía y Minas / Ministry of Energy and Mining
MTC	Ministerio de Transportes y Comunicaciones / Ministry of Transports and Communication
NACA	Nuclei for Andean-Amazonian Cultural Affirmation
NAPA	National Adaptation Programmes of Action
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
OEI	Organización de Estados Iberoamericanos / Organisation of the Ibero-American States
OM	Code for organisation member
PACC	Programa de Adaptación al Cambio Climático / Programme of Adaptation to Climate Change
PAHO	Pan American Health Organization
PC	Programa Conjunto de las Naciones Unidas en Chumbivilcas / Joint Programme of the UN in Chumbivilcas
PDRC	Plan de Desarrollo Regional Concertado / Agreed Regional Development Plan

PIK	Potsdam-Institut für Klimafolgenforschung / Potsdam Institute for Climate Impact Research
PLANAA	Plan Nacional de Acción Ambiental / National Environmental Action Plan
PLANGRACC-A	Plan de Gestión de Riesgos y Adaptación al Cambio Climático en el Sector Agrario Período 2012-2021 / Risk and Climate Change Management Plan in the Agrarian Sector Period 2012-2021
PRAA	Proyecto de Adaptation al Impacto del Retroceso Acelerado de Glaciares en los Andes Tropical / Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes
PRATEC	Proyecto Andino de Tecnologías Campesinas / Andean Project of Peasant Technologies
PROCLIM	Programa de Fortalecimiento de Capacidades Nacionales para Manejar el Impacto del Cambio Climático y la Contaminación del Aire / Programme for Strengthening National Capacity to Manage the Impact of Climate Change and Air Pollution
PRODUCE	Ministerio de la Producción / Ministry of Production
PUCP	Pontificia Universidad Católica del Perú / Pontifical Catholic University of Peru
SAC	Sociedad Anónima Cerrada / Closed Joint Venture
SAT	Satelite of Peru
SB	Interview code for son of interviewee (local population)
SDC	Swiss Agency for Development and Cooperation
SEI	Stockholm Environment Institute
SENAMHI	Servicio Nacional de Meteorología e Hidrología del Perú / National Service of Meteorology and Hydrology
SGCAN	Secretaría General de la Comunidad Andina / General Secretariat of the Andean Community
SNGA	Sistema Nacional de Gestión Ambiental / National Environmental Management System
T	Interview code for translator
TEK	Traditional Ecological Knowledge
UGA	Unidades de Gestión Ambiental / Environmental Management Units
UN	United Nations



UNDP	United Nations Development Fund
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UOR	Unidad Operativa Regional / Regional Operative Unit
UNSAAC	Universidad Nacional de San Antonio de Abad del Cusco / National University of San Antonio de Abad of Cusco
ALCUE	Latin America, Caribbean and European Union Network on Research and Innovation
WGII	Working Group II (of the Intergovernmental Panel on Climate Change)
WHO	World Health Organization
WMO	World Meteorological Organization

## Foreign words glossary

Abigeato/Abigeo (Quechua)	Cattle theft
Anexo (Spanish)	Individual villages belonging to a community
Apús (Quechua)	Sacred mountains / spirits of the mountains
Arariwa (Quechua)	"Supervisor" of the sowing selected for a year by the community; name of a NGO working in Chumbivilcas ( <i>Asociación/Association Arariwa</i> )
Chakra (Quechua)	Field
Chumbivilcano (Spanish)	Inhabitant of Chumbivilcas
Chuño (Quechua)	"Wrinkly," used for the dried or dehydrated potato
Comunidad (Spanish)	Community
Corrida de torros (Spanish)	Bullfight
Gamonals/Gamonalismo (Spanish)	Descendants of a formerly powerful land-owning family, which continued for a long time ruling in Peru
Gobernatura (Spanish)	Governance
Hacenderos (Spanish)	Great landowner
Ichu (Quechua)	Straw
Indígena (Spanish)	Indigenous
La gotita de agua (Spanish)	Raindrop
Laima (Quechua)	Cultivation parcels
Laramtata (Aymara)	Bluish
Limeños (Spanish)	Citizens of Peru's capital, Lima
Mestizo (Spanish)	"Mixture," meaning a person of racially mixed ancestry, decedents of Spanish and native parents
Mestizaje (Spanish)	Process of mixing cultures / races
Microcuenca (Spanish)	River valley
Pachamama (Quechua)	Mother earth
Pachamamanchista Munakusun (Quechua)	Protect our mother earth
Pago a la tierra (Spanish)	Offering to the earth
Pandillas (Spanish)	Mounted bands

Parajes (Quechua)	Protecting deities that shelter the communities
Pon de tu parte – compromisos por el clima (Spanish)	Do your part – commitments for the climate
Programa Conjunto (Spanish)	The <i>Joint Programme</i> (of the UN in Chumbivilcas)
Pueblo (Spanish)	Nation, race
Qorilazo (Quechua & Spanish)	Golden lasso, having double linguistic roots: <i>Qori</i> (Quechua for golden) and <i>lazo</i> (Spanish for lasso)
Sendero Luminoso (Spanish)	<i>Shining Path</i>
Serranos	People or things coming from the mountains
Takanakuy/Tinkuy (Quechua)	Beat each other
Tawantinsuyo (Quechua)	Unity of the four Inca-regions
T'inkana (Quechua)	Religious ceremony of offering to the gods, especially the <i>Apú</i> and the <i>Pachamama</i>
T'inkar (Quechua)	Conducting the ceremony of the <i>T'inkana</i>
Tотора (Quechua)	Reed
Trueque (Quechua)	Exchanging
Veranillos (Spanish)	Late summer
Viviendas Saludables (Spanish)	Healthy homes
Voz de los jóvenes (Spanish)	Voice of the youth

## I. Introduction

AW: Why do you think we have this climate change? Why are there changes in the weather?

B8: Climate change is, according to what they say on the radio and what scientists say, that the ozone layer breaks little by little, therefore...

AW: And how does this work, why does it break?

B8: Because of this, of the smoke, that we burn our pastures every day and some other things; every day we burn and, therefore, it is damaged, also from the factories and that we now use cars like toys and their exhaust, this as well causes pollution.<sup>1</sup> (Interview, B8, September 16, 2013; own translation)<sup>2</sup>

This interview sequence from a small community in the Peruvian Andes shows that information about the internationally discussed anthropogenic induced climate change is globally prevalent and reaches even people located in peripheral areas of the Global South.<sup>3</sup> As elsewhere, people are confronted with a variety of information that is received and processed in very different ways, socio-culturally. The quotation above gives a slight insight into the power that can derive from a global discourse, such as the international climate change discourse, and in how the transmitted information can be processed and modified by the recipients. However, these voices are more often than not unheard and ignored, both in scientific studies and in policy. There is a lack of recognition of local perceptions, which is important to be able to design and adjust climate change related adaption measures that are regionally and socially specific. Above all, there is not only an imbalance between humanity and nature, but also between the Global North and the Global South and national states and local communities. Here, a balanced, effective, and equal integration within global processes is also hindered by the global climate change discourse. In this study, I argue that it is necessary to understand how the global climate change discourse is transmitted, processed, and adapted under specific local and socio-cultural circumstances and the evolution of its entanglement with local discourses, like the Peruvian post-colonial discourse. Thus, local knowledge, perceptions, and adaptations must be recognised and given more influence. In this regard, the argumentation is based on the assumption that not only climate change processes influence ecosystems, economies, and societies all

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<sup>1</sup> Original quotations for all interviews conducted in Spanish and Quechua can be found in the endnotes.

<sup>2</sup> Please note that I utilise different codes for the different types of interviews conducted for this research. In the analysis with the local population I conducted 36 interviews. There were 31 interviews with the local population (labelled B), two interviews with local municipality officers (labelled AMC), and three with local graduates and returned "urban migrants" (labelled BH). Additional interviews were conducted with experts and those are labelled EI for local experts and E for external experts.

<sup>3</sup> In the context of the present work, the term "South" and "North" will not just be used as a geographical term dividing the earth into a northern and southern hemisphere, but in the sense that it represents, "the common experiences of people in these countries as a result of historically determined social and economic conditions resulting from their colonial and imperial past" (Anand 2004: 1; in Hannigan, 2006: 55).

over the world, but that the discourse itself impacts livelihoods and daily routines worldwide.

The main aim of this work is to depict the connection between the international climate change discourse, with its prevailing power structures, and local perceptions and adaptations, which are based on entanglements of external and place-specific discourses. Thus, the case study was carried out with the objective of analysing socio-cultural perceptions, adaptations, and the integration of the global climate change discourse as well as its impacts on, and entanglements with, local adaptation and transition processes. The argumentation is supported by an empirical, ethnographic case study from the Southern Peruvian Andes.

In this context, the following research questions were developed to guide the research:

1. Through which channels is the climate change discourse communicated – from the international level to the local level and *vice versa* – and how does it change as it travels?
2. At the local level, what kind of climate (change) related knowledge exists, and how is climate change information communicated, perceived, appropriated, and integrated?
3. At what point, and how, is the climate change discourse integrated into existing local knowledge systems, worldviews, and discourses?

The research is divided into two main sections, with an emphasis on the second: 1) An illustration of the evolution and state of the international climate change discourse and its impacts on development cooperation and 2) an analysis of a case study in Peru, outlining the climate change discourse and its effects at the national, regional, and local levels, with a specific example of the province of Chumbivilcas in the Cusco Region. The second section is the result of extensive empirical field studies, which were carried out in 2012 and 2013 in Peru (see Chapters III, IV, and V). The decision to investigate a global topic such as the climate change discourse utilising a local example was based on the conviction that obtaining a local perspective on globalisation is perhaps the most positive and viable way to capture the overlaps that exist between the local and the global (García, 2008: 32).

## **1. The role of the international climate change discourse in local contexts**

Climate change is, euphemistically spoken, *en vogue*, not only in the scientific community but also in political agendas and society, since it is seen as one of the major problems facing humankind in our time. The assessment reports from the

*Intergovernmental Panel on Climate Change* (IPCC) (especially the IPCC 2001, 2007, and 2014; for the Synthesis Reports, see Pachauri et al., 2014; Pachauri et al., 2007; Watson et al., 2001) are intensively discussed worldwide and influence political agendas at all spatial levels: International, national, regional, and even local. Thereby, the consequences that are expected to arise from climate change not only impede sustainable development, but are likely to aggravate efforts to reduce global poverty. In addition to cross-sectional integration of climate protection (mitigation) and adaptation, these issues are progressively being implemented in local-level projects through international development cooperation efforts and, more and more, through national initiatives, with the aim of reducing vulnerability and strengthening resilience and adaptive capacity.

As a consequence, current climate change related knowledge, deriving mainly from a natural science perspective, has by-and-by become – and is now claimed to be – global knowledge, implying a “universal authority” (Hulme & Mahony, 2010: 714). Within this process, the climate change discourse is communicated through diverse channels in an interconnected way, not only on or between the global and local levels, and consequently interpreted and re-embedded from various socio-cultural perspectives. This is then reflected in the transformation of adaptation models and strategies, as well as in local perceptions<sup>4</sup> and socio-cultural views. Therefore, even, “knowledge that is claimed by its producers to have universal authority is received and interpreted very differently in different political and cultural settings” (Hulme & Mahony, 2010: 714; see also Jasanoff, 2010; Long Martello & Jasanoff, 2004). Therefore, understanding the local or “situated” (Long Martello & Jasanoff, 2004: 15) perception of the global climate change discourse might help to illuminate the effects a dominant discourse has on its audience and the reasons for acceptance, adaptation, or resistance.

Despite an existing diversity of approaches, strategies, and tools, which take into consideration multiple aspects and levels, there have been very few investigations into the impacts of the international climate change discourse on the local level caused by the dominant climate discourse (see, for example, De Wit, 2011; Jennings, 2011; Tellmann, 2012; Weisser et al., 2014). The aim of this study is to take a step towards filling this gap by connecting the global climate change discourse and its prevailing power structures and place specific adaptations and perceptions in Peru.

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<sup>4</sup> Here, *local* means that each local case, embedded in its socio-cultural context, is individual.

## 2. Peru: Rationale for the selection of the case study location

In these past years the snow-covered peaks are changing. Formerly they appeared shining white but now they look *laramtata* (bluish in Aymara). I hear say that the snow covering the mountains will disappear and there will be water shortage. (Apolinario Ccama Mamani, 84 years old, Yanapata/Puno, Peru; PRATEC, 2009: 16)

This quotation and the one from Chumbivilcas at the beginning of the introduction, though from members of two different cultures of the Southern Peruvian Andes, Quechua and Aymara reveal that people of the region talk about climate change and the reasons for its existence and its processes. In 2008, Peru established the Ministry of Environment (MINAM). With the establishment of MINAM, the topic of climate change, which had formerly been highly fragmenting institutional-wise, was bundled and for the first time gained political influence, including being integrated into decision-making for implementation. From this date forward, Peru developed its political climate change framework; strong efforts have been made to integrate, mainstream, and thus institutionalise the issue of climate change. This resulted in the creation of a legal policy framework at the national level and in on-going regional processes – like the legal framework of the regional government of Cusco – as well as at the local level (see Chapters IV and V). Peru has a huge number of climate-related projects and programmes that are being implemented by international development cooperation organisations, (inter)national NGOs, and governmental institutions. They address topics like climate change adaptation and reduction of vulnerabilities at the national and local level, especially in rural communities. In this context, climate change is now seen as an almost integral part of national development politics and processes and, hence, as an important issue to address the alleviation of poverty.

The climatic conditions in Peru are very diverse – ranging from coastal desert to mountains with altitudes of 6,000 meters and above to tropical lowlands – and climatic extremes and high variability are not new phenomena in Peru (see Chapter IV). Pre-Columbian cultures already possessed an elaborated knowledge of climate and sky constellations, as well as interpretations regarding changing flora and fauna (cf. Gallardo, 2009: 15). This knowledge has always been essential for survival under the prevailing climatic conditions. Although the population has been living with climatic extremes for centuries, in the last 30-40 years, the population in rural areas in particular have been increasingly reporting changing and intensifying extreme weather events (Gallardo, 2009: 15; PRATEC, 2009: 8; own research). Due to its diversity, these experiences of the impacts of global climate change are highly dependent on location: in some areas temperatures and precipitation are rising, while in others, a decrease can be observed (cf. Gallardo, 2009: 13; PRATEC, 2009: 6; see Chapter V). In addition, cultivation zones are

changing, with consequences for the food production that is essential for the survival of primarily rural inhabitants:

We have the feeling that climate is ever different with each year. Plants from places of the coastal area, that we have not seen before like avocado, are now planted and after a few years is already giving fruit. (Manuel Huatay, Department of Cajamarca; PRATEC, 2009: 22)

The changing distribution of certain fruits and vegetables also has broader social implications, as PRATEC (*Proyecto Andino de Tecnologías Campesinas*) in its report *Climate Change in Andean Communities: Facts, Perceptions and Indigenous Adaptations* demonstrated, using the example of maize cultivation in the Andes: “The adaptation has had consequences because the herders of the upper ranges of the intermediate zone, now also cultivate maize and do not visit the Quechua zone to exchange as they used to” (PRATEC, 2009: 6). Furthermore, through the spread of field crops into regions where this was previously difficult or even impossible, pasture areas are becoming increasingly scarce.

The population in rural mountain areas, which is often politically and economically marginalised, depend on natural resources that are sensitive towards climatic changes, due to their engagement mainly in the primary sector (Macchi et al., 2011: 3). In contrast, the residents of cities seem to be less vulnerable to ecological changes caused by climate change, which is because they have better access to markets, healthcare, and education in general, and thus have greater resilience against the impacts of climate change (Kronik & Verner, 2010: 150). Here too, however, consequences of a changing climate are becoming evident, such as the rising demand for resources in the cities of the arid coastal areas of Peru, caused by population growth through migration from rural areas towards the cities. Due to the already continuous decline of glaciated areas, and thus available freshwater, securing the water and energy supply is an increasing challenge (Kerres, 2010: 4).

In Peru, on the one hand, processes of a changing climate and of the international climate change discourse can be seen, resulting in impacts on the physical (i.e. shortage of food, electricity, and water), political (i.e. establishment of MINAM and the development and implementation of projects), and social spheres (i.e. changes in local trading systems). Further, as has been shown in the quotations, information on climate change processes reaches localities in urban and rural Peru. This information is transferred through various channels and is politically and socio-culturally appropriated, adapted, and embedded by different actors at various spatial levels. It is because of this background and setting that the Southern Peruvian Andes were selected for the case study.

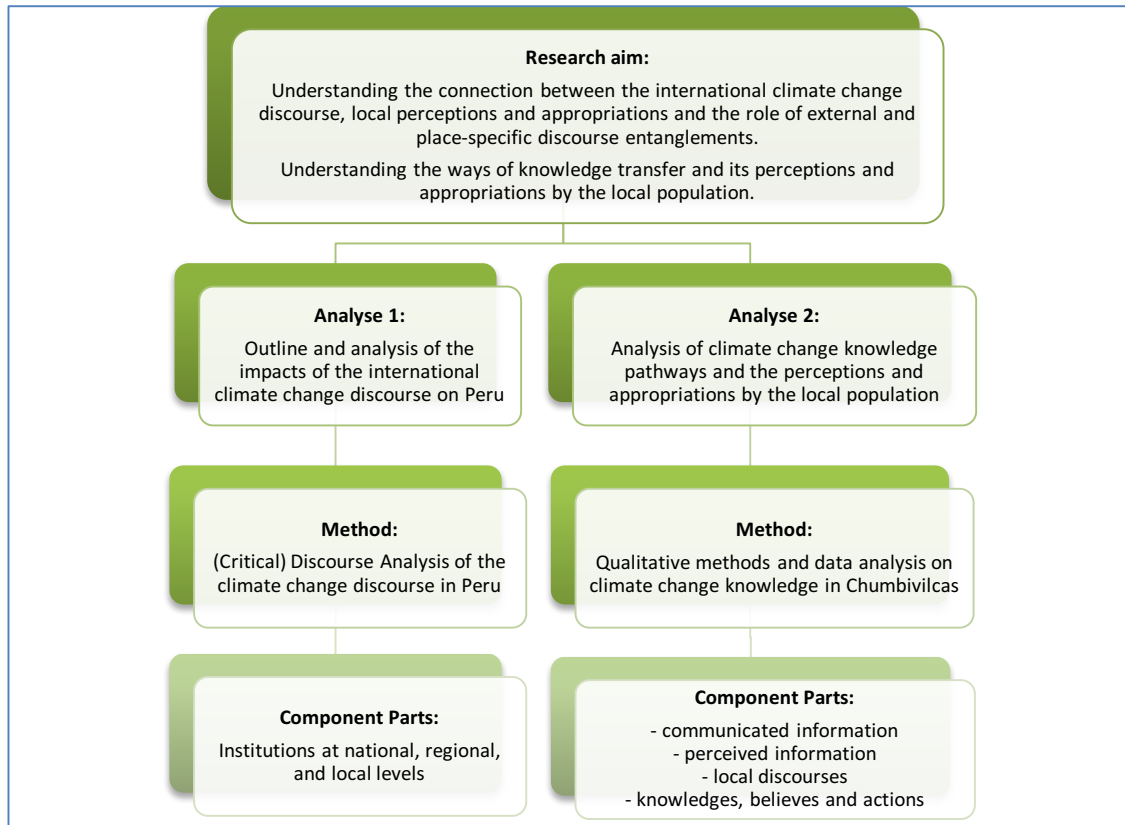


In the life world of the peasant folks, the climatic alterations arise because there is disharmony between humans and their environment, and neglect of the most powerful *parajes* [Quechua], the protecting deities that shelter the communities. (Balvino Zevallos, Lircay/Huancavelica, Peru; PRATEC, 2009: 47)

This citation shows one interpretation of climate change from the Peruvian Andes. How exactly the information is embedded into the processes, discourses, and worldviews in Chumbivilcas, Peru; which adaptation and transformation processes arise from it; and in which way the international climate discourse; the national, regional, and local governments; and international development cooperation and national development processes correlate with local processes, are important questions for this study. As Postigo (2013: 181) points out, in this context, the responses of the rural population and regional government to these processes do not always coincide, and that in some cases they seem unrelated or even contradictory. Furthermore, he declares that the interrelationship between these responses has been little investigated. One of the tasks of this work will be to fill this gap.

### 3. Analytical Framework

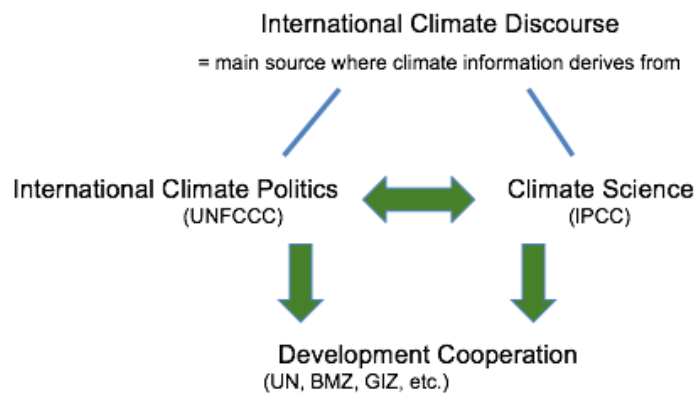
The analytical framework of this study was designed to address the outlined research aims and questions above, and is presented in Figure 1 below. To be able to address the two main research aims, the analysis follows two axes. The first axis of analysis elaborates upon and analyses the evolution of the topic of climate change within public politics and Peru's policy framework utilising a *Critical Discourse Analysis* approach (see Chapters II, 1.0 and III, 4.2). In this context, the impacts of the international climate change discourse in Peru will be emphasised, with a focus on political, social, and scientific institutions at the national, regional, and local levels. The second axis utilises qualitative research methods and data analysis techniques to look at climate change knowledge pathways, perceptions, and adaptations in Chumbivilcas, focused specifically on communicated and perceived information. It also takes local discourses, knowledge, beliefs, and actions into account, and thus reflects discourse entanglements at the local level.



**Figure 1: Analytical framework**

Source: Own design

The *United Nations Framework Convention on Climate Change* (UNFCCC), the result of international climate change negotiations, and the IPCC assessment reports are considered to be a starting point and the core of the current international climate change discourse (see Figure 2). Here, national governments are cross-linked through the climate framework convention signed during the UNFCCC negotiations and, thus, take part in international political processes related to climate change. Additionally, medias and existing policies and tools are important parts of the discourse. Further, international development cooperation and the work of NGOs have been deeply impacted by the international climate change discourse and are considered to be one of the main actors for communication about, and therefore transference of, the global climate change concept, especially to rural areas of the Global South (see Figure 2). The framework for the qualitative empirical research is outlined in more detail in Chapter III.



**Figure 2: Interrelations of the international climate change discourse**

Source: Own design

#### 4. Outline of the Study

The study is organised into six main-chapters: I. Introduction, II. Theoretical framework, III. Research framework and methodological approach, IV. Climate change and its discourse in Peru, V. Climate change at the local level in Chumbivilcas, and VI. Conclusion. As described above, the work is divided into two main sections, with an emphasis on the second: 1) An illustration of the development and state of the international climate change discourse and its impacts on development cooperation (Chapter II) and 2) an example case study in Peru, outlining an analysis of climate change processes at the national (Peru) and regional level (Chumbivilcas Province) (Chapter III, IV, and V).

Chapter II starts with an outline of the theoretical framework the research is based on: The *Critical Discourse Analysis*. It then outlines and defines the international climate change discourse for this work. Then there is a brief historical outline of the politicisation process of climate change; a discussion on how and why climate change has become global, common knowledge; and information on the state of today's international climate change discourse, all of which will show how human-induced climate change became a, "travelling idea", which is, "made 'local' by a multitude of actors in a diversity of sites all over the world" (Weisser et al., 2014: 112). Then the interface of the discourse with international (development) cooperation efforts and the adaptation of the climate change discourse by its actors, and thus, the reification of existing power structures will be outlined, presenting a discourse entanglement. In the last section of Chapter II, the communication and translation of information about climate change from the "global" to "local" level and *vice versa*, will be dealt with.

Chapter III describes the research framework and methodological approach of the empirical case study, which is based on qualitative, empirical ethnographic research in the Peruvian Andes. The main objective of the case study is to analyse and thus reveal the socio-cultural perceptions, adaptations, and reinterpretations of the international climate change discourse, and its impacts on, and entanglements with, local discourses and local adaptation processes. Thus, the chapter summaries how the research was developed, and the criteria for the selection of the research site and the local cooperation partner, the NGO CADEP-JMA. Then it describes the levels of intervention of my research at the macro-, the meso-, and the micro-level in Peru, and presents the data sources I worked with, along with my underlying assumptions, specific research questions, and the methods employed for the fieldwork that was carried out. This section provides a detailed description of how I defined and implemented the participant observation method within this research and how I worked locally with ethnographic, semi-structured focused and expert interviews, thematic workshops, and a focus group discussion. The chapter closes with a description of the data analysis that followed a *Grounded Theory* approach. For the interviews, a qualitative data analysis was conducted utilising the software programme MAXQDA.

Chapter IV presents an analysis of the national climate change discourse in Peru and the regional climate change discourse in Cusco. In this context, in the first part, the chapter provides an overview on the climatic conditions, the current state of climate predictions, and already perceived climate change impacts in the Southern Peruvian Andes. Moreover, it outlines an elaboration of the evolution of the climate change discourse within public politics and Peru's policy framework, taking into account interrelations with the international level and the public in Peru. Here, it is demonstrated how the international climate change discourse has impacted the national politics in Peru and how the country fully took on and assimilated the discourse, though limited to Lima and other big cities in Peru. Then, the focus shifts to the current state of Peruvian science regarding climate change aspects and their observations on the country's climate change processes. Finally, Chapter IV concludes with a regional example of how the climate change discourse impacted Cusco's political processes, showing the integration of the topic within regional development and policy frameworks. Starting with a description of the physio-geographical and socio-demographic conditions of the region, it then explores the political processes related to the topic of climate change in the region, explaining the elaboration process and the conceptual framework of the Regional Strategy on Climate Change Cusco. Overall, the chapter provides a visualisation of how a process of a discourse development and adaptation can look and the processes that can emerge along with the discourse, like the (trans)formation of

new institutions; the creation and adaptation of new terms, definitions, and concepts; and a shift of power within or between institutions, demonstrating the force of the discourse.

Chapter V presents the analysis of the empirical research in Chumbivilcas, and is the core chapter of this work. The chapter illustrates how local circumstances and realities influence the way a global discourse like the international climate change discourse is perceived locally and thus adopted and/or rejected. The chapter starts with an outline of the local settings, both physio-geographic and socio-demographic, and then looks at local livelihoods and local culture, providing the background into which the incoming discourse enters. Next, the chapter focuses on the topic of climate change, developing an analysis of the climate change pathways, actors, local knowledge and opinions in regards to climate change, and adaptations to climate change implemented. The last part of this chapter shows the role local socio-cultural aspects and prevailing discourses can play, and how this results in discourse entanglements. Here, the aspects of worldviews, knowledge systems, and the validity of knowledge plays an important role. In the case of Chumbivilcas, this chapter reveals that climate change appears, on the one hand, as a post-colonial discourse, reinforcing already established local socio-cultural and power structures, and, on the other hand, to have been appropriated by the population. Chapter VI provides a conclusion and explores implications of this work.

## II. Theoretical framework: From discourse analysis and discourse impacts – the international climate change discourse

### 1. Discourses: What we are talking about

Nous sommes convaincus, nous savons que tout parle dans une culture.

We are convinced, we know that everything in a culture speaks.

(Foucault, 1994: 621; own translation)

Talking about the climate change discourse requires at least an introduction to what is understood to be a discourse and what it implies, to be able to show its underlying dynamics and impacts. The theoretical debate about discourses is strongly influenced by the work of the French philosopher Michel Foucault. Many studies have been done that have further developed his discourse theory and the concomitant methodological approach. Thus, studies especially interested in discourse-society relations, focusing on the examination of the reproduction and abuse of power are deriving, *inter alia*, from the *Critical Discourse Analysis* (see e.g. Chouliaraki & Fairclough, 1999; Fairclough & Wodak, 1997; Fairclough, 1989, 1995, 2001, 2003; Jäger, 2001, 2012; Keller, Hirsland, Schneider, & Viehöfer, 2011; Link, 1983; Van Dijk, 1993; Wodak & Ludwig, 1999; Wodak, 1996), a theoretical frame that is very useful as a basis for the following analysis.

Following Foucault, discourse is a certain linguistic materiality that is institutionalised through a social way of speaking (Jung, 2006: 33). Thus, discourse is produced by social practices together with a constitution of knowledge and meaning with built-in power and resistance effects (Foucault, 1988: 74; Keller, 2004: 45; Weedon, 1987: 108). This means that "discourse" in comparison to "discussion" has the ability to create reality (Glasze & Mattissek, 2009: 12; Keller et al., 2006: 13). A discourse develops power effects by connecting an institutionalised way of speaking with actions that are assumed to be the driver for social change. Here, power is not equated with "naked force" and "physical coercion" (Hannigan, 2006: 53), but it is shaped by a process of socialisation. In the end, according to Hannigan (2006: 53), the result of a discourse is more effective because it is based on an internalised approval, which for Hannigan is crucial because it is the moment when a discourse becomes of vital relevance. Thus, Hannigan (2006: 36), focusing on his work on environmental discourses, describes discourse as, "an interrelated set of 'story-lines' that interprets the world around us and that becomes deeply embedded in societal institutions, agendas and knowledge claims." Based on the work of Gelcich et al. (2005: 379, in Hannigan, 2006: 36), these story-lines exert a triple

mission: 1) To create meaning and to validate action, 2) to mobilise action, and 3) to define alternatives.

One of the core points of discourse theory is the *power-knowledge-complex*. It is understood that discourses exert power because they “transport” knowledge (Jäger, 2012: 38). Knowledge is the basis for action as well as the formation of reality. However, knowledge, in this context, is not considered to be a pure reflection of reality. Rather, what is currently regarded as truth is the result of struggles and negotiation processes between different knowledge systems, implying an execution of power (Cannon & Müller-Mahn, 2010: 631). The above-described process of social control is the reason why institutions are able to obtain so much power, more precisely, through the integration of individuals into social relations of dominance, which happens, for example, under the label of “discipline” (Hannigan, 2006: 53). Here, these individuals become “experts” who are legitimising their actions through their “scientific and technical forms of discourse” (Hannigan, 2006: 54), meaning that this specific knowledge provides them with a (institutionalised) form of power. In this regard, “development or climate policy do not simply happen as a reaction of policy makers to newly emerging problems, or because new facts are becoming available. Rather they are brought about because certain types of knowledge, perceptions, awareness, interests and values are negotiated and become powerful in public discourses” (Cannon & Müller-Mahn, 2010: 630). Thus, discourses are social practices and processes that are reproducing or transforming the society with their own structures and, within this process, creating reality themselves (Foucault, 1971: 51). Discourses are formed by powerful groups of actors from different functional systems, such as politics, science, and the media (Van Dijk, 2003: 87). Within this process, these groups interact and are connected with each other through existing controversies, each of them striving to gain the upper hand over the other parties, which Foucault (1971: 20) argues is based on the tendency of our society towards the “will to truth,” provoking the desire to exercise pressure and power of constraint over others. Moreover, different receptions and processing patterns of communication underlie functional systems, each according to their respective communication risks, such as a loss of credibility or legitimacy (Conrad, 2010: 110). Accordingly, and as also outlined by Weisser et al. (2014), adaptation to climate change is not just a rational response to meteorological parameters and/or a changing physical environment, but is mainly influenced and promoted by discourses derived from this phenomenon and is, therefore, “the outcome [...] of complicated negotiations processes” (Weisser et al., 2014: 112). For this reason, enhanced social scientific studies on the climate change discourse, “may help us to understand why certain issues are handled the way they are” (Cannon & Müller-Mahn, 2010: 631).

Based on these assumptions of critical discourse analysts, the question is, how could today's climate (change) knowledge become global, common knowledge? Thus, the following chapter deals with the question of how climate knowledge became global, common knowledge, but did not automatically lead to an implementation of the knowledge, which is an important part of the research question and empirical example.

## **1.1 Discourse and climate change**

Research on recent climate change was initially dominated by the natural sciences. The need to supplement natural science research on climate change with social science research on climate change was grounded primarily by the fact that people and societies themselves are the driving force of, and at the same time impacted by, climate change. For example, "from an anthropological perspective, climate change is ultimately about culture, for in its wake, more and more of the intimate human-environment relations, integral to the world's cultural diversity, lose place" (Crate & Nuttall, 2009: 12). Thus, in addition to considering economic aspects of climate change, such as the costs incurred for mitigation and adaptation measures, socio-cultural patterns and coping strategies were eventually regarded as relevant, too. While in the area of climate protection, social science research has been carried out for a longer time (c.f. Voss, 2010: 10), research in the area of interdisciplinary climate application and adaptation research only gained in importance in the last ten to fifteen years (c.f. Crate & Nuttall, 2009: 394f; Roncoli et al., 2009: 87). Here, social and cultural scientists have been working on topics like the interconnections between "the global" and "the local" and the relationships between environment, politics, economy, society, culture, and human behaviour, thus using the skill of translation (Crate & Nuttall, 2009: 395f) and revealing and capturing underlying dynamics and layers of cultural meaning and social practices (Roncoli et al., 2009: 87). Based on the belief that, "the climate science world and social worlds are not separate but integral" (Crate, 2011: 185), many scholars argue in favour of future research that enhances integrated research and practices that are multi- and interdisciplinary and involve various actors (Crate, 2011: 176).

In this context, due to the global outreach of the on-going climate change discussions and its impacts in recent years, the climate change discourse has become a focal point in research and has thus resulted in a huge output of articles and books that consider a number of varying aspects of the topic. Thus, volumes that compile articles have increasingly been published, such as a cross-section on socio-political aspects of climate change provided by *The Oxford Handbook of Climate Change and Society* (Dryzek et al., 2011); knowledge and discourses that especially look at power, like in *The Social Construction of Climate Change* (Pattenger, 2007); or volumes combining



aspects of local facets with the global climate change, such as *Grounding Global Climate Change – Contribution from the Social and Cultural Science* (Greschke & Tischler, 2015), *Local Climate Change and Society* (Salih, 2013), and *Anthropology & Climate Change* (Crate & Nuttall, 2009).

Within the research literature, several studies focus on the emergence of the international climate regime – nation states framed under the umbrella of the *United Nations Framework Convention on Climate Change* (UNFCCC) and “non-state actors” such as networks of experts, environmentalists, and multinational corporations (Biermann, 2011: 686). Others focus on climate governance and the politicisation of climate (Abbott, 2013; Bäckstrand & Lövbrand, 2007; Bernauer & Schaffer, 2010; Biermann, 2011; Burnell, 2012; Cadman, 2013; Weart, 2011) and the role of science, politics, and the media (Viehöver, 2011; Weingart et al., 2008; see next sub-chapter, Chapter II, 2.). While Agrawala (1998a, 1998b), Conrad (2010), and Passoth (2010) consider the institutional context and aspects of climate discourse dynamics, others like Diemberger et al. (2012), Griggs & Kestin (2011), Hulme & Mahony (2010), Nerlich et al. (2010), Schenk & Lensink (2007), Whitmarsh (2008), and Zehr (2010) analyse the importance and role of science in the formation of the climate discourse, science-policy interactions, and the communication and perception of climate information.

While Methmann (2011) outlines the involvement of NGOs within climate politics, demonstrating that NGOs can be both producers and products of hegemonic discourses, and are, therefore, closely interwoven with authority in the international arena, Arnali & Kothari (2015), De Wit (2011), Isaksen & Stokke (2014), Jennings (2011), Lo (2016), Popke et al. (2016), Tellmann (2012), and Weisser et al. (2014) analyse local perceptions and concrete impacts of the international climate change discourse and discursive aspects, such as adaptation by localities. The studies show various interpretations of the climate change discourse and its exploitation for economic and political reasons. In this context, Arnali & Kothari (2015) use the Maldives as an example to distinguish elite and non-elite perceptions of climate change, related to the awareness of urgency and crisis. De Wit (2011), taking the example of the global climate change discourse impacting localities in Cameroon, reveals how discursive practices can lead to social transformations, as well as to new configurations of power, and additionally shows how people in Africa not only adapt to a changing climate but also to a changing discourse on climate change. Isaksen & Stokke (2014) identify three main climate discourses in India: The Third World, Win-Win, and Radical Green discourses, which are based on different constructions of identity, interests, policy orientations, and climate change exposure. Jennings (2011), using a case study of the 2004 Boscawen Harbour flood in North Cornwall, England, examines the way in which adaptation and

resilience function within a neo-liberal state and reveals the underlying aim of shifting the responsibility for social and environmental problems to the individual. Lo (2016) identifies four distinctive public discourses in Hong Kong: Pure Environmentalism, Political Pragmatism, Popular Optimism, and Fair Rationalism, while Tellmann (2012) identifies three knowledge-based discourses within the Norwegian climate policy from 1989 until 2008: Tax, Quota, and Technology. An evaluation of the three discursive frameworks – adaptation, resilience, and vulnerability – and how they address climate change is conducted by Popke et al. (2016), using the example of agricultural transformation in Jamaica. Weisser et al. (2014) show that African farmers, politicians, and government officials more often respond to the newly introduced climate change adaptation discourse than to directly felt impacts caused by a changing climate, based on empirical research conducted in three East African countries.

Concepts used in the context of climate change like adaptation or vulnerability, which are mainly discussed in correlation with development questions, can be found in the works of Adger et al. (2004), Adger (2006), Cannon & Müller-Mahn (2010), Dietz (2006), Horstmann (2008), Iro (2012), Orlove (2009b), and Schipper (2007). Whereas Adger (2006) reviews research traditions of vulnerability to environmental change, such as climate change, and further analyses the challenges for vulnerability research in the context of areas of resilience and adaptation, Adger et al. (2004) explore vulnerability indicators, showing that national level adaptive capacity is dependent on social infrastructure and the accountability of institutions rather than on the level of economic activity. Cannon & Müller-Mahn (2010) use climate change adaptation to demonstrate how the climate change discourse impacts the way in which development is conceptualised, negotiated, and implemented. Dietz (2006) looks into the historical evolution of conceptual and policy discourses on adaptation and vulnerability, and Horstmann (2008) reveals the characteristics of adaptation and its challenges for institution building. Though Iro (2012) uses the example of German development assistance to identify the implications of climate change adaptation for development policy and practice, Schipper (2007) explores the linkages between climate change adaptation and development. Taking different perspectives, Orlove (2009b) reveals how governments and other agencies dealing with climate change use adaptation and discusses the values inherent in that. He also argues that the term serves the international and intermediary community<sup>5</sup> rather than the local communities, who directly feel the impacts of climate change.

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<sup>5</sup> Orlove (2009b: 148) uses the term „intermediates“ for organisations that are working at local and within the international level and are thus acting as entities that are linking the international and local levels.

Interrelations between climate change, society, and local knowledge are investigated with a focus on local impacts and perceptions of climate change (Carey, 2010; Dinero, 2011; Macchi et al., 2011; Mazur et al., 2013; Nuttall, 2010; Piersall & Halvorson, 2014; PRATEC, 2009; Rhoades et al., 2008) and on local climate change adaptation and/or vulnerability (Brondizio & Moran, 2008; Iwanciw et al., 2006; Orlove, 2009a; Roncoli, 2006; Tarnoczi, 2011; Valdivia Corrales et al., 2012; Vidaurre de Mulczyk, 2016). Thus, in the context of local impacts and climate change perceptions, Carey (2010) uses the example of the glacial lake outburst floods and glacier avalanches that have killed more than 25,000 people in Peru's Cordillera Blanca Mountain Range since 1941 and shows how it impacted the local population, and further shows how people have dealt with the impacts of climate change and resultant natural disasters. Based on a case study from an indigenous group in the Arctic, Dinero (2011) illustrates the relationship between climate change and livelihood behaviours of the Nets'aiti Gwich'in Community, while Macchi et al. (2011) demonstrate how climate change is affecting subsistence behaviours of the inhabitants living in the Himalayas, using the results of four case studies from Northwest India, Nepal, Bhutan, and Northeast India. Mazur et al. (2013) identify contradictory portrayals of predicted climate change impacts and illustrate the links between knowledge, beliefs, and risk perception as well as adaptations to climate change of farmers in Southeastern Australia. Nuttall (2010) argues, using the example of Greenland, that understanding local perceptions and responses to environmental and thus climatic changes also requires an understanding of the social and cultural context of anticipation. Piersall and Halvorson (2014) outline the local perceptions of, and relationships to, glaciers in the At-Bashy Range of Kyrgyzstan's Tien Shan Mountains, demonstrating contradictory opinions in regards to glacial retreat-related vulnerabilities and impacts. Climate change perceptions and forms of adaptation in Andean communities is compiled by PRATEC (2009), while Rhoades et al. (2008) documented the local perceptions and societal implications of climate change in the context of glacier retreat and water availability of the Cotacachi Volcano in Ecuador. Brondizio and Moran (2008) place a bigger emphasis on climate change adaptation and/or vulnerability, analysing vulnerability and adaptation of farmers in the Amazon, while Iwanciw et al. (2006) use the example of the Lake Titicaca and Cruceños Valleys in Bolivia to illustrate vulnerability and modes of adaptation of the local population. Orlove (2009a) revises the limits of human adaptation to climate change, using the example of glacier retreat worldwide, and Roncoli (2006) synthesises the responses of farmers to climate predictions and, thus, explores their adaptive strategies in the context of ethnographic and participatory approaches. Transformative learning and adaptation to climate change in the Canadian Prairie agro-ecosystem is investigated by Tarnoczi (2011), dividing the

learning into three categories: The instrumental, communicative, and transformative, and Valdivia Corrales et al. (2012) illuminate the challenges of adaptation to climate change in High Andean rural communities from different angles of emphasis. Vidaurre de Mulczyk (2016) looks into the understanding of adaptive capacity to social and climate change in two rural communities depending upon agriculture and local resources in Bolivia, focusing, *inter alia*, on the role of existing social networks in coping with socio-economic conflicts and impacts of extreme weather events. Further work in this framework deals more specifically with local, traditional, and indigenous climate (change) knowledge (Kpadonou et al., 2012; Kronik & Verner, 2010; Orlove et al., 2009; Raygorodetsky, 2011; Watson & Huntington, 2014). Taking the example of the Ouémé Valley in Benin, Kpadonou et al. (2012) illustrate the local dimension of climate change adaptation in the context of local knowledge in adaptation planning. While Kronik and Verner (2010) address the role of indigenous people's knowledge in Latin America in regards to climate change adaptation and mitigation works, Orlove et al. (2009) examine four factors of indigenous knowledge of farmers in southern Uganda and show the relationships between them. Raygorodetsky (2011) calls for a role for traditional knowledge in the global climate discourse, whereas Watson and Huntington (2014), using a story told by native elders from tribes across Alaska about "the man on the moon," call researchers to instead become engaged with non-Enlightenment intellectual traditions and to not use indigenous wisdom as a mere source of data to productively include the knowledge in sustainable policy agendas on climate change adaptation.

This is just a small selection of the existing literature on the wider topic of the international climate change discourse and its affiliated topics. Some of the authors and aspects will be looked at in more depth in the following sub-chapters dealing with the international climate change discourse, its emergence and politicisation process, the role of development cooperation, the global-local nexus, and the question of how, in this setting, climate change could become global knowledge.

Prior to moving ahead to that thought, I would like to briefly turn to some basic aspects that arise when using a "discursive lens" as a research approach. As outlined by Pettenger (2007: 8ff) and others, the discourse analytical perspective belongs to the constructivist approach. This means, in general, that, "any 'objective' knowledge that we have about our world is necessarily contingent, that is, it will invariably be 'historically and culturally specific, provisional and potentially always vulnerable to challenge and change' " (Eckersley 2004: 123f, in Hannigan, 2006: 34). For academics like Eckersley (2004: 124), "this does not mean that there is no nature beyond the nature that we have socially constructed" (Hannigan, 2006: 34), but that there is not ONE or THE right form

to understand reality. In the end, it rather, “simply acknowledges that we don’t have any *shared* access to this reality other than through discourse” (Eckersley, 2004: 123).

Discourse analysts have been criticised for a number of reasons. Taking the environmental discourse as an example, Hannigan (2006: 36) notes that such critiques have primarily fallen into two categories. The first is that discourse analysts mainly look at the world through the discursive lens and that they exclude other analytical angles such as institutional practices and institutions themselves. Hannigan (Hannigan, 2006: 36) notes that, “discourses are by no means the only determinant of social life,” and should rather be considered as one of many existing lenses. The second critique, in conjunction with this point, is that some discourse analysts would *ONLY* perceive the environment through discursive language, which would lead to the notion that the environment and world are just the result of discourses. However, as further pointed out by Hannigan, a more moderate form exists; “that the environment as it exists in the public policy sphere is the product of discourse about nature established by scientific disciplines such as biology and ecology, government agencies, bestselling books [...], and the messages disseminated by environment activists” (Hannigan, 2006: 36).

Based on these assumptions, I would like to emphasise that the subsequent work is not declaring that global climate change is only constructed and is therefore not “real.” The following will outline that the reason for why this topic is now being widely discussed – whether good or bad – is not a purely natural reaction to global climate change, but the outcome of discursive struggles where both the proponents and the beneficiaries of global climate change have won the upper hand, at least at the moment. In this sense, this work steps into the shoes of those who, “seek [...] to uncover how shared meanings are privileged or marginalized in social settings” (Pettenger, 2007: 10), and points out, “that we need to look more closely at the social, political and cultural processes by which certain environmental [and climatic] conditions are defined as unacceptably risky, and therefore, contributory to the creation of perceived ‘state of crisis’” (Hannigan, 2006: 29).

Finally, in taking the “discursive lens,” I am aware that this is also part of a discourse and is a decision that should also be treated, as such, as a “political” one (Zehfuss 2002: 246, in Pettenger, 2007: 8). This aspect has been kept in mind while interpreting the research results, which I tried to develop combining an attentive and, at the same time, sceptical point of view on the different viewpoints and aspects. The experiences and results from the empirical research have shown, however, that revealing the underlying processes of power and interests is an important step in understanding why discourses like the international climate change discourse have been able to reach most of the world within a few decades, even achieving the state of becoming global, common knowledge, and further how the discourse is appropriated and integrated by local

discourses serving, in many cases, to support or maintain prevailing power structures. In this context, a local ethnography can serve as a useful corrective to balance general objections to global discourses, which tend to operate at such a high level of abstraction that the subaltern discursive victims of alleged injustices, ironically, are far beyond the analytical horizon (García, 2008: 32).

## 2. The international climate change discourse

Looking back in history, dealing with changing climatic conditions or natural extreme events is of course not new for human societies. It is even assumed that over time, several civilisations collapsed in conjunction with extreme climatic events, such as the Maya in Central America or the Moche along the Peruvian coast (c.f. Bawden, 1996; Grube, 2000). The linkage between climate and humans has been of interest to researchers for at least centuries. For example, in Greece, Hippocrates wrote about a possible effect of climate on human psychology and physiology already around 400 BC (Von Storch & Stehr, 1997: 66). During the Enlightenment, English, French, and German intellectuals, in particular, discussed this topic further. Additionally, during the 18<sup>th</sup> century, the connection between the possible impact of human action, like de- or even reforestation, and climate variability and changing (micro)climates became a topic of concern within science, especially in North America. Moving into the 19<sup>th</sup> century, European and Australian academics also began addressing quite similar concerns to those of the current debate on human-induced climate change, always with the counter-pole of those advancing the view of natural reasons for climate variability (see Hastrup, 2013; Von Storch & Stehr, 1997). However, today's discussion and globally growing public perception and concern about global, human-induced climate change is based on the evolution of the topic in the last century; first within science, and later in politics and in the media (Etkin & Ho, 2007; Viehöver, 2011; Weart, 2011; Weingart et al., 2008). This was, according to Long Martello and Jasanoff (2004: 3), only possible because of the, "willingness to seek global solutions." But, how did this come about? Where did the, "willingness to seek global solutions," in the late 20<sup>th</sup> century arise, especially in contrast to the processes of the 18<sup>th</sup> and 19<sup>th</sup> centuries, when climate change did not end up becoming a global discourse?

Based on what has been outlined in the previous chapter, Bäckstrand and Lövbrand (2007: 125) identified the underlying discourses of climate governance, looking at four main characteristics the discourses share: 1) A shared meaning of phenomena (e.g. global climate change); 2) an embeddedness in power relations implying "knowledge regimes" (e.g. IPCC in 1988); 3) an institutionalisation (e.g. UNFCCC in 1992, or the

national *Ministry of Environment* in Peru in 2008); and 4) a discursive agent (e.g. science or international development cooperation). As a consequences of this coming about, people, media, and societies attach more attention and importance to a topic. Viehöver (2011: 671) explains the reasons behind the shift and the growing attention towards global climate change as stemming from demanding socio-historic conditions that are linked with changing relationships between science, politics, and the public media. So, “which issues are defined as meriting the world's attention has everything to do with who has power and resources, including scientific ones, to press for them” (Long Martello & Jasanoff, 2004: 5). Taking this into account, we can see that institutions like the UNFCCC and the IPCC do not come into being without a “causal story” (Viehöver 2011: 676). However, this prompts the question of, when did the international climate change discourse emerge and become common knowledge globally, and from where did the “willingness to seek global solutions” (Long Martello & Jasanoff, 2004: 3) in the late 20<sup>th</sup> century arise?

The “causal story” (Viehöver 2011: 676) of our contemporary international climate change discourse – the emergence and establishment of a global, common knowledge and the “willingness to seek global solutions” in the late 20<sup>th</sup> century – is mainly rooted in the entanglement of the environmental and climate change discourses at the end of the 1960s (Viehöver, 2012: 189). This is supported by the work of Bäckstrand and Lövbrand (2007: 124), who argue that the sub-discourses of the climate change discourse reflect central trends of global environmental governance. How this “causal story” evolved will be presented in the upcoming sub-chapter 2.2 (Chapter II), predicated on the politicisation process of the issue of climate change.

## **2.2 The politicisation of climate change and how climate change became global, common knowledge**

Even though the climate change discourse evolved alongside the environmental discourse, the first entanglement of the two discourses, as mentioned above, took place at the end of the 1960s (Viehöver, 2012: 189). Climate change, in this sense, is considered to be a result of misconduct with regard to the environment and a threat to the world society. Together with on-going urbanisation and industrialisation processes and rising, globally shared problems, such as the hole in the ozone; shrinking habitats, biodiversity loss; and first felt impacts of the changing climate, such as glaciers melting, a common assumption arose: That our (local) actions (can) have global impacts (Hannigan, 1995: 110ff; Weart, 2011: 68). This brought about the recognition that environmental problems can turn into global problems and do not stop at (national) boundaries. In this context, a demand for common environmental knowledge and

language was born, which then instigated an institutional change. In this regard, and strongly supported by science-based knowledge, a politicisation of climate (change) took place at the end of the 20<sup>th</sup> century, forming an international climate regime and introducing climate change as a part of the “global vocabulary” (Diemberger et al., 2012: 227).

Although the first ideas about human-induced climate change were already mentioned by the end of the 19<sup>th</sup> century by, amongst others, the Swedish scientist Arrhenius (1896), a broader public perception and discussion of climate change only took place in the 1970s. Being aware that, “each discourse is heterogeneous and thus is being constantly changed and redefined” (Bäckstrand & Lövbrand, 2007: 127), the evolution and growing importance of the climate change discourse, its “causal story,” and its politicisation process can be structured into four main phases, following the work of Viehöver (2011), Weart (2011), and Weingart et al. (2008).

The first phase (1970-1985) was characterised by assumptions made about the role and influences human activities had on the global climate and activities causing global warming, and by the search for scientific proof of climate change. While climate change became an increasingly important topic in the natural sciences, the public reacted rather in a reluctant way. Due to its vague and unpredictable consequences, the intention to advise and call for action in on-going environmental policy processes largely failed. As a result of extreme weather events that caused severe droughts in the American Midwest and provoked hunger crises in Africa (Weart, 2011: 70), however, the first (inter)national conferences were held, e.g. the *World Climate Conference* in 1979 in Geneva. Further, the international meeting held in Villach in 1985 strongly highlighted the importance of the interplay of the rate and degree of future warming and the far-reaching effects on governmental policies (Weart, 2011: 71). It was the time when, despite the slow on-going process of consensus building as a basis in science (Viehöver, 2011: 679), moral and symbolic arguments about a joint responsibility for our descendants joined the debate.

During the second phase (1986-1992), a public and political response emerged, mainly about how to defend against possible future disasters. Henceforth, some politicians took the results of climate science<sup>6</sup> – and thus the climate issue, more seriously, aiming to

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<sup>6</sup> *Inter alia*, the *Intergovernmental Panel on Climate Change* (IPCC), founded in 1988 and its Assessment Reports, the first one published in 1990.

Founded by the *World Meteorological Organization* (WMO) and the *United Nations Environmental Programme* (UNEP), the IPCC aims to provide, “the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts”

([www.ipcc.ch/organization/organization.shtml#UWLAAhNAiUM](http://www.ipcc.ch/organization/organization.shtml#UWLAAhNAiUM)) [accessed April 8, 2013]. Through its institutional embeddedness and its division into three working groups, the IPCC is formally a hybrid- or border-organisation that can be classified somewhere in between science and politics (Conrad, 2010: 102). It summarises the international state of knowledge and with its bi-annual status reports provides technical assistance for the international climate



prevent far-reaching, negative consequences. However, references to scientific statements mainly happened very selectively and was guided by the question of how the results could support and legitimate the statements of the politicians (Weingart et al., 2008: 74). At the international level, this period generated the foundation for the *UN Conference on Environment and Development*, also known as the first “Earth Summit” in Rio de Janeiro in 1992.<sup>7</sup> This was an important moment in the evolution of the entanglement of the discussions about the environment and climate, and the proliferation of the topics into public spaces, mainly driven by the media and non-governmental organisations.

The third phase (1992-2001) is when climate change moved from being just a political hypothesis to a topic of political regulations, which was followed by strong activism, building up a transnational climate regime. After the *Earth Summit*, anthropogenic climate change was mainly seen as part of a holistic problem of the socio-ecological world crisis, which, in turn, led to the question of how best to regulate it. Thus, the scientific hypothesis of anthropogenic climate change became more and more subject to political regulations and agenda setting (Weingart et al., 2008: 76). The emerging transnational climate regime was established with the aim of negotiating a reliable convention for the protection of the atmosphere (Viehöver, 2011: 682). This was carried out at the annual meetings of the *United Nations Framework Convention on Climate Change* (UNFCCC);<sup>8</sup> the *Conferences of the Parties* (COP), taking place annually since 1995; and is further based on the *IPCC Assessment Reports*. One of the most important outputs was the Kyoto-Protocol<sup>9</sup> in 1997, an amendment to the UNFCCC with the target of cutting and, thus, reducing CO<sub>2</sub> emissions worldwide. In this regard, one of the core

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negotiations, the *Conferences of the Parties* (COP), carried out every year by the *United Nations Framework Convention on Climate Change* (UNFCCC) (see below).

<sup>7</sup> The *United Nations Conference on Environment and Development* was held in June 1992 in Rio de Janeiro and is considered to be a milestone for a joint integration of environment and development efforts. Additionally, this Summit, set new international standards by involving civil society organisations in international processes. An important result of the Rio Conference was the creation of the UNFCCC. Since then, all member states (today 195 parties) meet annually at the UN climate conferences, the *Conferences of the Parties* (COP). From 20-22 June 2012, the Rio+20 Summit “UN Conference on Sustainable Development” was held in Brazil.

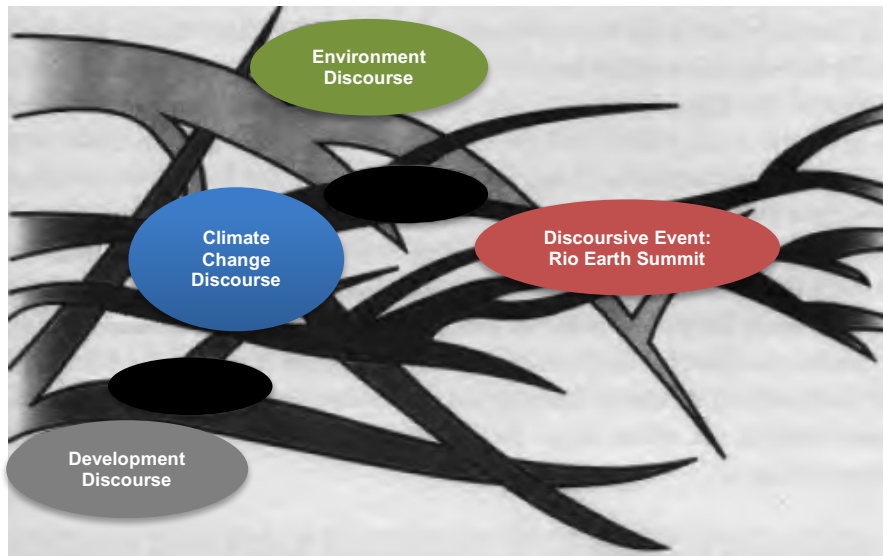
<sup>8</sup> The UNFCCC was founded in 1992 and came into force in 1994. It brings together 195 contracting states to negotiate climate change mitigation, global emissions reduction of greenhouse gases, and necessary adaptations. The UNFCCC can be considered the “heart” of global efforts to fight global warming. Its main aim is, “preventing ‘dangerous’ human interference with the climate system.” Thus, “the ultimate objective of the Convention is to stabilize greenhouse gas concentrations ‘at a level that would prevent dangerous anthropogenic (human-induced) interference with the climate system.’ It states that, “such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner.”  
([http://unfccc.int/essential\\_background/convention/items/6036.php](http://unfccc.int/essential_background/convention/items/6036.php)) [accessed May 18, 2015].

<sup>9</sup> The *Kyoto Protocol* was adopted at the third session during the COP3 in December 1997, and entered into force in 2005. It can be considered the operationalisation of the Convention. For 37 industrialised countries, the first commitment period of the emission reduction targets started in 2008 through 2012 and was then followed by the second commitment period from 2013-2020 under the *Doha Amendment* adopted at COP18  
([http://unfccc.int/essential\\_background/kyoto\\_protocol/items/6034.php](http://unfccc.int/essential_background/kyoto_protocol/items/6034.php)) [accessed May 18, 2015].

objectives was to urge the polluters to pay more, while trying to provide relief to poorer countries that were not responsible for the past emissions.

During the phase that followed (since 2001), a broad consensus has evolved in science but not in policy, which has resulted in a crisis of the international climate regime. Politicians increasingly started to take climate change into account, more and more projects dealing with climate change adaptation and mitigation emerged, and thus, a “hectic activism” (Weingart et al., 2008: 13) or *projectitis* took place. The media and public more or less accepted the approaching crisis of global warming. This process was supported by on-going worldwide events that showed the (first) impacts of a changing climate, like heat waves or the breaking-up of ice sheets, bringing fear of a quickly rising sea level. The predictions of the IPCC Assessment Reports in 2001 and 2007 showed that the initial forecasting of a global temperature increase for the late twenty-first century would probably be greatly exceeded (from 1.4°C up to 5.8°C) (Weart, 2011: 74). However, science-based models were (and are) still not accurate enough to make locally relevant predictions and global warming itself is not visible to most people. Though experts presented cheap “win-win”-possibilities to reduce emissions, powerful interests in economic and political spheres continued to block significant changes in policy regulations. In the end, “global warming never seemed as urgent as the latest economic or political crisis” (Weart, 2011: 77). This led to an international climate regime “crisis,” most visible in the “failure” of the COP15 that took place in 2009 in Copenhagen. Since then, the international climate regime has been working on finding ways out of the crisis, with the aim of achieving a legally binding climate agreement at the COP21 in 2015, *inter alia*. Major points of discussions in this “discursive struggle,” as identified by Bäckstrand and Lövbrand (2007: 124), included (and still include), “broader normative debates on North-South fairness, burden-sharing, poverty alleviation, participatory democracy and sustainable development in the making of future climate governance.” It was during this phase, therefore, that international development cooperation actors became more and more involved in the international climate change discourse, which will be looked at more closely in the following sub-chapter (Chapter II, 2.3).

Prior to that, however, and looking back at both the discourse theoretical approach and the historical evolution of the climate change discourse, the climate change discourse is displayed in Figure 3.



**Figure 3: Discourse entanglement: Discourse strands and discursive events**

Source: Modified figure based on Jäger, 2012: 81

Figure 3 shows how different discourse strands (e.g. the climate change discourse, the environmental discourse, and the development discourse), none of them being a closed unit, are interwoven with and influence each other, how borders shift and blur. Discourses are determined by discursive events, accompanied by increased media attention. Moreover, discursive events stimulate the intensity or direction of the discourse (Jäger, 2012: 80ff). A very good example of a discursive event, and which applies to all three discourses, would be the *Earth Summit* held in Rio in 1992.

To summarise, the formation of the international climate regime has certainly been a major (political) achievement, resulting in climate change knowledge becoming a common, global knowledge with almost universal authority (Hulme & Mahony, 2010: 714). Hence the communication of (scientific) climate information has become a crucial resource of institutional legitimacy (Viehöver, 2011: 687). Based on the assumption that localities are never isolated from regional, national, and global actions, structures and developments are thus part of the global (see Hastrup, 2013). It will be argued that today's international climate change discourse reinforces power structures and existing inequalities, leaving certain actors and places in disadvantageous or weaker positions. This will be shown by illustrating crucial points of knowledge transfer and demonstrating the force and power of the discourse.

### **2.3 The role of international development cooperation: A discourse entanglement**

Since the foundation of the UNFCCC in the early 1990s, climate change has been discussed in close combination with development questions (Román et al., 2012: 251), and has, thus, influenced more than just national environmental policies. Even though it can be stated that environmental change and the associated risks have been discussed in development cooperation since the *Earth Summit* in 1992 (GTZ, 2008b: 1), a significant amount of time passed before developmental issues found their way into the climate change discourse, and *vice versa* (Dietz, 2006: 42):

It was relatively late that developmental issues found their way into the international discussions on climate change, as well as vice versa, that one had to look closely, almost with a magnifying glass, to be able to find climate change as a specifically considered topic within development policy documents and programs of multilateral development agencies. (Dietz, 2006: 42; own translation)

Here, mainly evolving from engagement with adaptation (see Chapter II, 2.3.1) and primarily supported by the IPCC *Assessment Reports* and the *Stern Review* (Stern, 2006), climate change received a more prominent position within development cooperation over time (GTZ, 2008b: 1). The starting point was that global climate change implicated new requirements and challenges for development issues (Schipper, 2007: 2). Various reports (c.f. Adger et al., 2007; The World Bank, 2010; The World Bank et al., 2012; UNDP, 2008) showed that predicted risks and negative effects of climate change would especially hit regions and societies in the Global South. Amongst others, Adger et al. (2007: 12) indicated that indigenous or rural communities living in risk prone areas are notably classified as highly vulnerable, as they usually have low adaptive capacity and are more dependent on climate-sensitive resources. The *World Development Report* (The World Bank, 2010) pointed out that the expected consequences of climatic changes impede sustainable development and aggravate efforts to reduce poverty. Since then, climate change mitigation and adaptation measures have been progressively mainstreamed at various political levels and implemented via various programmes and projects with the aim of strengthening the resilience and adaptive capacity of local communities (see Chapter II, 2.3). Even though, for a long time barely anybody tried to enhance the connection between climate change and development in national policy-making processes, this seems to be changing:

There is a growing awareness that climate mitigation and adaptation efforts occasionally emerge as side effects of policies not explicitly related to global warming. As a result, policy makers all over the world are now gradually trying to integrate climate change considerations with other socio-economic development policies. (Román et al., 2012: 251)

Therefore, national policy agendas, together with specific development projects, increasingly include topics of climate change adaptation and mitigation that need to be

implemented as far down as the community level. As will be shown later on (see Chapter IV), this aspect holds true at the national and regional level in the case study in Peru.

In some literature it is pointed out that, in this context, one of the crucial points is the mixing of approaches, such as the often misunderstood nexus of vulnerability, climate change, and poverty (Dietz, 2006: 42), or that frequently used concepts, such as adaptation, resilience, and vulnerability, are often interpreted differently, though used in both the climate change discourse and approaches to development cooperation. In addition, the relationship between development and adaptation, and the role of adaptation in connection with the on-going development discourse (Schipper, 2007), for a long time remained largely unexplained. Thus, for a while there was (and still is) an important need to clarify the concepts and positions to be able to further develop the on-going discussions (Cannon & Müller-Mahn, 2010: 622, 626). In recent years, a lot has been done to advance these concepts, e.g. with the result that the broader definition on climate change *adaptation* of the IPCC has been transformed when compared to the former reports in the IPCC *Fifth Assessment Report* (AR5) of 2014. Thus, it is stated in a footnote of the report under the definition of *adaptation*: “Reflecting progress in science, this glossary entry differs in breadth and focus from the entry used in the Fourth Assessment Report and other IPCC reports” (Alfaro et al., 2014: 1758). Even though the clarification of the concepts is not of high relevance for, and therefore not part of, this study, I would like to go deeper into the aspect of climate change adaptation for two reasons: First of all because adaptation is the concept through which international organisations and intermediary organisations, mainly national NGOs, “meet” the local communities in the Global South, and secondly because it seems to be a term, to cite Ben Orlove (2009b: 131f) that, “serves the international and intermediary organisations far better than the local communities who feel the impacts most directly.” This is an example of how a discourse successfully evolves and manifests itself, being further shown by the creation and adoption of new terms, definitions, and concepts such as adaptation.

### 2.3.1 Reflections on the term adaptation

Considering its historical development, adaptation – in contrast to mitigation – relies on an entirely different setting, manifesting itself, *inter alia*, in a spatial and thematic division of institutional settings and/or activities. Whereas mitigation, addressing and reducing emissions was the original and first concern of the international community (e.g. Orlove, 2009b: 135), is geared towards tackling the causes of climate change, adaptation aims

to deal with already felt or assumed consequences of climate change. The latest IPCC *Fifth Assessment Report* (Alfaro et al., 2014: 1758) defines adaptation as the:

...process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects.

In the IPCC *Assessment Reports* and UNFCCC negotiation processes, and habitually at the national policy level, too, the two topics of mitigation and adaptation are being treated in different domains. While mitigation is primarily handled on a political/policy level, adaptation is reflected through direct, local implementation, largely performed by (I)NGOs or intermediary organisations, and is, hence, building spaces for knowledge transfer and translation (see Chapter II, 2.3.2). In this context, adaptation to climate change is “highly local,” as Agrawal (2010: 173) pointedly named the role and importance of people, societies, and cultures in these processes.

It is very interesting to look at the historical evolution of adaptation, especially in the context of a discourse, theoretical point of view. Ben Orlove (2009b) outlines this aspect in a clear and demonstrative way. In an article, he figures that the development of adaptation – integrating it into an idea of a planetary system – could only appear because of the pre-existence of the “proto-planet Science” (Orlove, 2009b: 133) and planets like the one of “mitigation” and “adaptation” emerged later. If the processes, such as external “gravitational perturbations” (Orlove, 2009b: 133) would have been different, other planets than adaptation might have turned up.

The noteworthiness of this example is that it demonstrates the crucial point of how discourses come into being (or not) – not because the topic *per se* would have been naturally existent but because of a moment where people or institutions, having a certain extent of hearing and thus a certain power, could persuade a majority about the necessity of the topic, e.g. that climate change is a threat to the future of humankind and therefore, adaptation is necessary to address this threat (Methmann, 2011: 121; Weingart et al., 2008). In this regard, it is not of importance if the threat is true or not, but that the concept of adaptation could have come up otherwise if the discursive actors were different or would have argued differently for some reason.

Thus, Orlove (2009b: 135) says that the term adaptation appeared within the UNFCCC working groups only in the mid-1990s, being officially defined for the first time in the Assessment Report 3 (AR3) in 2001. He ascribes the then growing popularity of adaptation to the following aspects: “A greater suggestion of positive action than ‘the limiting of impacts,’ a sense of longer-term shifts than adjustment, a more precise focus than response, an implication of greater levels of well-being than coping” (Orlove, 2009b: 136). Within the international development processes, adaptation is now a

consolidated term, with its own mechanisms for the funding of adaptation measures. Guidelines for the development of *National Adaptation Programmes of Action* (NAPA) were adopted during the COP7 in Marrakesh in 2001. These NAPAs are a necessary basic document for the *Least Developed Countries* (LDCs), “to identify their priority activities that respond to their **urgent** and **immediate** needs to adapt to climate change – those for which further delay would increase vulnerability and/or costs at a larger stage.”<sup>10</sup> The NAPAs are required for national states to apply to the adaptation fund. The compilation of the NAPAs is in many cases supported or co-developed by international development cooperation actors (for Peru, see Chapter IV).

Considering these developments, over the years, a high increase in publications on climate change adaptation can be seen. Orlove (2009b: 135), for example, counted fewer than ten papers published per year in the early 1990s, about 20 per year in the mid-1990s, rising constantly, counting almost 200 per year in 2005. Thus, existing projections and perspectives within social science on adaptation are now manifold. One approach is particularly interesting, considering the discourse entanglement of the climate change and the development discourses that look specifically at applied questions. Weisser et al. (2014: 112) point out that approaches focusing on applied questions are frequently based on former studies, such as on the issue of disasters, indicating that existing vulnerabilities towards environmental hazards have their origin in the society itself. These approaches usually share the aim of revealing deficits in adaptive capacity and their underlying causes (i.e. Boko et al., 2007; Smit et al., 2000; Smithers & Smit, 1997; Weisser et al., 2014: 112). The approach of applied questioning is one that is commonly used within development cooperation. A problem of this approach is that the concept concomitantly implies and/or assumes that an optimal form of adaptation exists (Weisser et al., 2014: 112). As will be revealed within this work, this includes the critical idea that adaptation measures often rely on scientific results or political tactics that do not always reflect the relevant socio-cultural conditions and, thus, the needs of the local people (see Chapter V). Further, people might not share the relevant political or economic interests and the situation may, therefore, end in a form of oppression, on the one hand, or resistance, on the other, often to the frustration of the implementing staff. Although attempts exist to integrate “local” knowledge, this raises additional problematic aspects that will be demonstrated later with the help of an example provided by Nadasdy (1999) on the processes of integration of *Traditional Ecological Knowledge* (TEK) into land and resource management. Also here, at the end, the attempt to integrate “local” knowledge into the process of resource management led to the fact that it had to fit the given “external” system (see Chapter II, 3.1).

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<sup>10</sup> [http://unfccc.int/national\\_reports/napa/items/2719.php](http://unfccc.int/national_reports/napa/items/2719.php) [accessed May 23, 2014].

Hence, adaptation sometimes serves larger institutions and (political) interests rather than the population itself. This aspect has further been described by, i.a. Jennings (2011) providing the example of the use of adaptation and resilience in the rhetoric of climate change in the U. K. Environmental Agenda after the Boscastle Harbour flood in Cornwall in 2004. Further, Orlove (2009b) shows this aspect, presenting an example of a small community affected by rapid glacier melt in the Southern Peruvian Andes. Weisser et al. (2014) present the translation and adaptation processes of the travelling adaptation discourse in Ethiopia, Uganda, and Rwanda.

Moreover, Orlove (2009b: 136) reveals three main pieces of conceptual baggage of adaptation. The first one comes along with the association of the former working-concept on natural hazards. In comparison with climate change related events, natural hazards are mainly shorter and more rare events “whose frequency and severity can be established” (Orlove, 2009b: 136) but where human influence is lower. The second piece of conceptual baggage relies on the liaison of adaptation and its direct measurement of consequences, such as quantifiable effects. Whereas some impacts can of course be measured in monetary form, others like social identity or well-being cannot, which results in a difficulty in being able to, “tally up the total costs and benefits of alternative responses,” according to Orlove (2009b: 136). The final piece of baggage, which according to Orlove is the most problematic, is that adaptation includes a promise that problems are manageable, which in some cases might not be the case, and therefore, “tends to exclude the possibility of non-adaptation from consideration” (Orlove, 2009b: 136). This point links directly to the development discourse:

...the word development places all nations on a single scale, offering the suggestion that the very poorest nations of the world are developing and are moving towards the prosperity of the richer ones, so too the word adaptation places all outcomes on a single scale, offering the suggestion that the world can shift up from the less satisfactory outcomes to the better ones. (Orlove, 2009b: 136)

In this regard, Eucker (2011: 70) argues that adaptation could fall into being just an effort to, “feign control over the uncontrollable,” based on Prowse's (2003: 17) question of whether the *Millennium Development Goals* were just an attempt to, “feign control over the uncontrollable,” because they only tackle the symptoms and not the causes of inequality. Thus, as already outlined, the international climate change discourse became intensively interwoven with the development discourse and adaptation became an inherent part of it. The boundary point of adaptation and development is the point where, according to Cannon and Müller-Mahn (2010: 630), adaptive governance becomes relevant as it, “links adaptation and formal development processes,” and is, thus, the moment the cycle of the discursive contemplation of the climate change and development discourse finally interlinks and closes:



Decision-making about how to react to current or anticipated impacts of climate change is embedded in formal and informal institutions at different scales [...] It is the result of negotiations between different actors and stakeholders, whose influence and negotiating power largely depend on their position in social and political hierarchies. Adaptive governance can be defined as a multidimensional process that is determined by the capacity for decision making under uncertainty, the capacity for learning and self-organisation in response to environmental changes, and institutions that frame and stabilise adaptation. Adaptive governance links the present with the future, the social with the ecological and local developments with national and even global contexts. In that sense adaptation may be understood as a regulatory process within coupled social-ecological systems at different scales [...] (Cannon & Müller-Mahn, 2010: 630)

In this context, one could assume that climate change adaptation, its inter(national) institutionalisation, and the aim to mainstream adaptation throughout policy levels would gradually bring along a uniformity. Still, Weisser et al. (2014: 117) assume that, “[t]he global spread of the adaptation discourse may result not only in homogenisation, but also in heterogenisation of adaptation activities, because the ‘re-embedding’ of the idea in another context [...] never results in an exact replica of the original [...]” They continue, citing Blok in regard to the re-embedding process:

Climate Change [adaptation] has the contours of a grey box or boundary object, enjoying enough stability to acquire commensurable meanings in-between social worlds, but enough flexibility to accommodate to concerns of political and economic elites, NGOs, mass media, and public constituencies. (Blok, 2010: 906; in Weisser et al., 2014: 117)

Weisser et al. (2014) ascribe this fluidity and flexibility of the concept of climate change adaptation as being the reason for the success of its global “journey” (Weisser et al., 2014: 117), demonstrating that global discourses, such as the one of climate change, and with-it adaptation, enter other spaces where different actors also start to negotiate about the topics, leading to modifications, depending on the respective socio-political setting of power and interests. To conclude this sub-chapter, and to give a final definition of how adaptation is seen and used for this upcoming work, I would like to use the statement, “that people do not act according to the script of a single global idea, but that they appropriate or modify parts of that script and also invent new ones” (Weisser et al., 2014: 112). Thus, adaptation is not considered as a, “‘must-have’ in the wake of an environmental crisis, but [they] suggest widening the analytical frame by conceptualising adaptation as a contentious co-production by various actors” (Weisser et al., 2014: 112f), further including the discursive point of view.

The above considers existing socio-cultural and political framings, which influence (adaptation) responses and ways to deal with climatic changes (Carey, 2010: 4). In this regard, it can be stated that humans rarely respond on a purely rational base, or according to their knowledge about environmental processes (Brace & Geoghegan, 2010: 294; Voss, 2010: 10); instead, they act, on the one hand, from a combination of

their (socio-cultural) worldview from within their social relations and, on the other hand, from “a multitude of incentives presented by science, policymakers and the media” (Weisser et al., 2014: 113), which are simultaneously influenced by power structures and economic factors (Cannon & Müller-Mahn, 2010: 625; Carey, 2010: 4). In addition to the immediately felt physical impacts of a changing climate, the international climate discourse already impacts the lives, livelihoods, and daily routines, as outlined above. For Weisser et al. (2014: 113), “[t]his means that the analysis of adaptation needs to take into account a multitude of other potentially important processes, such as the general concern for environmental problems in a society, and the extent to which funds are made available to influence economic development or environmental issues.” Further, Cannon and Müller-Mahn (2010: 630) raise the question of how adaptation, “is brought about in practice, and under which conditions societies or social groups decide to modify livelihoods or production practices in order to avoid harm or take advantage of anticipated changes in climate.”

To summarise, being confronted with national or international development projects or with the output of new policy regulations that usually have impacts at the local level, where they are implemented, information on global climate change has impacts on the international through to the local level, where it is processed, adapted, intermixed, and appropriated in a culturally and socially appropriate manner. Some of the main implementation actors at the local level are national and international NGOs, which play a crucial role within development cooperation and thus for knowledge transfer of climate change information, functioning as an interlocutor between international, national, and local processes. Before shifting the focus to the latter, the subsequent sub-chapter (Chapter II, 2.3.2) will outline crucial aspects of the involvement of NGOs.

### 2.3.2 The role of national and international NGOs and local institutions

*(International) Non-Governmental Organisations*, short (I)NGOs, are commonly considered to work with or at the “grassroots level,” mainly representing the interests of (parts of) the civil society, especially those who do not have enough political power or influence, and working on rather long term topics with little or no perspective of economic profit, such as environmental or socio-cultural topics. In this context, NGOs are commonly reckoned to act as a “counterpart” (Methmann, 2011: 107) to the state, and, hence, many times are assigned to be representatives of the public well-being and interests (Methmann, 2011: 108).

The *Rio Earth Summit* in 1992 was the starting point for increasing involvement of NGOs internationally in the area of the environment. Here, people talked about the

“NGOisation of the world politics” (Brunnengräber, 2011: 7). They were regarded as the hope of global, social, and environmental politics and of human rights. Though the number of different types of NGOs rose highly after 1992, leaving a field that is hard to overview, Brunnengräber (2011), among others, laments that national interests again seemed to win the upper hand more and more, especially looking at the topic of climate change. A result of this could be, as García describes NGO activities in communities in the Peruvian Andes, seeing NGOs more and more just the “executers” (2008: 28) of national politics. In this regard, Methmann (2011), taking a discourse-theoretical approach, questions the assumed separation between governmental and non-governmental spaces, which instead are often highly involved in national politics. He outlines that NGOs and social movements are both “(re)producers” as well as effects of hegemonic discourses, using the example of international climate change politics. This means that NGOs make use of hegemonic discourses – e.g. taking climate change as an external threat – and are, therefore, contributing to their functioning and are hence (re)producers of societal hegemonies. At the same time, they simultaneously also demonstrate the potential for emancipatory changes and can thus cause a discursive change themselves (Methmann, 2011: 121). Methmann further develops the idea that NGOs are frequently being used as a political strategy within international politics, based on the concept of governmentality. Methmann’s illustration of this perspective on the example of the hegemonic climate discourse, thus, shows that the dividing line no longer runs between governmental climate policy, which is often considered insufficient, and civil society actors, who are pushing for stronger climate protections, and further, that the NGOs are regarded as representatives of the public good. In this context, he demonstrates that it has been shown that a number of actors would likewise act as “environmentalists” and would thereby contribute to the indirect operation and attractiveness of the climate change discourse, leaving the essential socio-economic causes of climate change intact. This, according to Methmann (2011: 128), would apply as well to many NGOs that are reproducing the discursive structures of the hegemonic climate policy. He further concludes that an ambivalent picture of the transnational civil society would be revealed from the perspective of governmentality. For him, it appears that non-state actors have not only tried to cover the gap of national regulation, but rather that their emergence can only be understood against the backdrop of a hegemonic neoliberal governmentality that legitimises private vs. government regulation, and is, hence, a strategy of “governance from the distance” (Methmann, 2011: 128). For Methmann, therefore, the term “non-governmental actors” is misleading as governmental and non-state actors are not separate entities, but are rather closely interwoven in the discursive hegemony (Methmann, 2011: 128). An example –

emphasising Methmann's results – of the development of (I)NGOs and their interconnectivity with inter(national) political processes, and the role of (I)NGOs working on climate change adaptation on site, will be further outlined in the case study in Chapter V.

A further topic in this context is the role of NGOs as interlocutors or intermediaries, either working directly with the population in place or working with a local institution. In the context of climate change, more than mitigation, which plays a bigger role politically at the national and regional level, adaptation to climate change is the pivotal point when it comes to the connection of international or national policies and their implementation at the local level (i.a. Orlove, 2009b). Adaptation, however, never occurs in an institutional vacuum, according to Agrawal et al. (2008: 2), and the setting of the local institutional structures strongly determines the success of adaptation and its corresponding measures. Here, the success of adaptation coincides with the reduction of vulnerability of the local communities, an important indicator showing the importance of mainstreaming adaptation, "at and across institutional levels" (Agrawal et al., 2008: 2). Mainstreaming at and across all institutional levels is an important indicator that shows how a discourse expands, which will be looked at further in Chapter IV, using the example of the evolution of climate change within national (Peru) and regional (Cusco) policies. Agrawal et al. (2008: 1) identified three types of local institutions (formal and informal) that are relevant, especially in rural areas, concerning climate change adaptation activities:

- Civic (e.g. rural producer organisations, cooperatives, savings and loan groups)
- Public (local governments and agencies)
- Private (service organisations such as NGOs and charities, private businesses that provide insurance or loans)

In this context, the listed institutions are basically carrying out the following tasks (Agrawal et al., 2008: 1):

- Information gathering and dissemination
- Resource mobilisations and allocation
- Skills development and capacity building
- Providing leadership
- Networking with other decision makers and institutions

Considering the livelihood impacts of climate change, local institutions, therefore, fulfil a threefold role (Agrawal et al., 2008: 2):

- 1.) They influence the way households are affected by climate impacts

- 2.) They help build the ability of households to respond to climate impacts and implement adaptation practices
- 3.) They mediate the flow of external interventions in the context of adaptation

Therefore, in their role as intermediaries, “institutions are the media through which external interventions reinforce or undermine existing adaptation practices [...] Indeed, all external interventions, to be effective, need local institutional collaborations to leverage the impact of interventions” (Agrawal et al., 2008: 3). Thus, for a discourse to expand successfully, a connection to all spatial levels is important and is the goal of adaptation to climate change.

Having the role of mediating external interventions, as well as transferring and translating knowledge (skills development, capacity building, and information gathering and dissemination), shows the powerful and, at the same time, ambivalent role (I)NGOs possess in international as well as national and local processes and discourses. Classified as private institutions, they act as an intermediary between political and civic interests. As indicated above, and as will be deepened in Chapter V, (I)NGOs have become more and more involved in the neoliberal model and thus gotten closer to, and somehow dependent on, (inter)national politics; for example, due to the need to find funding. This also becomes apparent when looking at the agendas of many international and national non-governmental organisations, referring to Methmann’s assumptions, demonstrating a quite recent shift towards emphasising climate change issues within their working-agendas, a shift that commenced at the beginning of the 21<sup>st</sup> century (2003-2007) (see, i.a. Orlove, 2009b: 149ff and Chapters IV and V). During interviews with (I)NGO representatives, it was mentioned more than once that the involvement of climate change aspects commenced due to the demands of the funders (see Chapter V). Thus, the international climate change discourse is appropriated and integrated by (I)NGOs, in the end serving, in many cases, to support or maintain already established (power) structures (Orlove, 2009b: 158).

Thereby, NGOs run the risk that they will, “impose their agendas and viewpoints” (Hannigan, 2006: 56), on indigenous people or rural communities, what Hannigan described as a discursive struggle can emerge. This, according to Hannigan, is supported by global discourses of science, clearing the way for the development of a global, common knowledge such as the one of climate change. He demonstrates this aspect, taking the example of biodiversity loss, showing that in the Global South, environmentalists from other countries, “were committed to establishing biosphere reserves and other protected areas, usually at the expense of local people” (Hannigan, 2006: 56). Further, he states that, “[e]nvironmental NGOs are not always, however, the most faithful translators of Western conceptions into Western discourses” (Hannigan,

2006: 57), referring here to the fact that they are not necessarily, as often assumed, closer to the socio-cultural views of the population, which will also be further discussed when looking at knowledge translation later on. Thus, he points out, that NGOs, at best, “[...] enable marginal populations, deprived of political power to acquire some at least, and to enter into communication with the centre and the dominant society” (Roué, 2003: 620; in Hannigan, 2006: 57; see, as well, the example of lobbying by groups like the *Alliance of Small Island States* in Orlove, 2009b: 136). In this regard, NGOs are often not so very concerned with what people want, but with a certain topic, e.g. environment, or tasks within a donor contract, which can lead to misunderstandings and conflicts.

The history of the entanglement of the climate discourse and development cooperation is a good demonstration of how powerful the influence of a discourse can be. Further, the involvement of the international development cooperation community into the climate change discourse was an important linchpin for the expansion of the latter and its distribution across the globe. It helped to spread a knowledge derived from academia to other knowledge systems worldwide. It will be argued that within this process, prevailing communication systems further persist and that newly arising discourses are appropriated and used by certain actors to retain their power within the existent system(s). Thus, the next segment takes a closer look at knowledge systems and transfer, especially relating to the “global-local” nexus.

### **3. Knowledge transfer and embeddedness in existing knowledge systems**

In the end, it will all come down to public communication. Decisions will be neither made nor implemented without public understanding. And the most important question for each and every individual in the public is, what will climate change mean for the people and things I care about? (Diemberger et al., 2012: 227)

What climate change means for the individual and in what ways it is perceived, processed, and translated into action is strongly influenced by social and cultural contexts and its embeddedness in the local context. Information on climate change is communicated via different channels, such as the media, education systems, and politics. Due to its close connection with national policies and the implementation of projects on the ground, international development cooperation actors, as presented in the previous chapter, have been an important initial transmitter of climate change knowledge and, thus, of the discourse itself, even to remote rural areas in the Global South.

### 3.1 Knowledge systems and the global-local nexus

The different valuation of knowledge systems and communication practices between the “North” and the “South” and the “global” and “local,” have been a topic worldwide, especially in connection with the effects of (former) colonial activities in the context of globalisation processes and development questions, here, *inter alia*, within the framework of international development aid, today often called development cooperation (c.f. Bliss, 1990; Escobar, 1995, 2005). One of the core problems is that “local” knowledge is often seen as inferior when compared to academic or science-based knowledge, which plays a crucial role for the topic of climate change (c.f. Long Martello & Jasanoff, 2004; Nadasdy, 1999). Based on experiences in disaster risk reduction, Cannon and Müller-Mahn (2010: 623ff) point out that many science-based projects “failed” because local factors or specific perceptions of the population were ignored. Similarly, Tarnoczi (2011) explains the malfunction of climate projects as being a consequence of poor communication and a knowledge transfer failure. Raygorodetsky (2011) and Williams et al. (2012: 9) illustrate that this deficiency results from the fact that local, traditional, and/or indigenous knowledge is hardly recognised in the global discourse, highlighting that there is a need to integrate such knowledge into climate related programmes and policies.

One significant manifestation of the marginalization of indigenous peoples from the climate change policy and decision-making is the paucity of references in the global climate change discourse to the existing traditional knowledge on climate change. Such international discourse has often failed to consider the valuable insights on direct and indirect impacts, as well as mitigation and adaptation approaches, held by indigenous peoples worldwide. (Raygorodetsky, 2011: n.p.)

Further, Watson & Huntington (2014: 10) argue that the “enlightenment thought” based climate change research leads to deficient knowledge generation, leaving out non-Western perspectives. One example that demonstrates the lack of involvement of the Global South in international information processes is the proceedings around the IPCC. Here, Hulme and Mahony (2010: 708) identified existing knowledge hierarchies within IPCC processes, which are geographically shaped (see as well O’Neill et al., 2010). For instance, the distribution of experts being involved in the Assessment Report processes has not changed much regarding their provenance, and has been an on-going critique since the early 1990s, with 80-82% coming from OECD countries, which of course impacts the work of the IPCC (Hulme & Mahony, 2010: 709). Countries of the Global South feel that they are not sufficiently represented in on-going processes and, thus, do not accept or trust the results and recommendations provided for their countries when assessed by “foreign” experts (Lahsen, 2004: 153). So, the main target should be to bridge the gap between scientific experts and local decision makers and the public; for

example, by involving more scientists from developing countries and, thus, making the information and knowledge of the IPCC more relevant socially and trusted around the world (Hulme & Mahony, 2010: 707; Shackley, 1997: 79).

Similarly, for failed climate adaptation projects, it is often reasoned that local knowledge and thus, local involvement was ignored. The international community responded with two requirements: first, to collect and integrate local knowledge, and second, to include as many people as possible to communicate climate change knowledge so that people understand and act accordingly. These two mutually influencing points need to be further discussed:

a) *Collection and integration of local knowledge*

As shown above, it is widely recognised that within the international climate change discourse, a lack of locally specific information exists (c.f. Adger et al., 2007: 14; Crate, 2011: 4). Until today, it remains a challenging task for scientists and practitioners to gain and communicate the needed information and, thus, to be able to respond in a way that simultaneously considers socio-cultural aspects and problems *in situ*. In order to address this challenge, adaptation concepts in development cooperation started to pay more attention to local particularities and indigenous knowledge (i.a. Spearman & McGray, 2011: 22). Here, while data and information feeding the climate change discourse are mainly based on scientific knowledge, a shift towards the recognition of the importance of local, traditional, and/or indigenous knowledge in facing climate change related challenges can be identified. Some global institutions like The World Bank have standardised this kind of resource by collecting and spreading local knowledge through newly created data-bases (Long Martello & Jasanoff, 2004: 9). The *UN University's Traditional Knowledge Initiative* (UNU-TKI),<sup>11</sup> established in 2007, aims to make indigenous knowledge accessible and promote the integration of that knowledge into the IPCC Assessment Reports (Raygorodetsky, 2011). To close the existing gaps, various organisations started to work on the identification and integration of local knowledge, as well as on the adequate communication of locally specific climate information (c.f. CRED, 2009; GIZ, 2011; GTZ, 2009, 2010; HEKS & Brot für Alle, 2009; Spearman & McGray, 2011; UNDP, 2010; UNEP, 2010; 2010a).

However, at the same time, the international (development) community creates, reinforces, and further works with dualistic concepts like “local/traditional” versus “scientific” knowledge, or “global” versus “local” knowledge, which has been widely

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<sup>11</sup> Further, networks and exchange platforms have been set up (see *Climate Access, Climate and Development Knowledge Network, One UN Training Service Platform on Climate Change, Indigenous Peoples' Biocultural Climate Change Assessment*) and specific projects on research, development, and implementation of climate change communication implemented (see *Yale Project on Climate Change Communication*). In this context, the development of different tools plays an important role like the *Climate Impact Equity Lens* (CIEL) developed by the *Stockholm Environment Institute* (SEI) – a tool that puts the individual at the centre of the climate impact research.



criticised (c.f., Escobar, 1995, 2005; Hastrup, 2013; Nadasdy, 1999; Watson & Huntington, 2014) by those who point out the underlying global inequalities based on (inter)national power structures. Here, the example outlined by Nadasdy (1999) on the processes of the integration of *Traditional Ecological Knowledge* (TEK) into land and resource management, which emerged internationally starting in the 1980s, illustrates one of the implicit problems that can arise from this dualistic thinking. Nadasdy argues that the core problem of the *TEK*-approach derives from an understanding of integration of knowledge systems as a technical problem in which the traditional or local knowledge is seen as, “vastly different, and largely incompatible with, that of science” (Nadasdy, 1999: 2). In this sense, traditional knowledge is considered technically, as another set of “data.” This can result in technical problems when the intention is to merge or integrate traditional knowledge “data” into the existing (governmental) knowledge system of land and resource management, which is often based on “Western” or “modern” scientific knowledge, because the categories might not fit into the established system.

Not much has changed in this context when it comes to the topic of climate change that can be considered a new international “trend.” Following Nadasdy’s argumentation, this would mean that they are trying to fit different existing local knowledge worldwide into the international climate change knowledge system, which in the end supports the preservation of already existing (power) structures. Furthermore, Postigo (2013: 189) argues that the consistency shown between climatic perceptions and meteorological information would point to the validity of local knowledge. This local knowledge should be recognised and utilised by regional government officials to implement adaptation measures and increase resilience towards the effects of climate change. In this sense, Postigo outlines that people would provide information that is then complemented by scientific, meteorological information provided by meteorological stations. However, this would require breaking the existing power hierarchy between these types of knowledge, the “traditional” local and the scientific technician, in order to build an integrated environmental knowledge. The current means of maintaining a dominant knowledge system has implications, of course, for the acceptance, adaptation, and rejection of the discourse and its influence on how it is communicated between the different spatial (political) levels. This will be further outlined in Chapter V, based on the empirical research conducted in Peru.

#### *b) Communication of climate change knowledge*

The second aspect we will look at is the communication of climate change knowledge. Here, a “paradoxical rediscovery” (Long Martello & Jasanoff, 2004: 4) of the local in global processes can be witnessed within the international climate regime. A shift has

become evident within the IPCC, as it moves from a global or nearly global scale analysis of climate change impacts, towards attempts at more regionalised or even localised studies. While the IPCC started to focus more on an analysis of vulnerability and adaptation matters of societies and ecological systems, the titles of side-events clearly show the attempt to better address and incorporate people-centred, local, and indigenous aspects; for example, during the COP17 in Durban in 2011 some of those titles included: “Thinking globally, acting locally;” “Climate Change and Indigenous People;” and “Peoples led climate change adaptation and mitigation initiative.” It was already stated during the 32<sup>nd</sup> session of the IPCC in 2010 that, “indigenous or traditional knowledge may prove useful for understanding the potential of certain adaptation strategies that are cost-effective, participatory and sustainable” (Raygorodetsky, 2011: n.p.). Nevertheless, this aspect remains a challenge because, “previous IPCC Assessments [...] were unable to access this type of information because, for the most part, traditional knowledge either appears in grey literature outside of peer-reviewed academic forums, or remains in oral form, thereby falling outside the scope of IPCC process” (Raygorodetsky, 2011: n.p.).

Even though traditional, mainly oral knowledge is more difficult to access, Kronik and Verner (2010: 156) comment positively on the integration of indigenous knowledge in current climate related processes, outlining that adaptation strategies and mitigation instruments may be improved through a mutual dialogue between the different knowledge systems; on the one hand, enriching data availability and, on the other hand, revealing whether or not developed strategies meet the socio-cultural contexts *in situ*. Thus, the increased recognition of local knowledge and more culturally appropriate technologies support the statement that local communities are not seen as pure victims of ecological problems anymore, but as part of the global solution (Long Martello & Jasanoff, 2004: 8).

However, within the climate change discourse, it is important to consider two further biases when looking at the global-local nexus: It is highly problematic to consider traditional, indigenous, and/or local knowledge as an opposing static pole, or “closed epistemological system” (Hastrup, 2013: 276) with little diversity or interference from the “outer” world and thus “modern” knowledge. Hastrup argues that both, the existence of “the” local knowledge, but also the fact of speaking of “the” modern knowledge, is “untenable” (2013: 276). I argue that it is important to consider this dualistic aspect in research, not simply to underline this two-foldedness, but because a “dualistic comparison” (Nadasdy, 1999: 2) between traditional and scientific knowledge is already being employed by governmental and non-governmental actors implementing projects, e.g. on climate change adaptation.

Before developing this argument further, I would like to point to the second bias deriving from the use of a dichotomic description of “local” versus “global” and “traditional/indigenous” versus “modern.” People are aware that local places are interlinked in a national and global network and that knowledge considered to be scientifically generated by the IPCC reports is also a part of “localized” (Hastrup, 2013: 276) knowledge. Why does one knowledge system get the upper hand over the other, and what does this imply for socio-cultural systems and the power structures underlying those? I believe that it is important to look at where certain information first derived, why certain knowledge becomes knowledge that is taken for granted, and whom this serves. Here, I argue that information at the policy level is passed along; for example, deriving from international processes of the UNFCCC and the IPCC. When looking at the regional adaptation strategy of Cusco or of Chumbivilcas, it becomes obvious that the same language and concepts used there, are used at the national and global levels, *inter alia*, following a linear time concept of task implementation with a problem-solving goal or goals. In one of my encounters in Cusco (July 05, 2013), it was criticised that concepts are usually taken on but there is rarely an effort to develop concepts of their own (see Chapter V, 4.2).

Although, at various levels there seems to be a consensus on the existence of human-induced climate change, most people still do not change their lifestyles and behaviours to prevent global warming (Brace & Geoghegan, 2010: 294; interviews in Chumbivilcas), or take the necessary adaptation measures needed to prevent future negative impacts. Further, as pointed out above, public policy agendas do not often result in fully implemented, far reaching but necessary changes. The following citations that stem from two interviews conducted in the research area of Chumbivilcas will illustrate this point: One with a local government representative and the second from a NGO-member.

So imagine, [...] the *Municipal Environmental Commission* [CAM] was formed. This year it was not possible to implement the other instruments such as the environmental diagnostic, of which a draft has been left [by a UN programme on *Adaptive Integral Environmental Resource Management to Minimise Vulnerability to Climate Change in High Andean Microbasins* which closed in 2012; see Chapter V], then the environmental agenda has not been achieved to implement, then the organisations did not understand what the *Municipal Environmental Commission* was and what it served for. [...] Now this space has been institutionalised, but again they are not giving it the due importance to what is very very important: The environmental management, this of the CAM [...]. This with the CAM [...] is really leaving. What should go up is going down.<sup>ii</sup> (Interview, BH1, October 22, 2013; own translation)

The *Joint Programme* [of the UN] left many studies related to the environment: Water harvesting, reservoirs, afforestation, care of snowy mountains, [...] a number of studies. These studies thus

remain as a files in an office. No local government took the trouble to revise them<sup>iii12</sup> (Interview, BH1, October 22, 2013; own translation)

These two quotations illustrate the difficulties inherent in matching different knowledge systems, in being able to communicate information in a way that people *in situ* can make sense and use of. In this regard, Wynne (2001) proposes that the gap between science and public knowledge exists because they are each driven by different sets of approaches. While scientists look at the “factual, objective and real” knowledge (Wynne, 2001: 445), the public is more interested in, and driven by, emotions based on their daily routines and life problems. In this context, Raygorodetsky (2011: n.p.) points out that, “climate scientists’ contribution to debate should be locally meaningful.” Thus, the question to be asked should be more focused on what the public needs to know and how individuals will likely interpret that knowledge. Taking local structures into account and communicating in a, “constant translation back and forth across relatively well-articulated global and local knowledge-power formations” (Long Martello & Jasanoff, 2004: 5), is one of the prerequisites of a well-functioning and more balanced global climate governance. What does, or could, this look like?

To implement actions successfully, one needs local participation and the local population’s conviction in the idea, which is a highly political process (c.f. Weisser et al., 2014). For the communication of climate change knowledge, the consideration of discourse entanglements is fundamental. For the Peruvian Andean context, this means, for example, considering a long-lasting discourse on “rural” versus “urban,” which again is connected to “tradition and indigenous” versus “modern,” and here, following Long Martello and Jasanoff (2004: 14), of a “local not generally recognised knowledge” versus a “scientific real valid knowledge.” This inequality has its roots in colonial times and has been profoundly discussed in Latin American literature, dealing with interculturality, ethnicity, the question of identities and prevailing inequalities, racism, and discrimination (for the Peruvian Andes c.f. de la Cadena, 1998, 2000; García, 2008; Howard, 2007; Poole, 1997; Valdivia Corrales, 2013; van den Berghe & Primov, 1977; van den Berghe, 1974). Thus, I argue that being aware of this specific Peruvian discourse helps in understanding the ways the climate change discourse is being perceived, accepted, or rejected. To dig into this question, I will examine the subject of discourse entanglements by means of the empirical case study in Chapter V. The next chapter will explore the research framework and methodological approach of this research, providing the grounding for the empirical research and analysis that will follow.

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<sup>12</sup> This can be supported by the fact that the studies mentioned were handed over to me by chance after a conversation with two people working at the division of tourism and not after my information request at the municipality division to which the environmental and climate topics belong.

### III. Research framework and methodological approach

This chapter is an introduction to the main part of this work, the empirical case study, which is based on qualitative, empirical ethnographic research in the Peruvian Andes. The case study aligns with the research aim and therefore, has the objective of analysing the socio-cultural perception, adaptation, and reinterpretation of the global climate change discourse as well as its impacts on, and entanglement with, local discourses and local adaptation processes. To summarise, this chapter explores the research framework and how the research was planned and developed.

#### 1. Preliminary considerations for qualitative, empirical research

The empirical, ethnographic field research in Peru was developed based upon the principles of qualitative research. Here, the conceptual framework of the *Social Constructivism* approach uses a hermeneutic understanding for its cognition and interpretation process, which leads to a helical or cyclic research process, consistently reflecting and expanding the research design, the knowledge gained, and the contextual understanding.<sup>13</sup> This approach implies that, before visiting the research site that no subject-related theoretical assumptions or empirical hypotheses exist to be tested. This, according to Strübing (2013: 112), supports the researcher in remaining curious and open, and at the same time avoids having findings become lost due to too rigid perceptions or prejudices. This does not require, however, that a profound previous knowledge on socio-theoretical perspectives should be forgone; in fact, to have this knowledge is an important requirement for the qualitative research process. In other words, the empirical research design is based on an inductive approach, but involves prior theoretical considerations (see the first part of this dissertation) and preliminary decisions on the methods that shape at least a coarse direction for the research (Beer, 2003: 12f). Therefore, in order to be able to embed the empirical study into the socio-cultural and historical context, an in-depth literature review was carried out mainly before the empirical research was conducted. It covered the processes and institutional structures of the international climate change discourse; its influences on development cooperation; local-global interrelations; theoretical frameworks, such as the (critical) discourse theory; and discussions on prevailing socio-cultural structures and realities in Peru and the region of Cusco. Overall, the literature review was carried out with the objective of covering each of the topics discussed throughout the thesis, from both a theoretical and methodological point of view. It was in this context that the set of

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<sup>13</sup> There is a great deal of literature on qualitative research and its main principles, e.g. Bernard, 2011; Lamnek, 2010; Mattissek et al., 2013; Mayring, 2002; Strübing, 2013.

research questions was developed prior to the implementation of empirical research of the study, guiding the research framework and the fieldwork (see Chapter I).

## 2. Selection of the research site and levels of investigation

The Peruvian case study was selected based on the following criteria:

- Knowledge already existed about the country and the local languages
- There is an (indigenous) population with a traditionally “different” worldview (*Andean cosmovision*)
- The communities are rural, mostly agricultural or farming based
- Climate change information is reaching local communities (e.g. through local implementation of climate change related projects) and, therefore, traceable information pathways exist
- The area has already felt climatic impacts and/or changes or increasing occurrence of extreme weather events
- The first apparent institutional effects or transformations within the country as a possible consequence of the international climate change discourse are evident (e.g. the establishment of MINAM in 2008 and sub-divisions at the regional level)

For a research partner in Chumbivilcas, I selected the non-governmental organisation *Centro Andino de Educación y Promoción José María Arguedas (CADEP-JMA)*,<sup>14</sup> for short CADEP, a local NGO based in Cusco working in Chumbivilcas since the 1990s.<sup>15</sup> CADEP, together with the *Association Arariwa*, the *Welthungerhilfe*, and the *European Union*, implemented the project “Local capacity building for the implementation of climate change adaptation measures” in the province of Chumbivilcas (districts of Llusco, Quiñota, and Santo Tomás) from 2009/2010 to December 2013. The selection of the project was based on the following criteria: It had an already on-going climate change related project in a rural area working with a rural and/or indigenous population and the organisation was open to collaborating with a researcher.

Bernard (2006: 356) notes that, “Perhaps the most difficult part of actually doing participant observation fieldwork is making an entry.” This is also true when working with an organisation, as it can bring about certain biases for the research(er). On the one hand, the cooperation provided access to, e.g. remote villages, community meetings, various political officials, and community members, due to their previously established relationships with the people. On the other hand, it also determined certain relations; for example, those who are in agreement or cooperation with the organisation and its efforts

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<sup>14</sup> [www.cadepjma.org](http://www.cadepjma.org).

<sup>15</sup> A wider introduction to the work of CADEP will be developed in Chapter V.

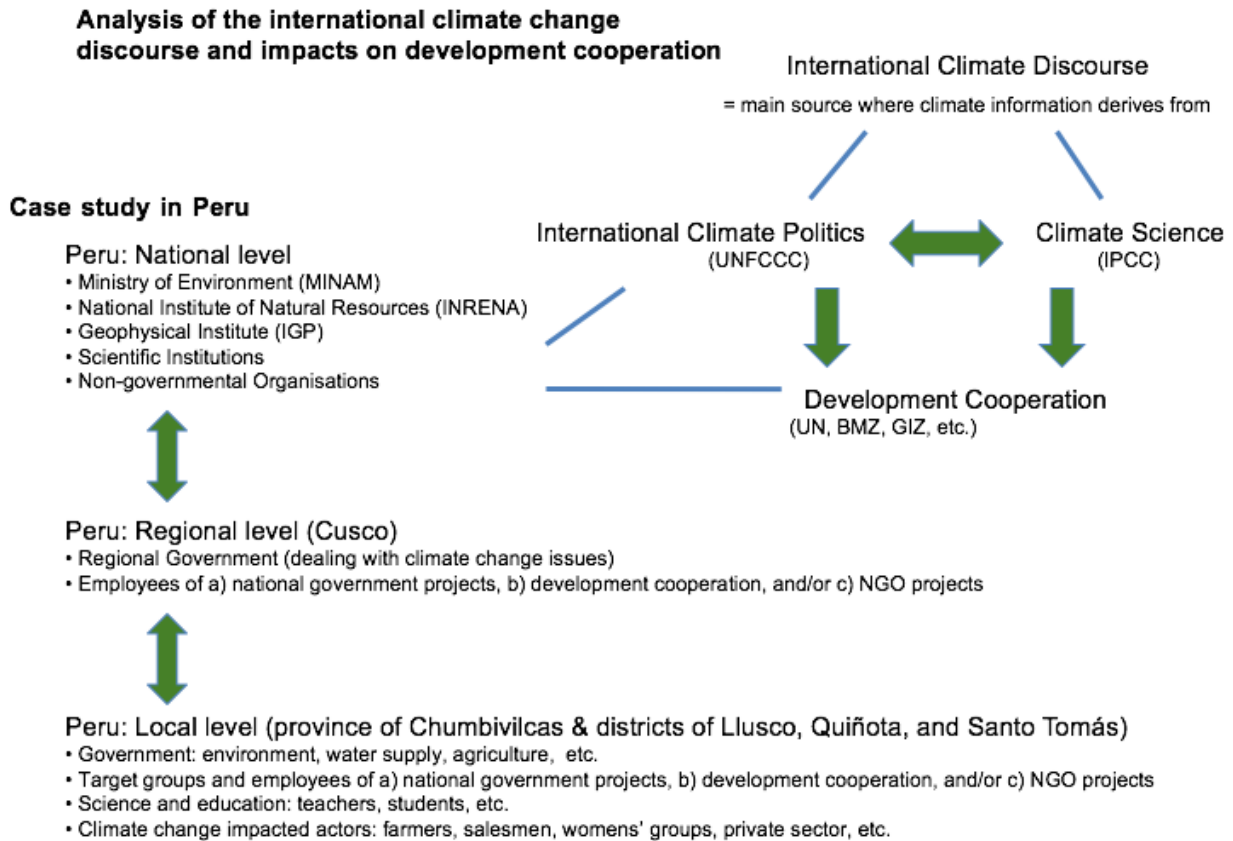
would probably be more open than those who might be critical or indifferent towards the presence of the organisation. In this regard, for example, I rarely get involved, and only with difficulty, in conversations with the population that was not a part of CADEP's work. Additionally, the cooperation with CADEP and in some cases, the presence of organisation members influenced the responses obtained during interviews (see Chapter V). These contradictory aspects were already weighed during the prior decision-making process. However, as the presence of a researcher coming from Europe already implies predetermined patterns such as age, sex, nationality, skin colour, professional/social status, etc., therefore, obtaining an impartial (Bernard, 2006: 350f, 373ff; Hauser-Schäublin, 2003: 50f), or not "tied" access would have been much more difficult and would have required much more research time. Moreover, as part of the research was aimed at the climate change-related work of the organisation itself, I opted for the cooperative field access. The support of the organisation and the fruitful conversations I had with staff members enriched the research. The staff not only helped me coordinate the logistics, but also helped me to discover and understand – through reflection – certain local circumstances and correlations. Although the main emphasis of the field investigation was clearly focused on the local level, identifying the information channels and comparing the discourses and transmitted information between the different levels, required that I also consider various existing levels of analysis for the research project (see Table 1).

**Table 1: Level of analysis considered in the case study**

<b>Analysis Level:</b>	<i>Level of intervention:</i>	<i>Data sources:</i>
<b>Macro-level</b> <i>(national)</i>	Policies, decisions, and programmes	Expert-interviews, informal expert talks, and document analysis
<b>Meso-level</b> <i>(region and province, NGO project)</i>	Policies, decisions, programmes, facilitation, implementation, climate change, and project impacts	Semi-structured and expert-interviews, informal expert talks, participant observation, document analysis, and qualitative hermeneutic
<b>Micro-level</b> <i>(communities and community members, NGO project)</i>	Local knowledge and perceptions, activities, policies, implementation, climate change, and project impacts	Semi-structured interviews, participant observation, focus group discussion, workshop discussions, field visits, document analysis, and qualitative hermeneutic

Source: Own elaboration

This leads to the research framework, presented in Figure 4. After the analysis of the international climate change discourse and its impacts on development cooperation was developed in the first part of this work, the second part will deal with the fieldwork conducted in Peru. The methodological considerations and applied methods that were conducted during this process are outlined below.



**Figure 4: Research framework: Relationship between the international climate change discourse, policy, and research; development cooperation; and the local case study**

Source: Own design

### 3. Fieldwork

The main part of the fieldwork took place in Chumbivilcas (for a description of the field work site, see Chapter V); therefore, the subsequent refers to the work conducted at the local level if not otherwise expressly indicated. It should be noted that during the empirical fieldwork and data analysis, I always worked to comply with the strongest of ethical standards.

In November 2012, I carried out preliminary research in order to conduct the first expert interviews with actors working in the field of climate change and thus, to capture the



current state of the discourse in Peru, and to identify a project and a project region (for the selection criteria, see above). In this context, six interviews with stakeholders from different organisations (e.g. development cooperation organisations, local non-governmental organisations) working in the area of climate change adaptation were carried out. Here, I also took part in the first InterCLIMA Conference in Lima, an annual meeting and exchange event of Peruvian, as well as international, stakeholders working on climate change related topics like adaptation and mitigation. This provided me with the opportunity to capture a picture of the landscape of actors and projects situated in Peru and the subjects being addressed by them, and therefore, to gain a first picture of the national discourse.

The field research in Chumbivilcas started in July 2013, and was divided into four research phases. In the first research phase, I accompanied the organisation to its project districts (Santo Tomás, Llusco, and Quiñota) and communities and mainly spoke to project participants. This, I continued in Phase 2, but here concentrated mainly on only one of the districts: Llusco. This decision was based on the accessibility of the districts and a greater concentration of people in this district still conducting traditions connected with farming, nature, and the environment, the intensity of which strongly varied between the communities. In Llusco, during the third phase, I narrowed the interviews down to two *anexos* (*anexos* are the individual villages belonging to a community, *comunidad*). In these two villages, various interviews with male and female residents of different ages were conducted. In between the different phases, stays in Cusco were also a part of the field research. Here, I conducted “expert” interviews with the regional government, such as the Department of Environment; scientists; and organisations working on climate change related projects and programmes. Additionally, I conducted literature reviews in the available libraries, mainly on culture and society in Chumbivilcas and climate change related information for the region of Cusco. The fieldwork in Chumbivilcas lasted through the end of October 2013, with the final (expert) interviews conducted in Lima in February 2014.

### **3.1 Areas of investigation**

To be able to answer the main research questions, the research implemented in Chumbivilcas incorporated three main areas of focus, each with its own set of questions:

#### *(A) Local culture and worldview:*

- What are the local culture’s prevailing concepts about environment and nature?
- What are the interpretation patterns for climate and a changing climate?
- What are the perceived problems *in situ* in regards to climate change?

- What kind of changes within the society and its perceptions are associated with different climate change information?

*(B) Climate (change) information channels:*

- How, and through which means, is climate change information communicated from the global level to national and local levels, and *vice versa*?
- Which part of the information is culturally (re)interpreted and which part is integrated into local structures and discourses, and why?
- What influences and changes concerning the communicated information can be observed here?

*(C) Locally implemented climate change projects:*

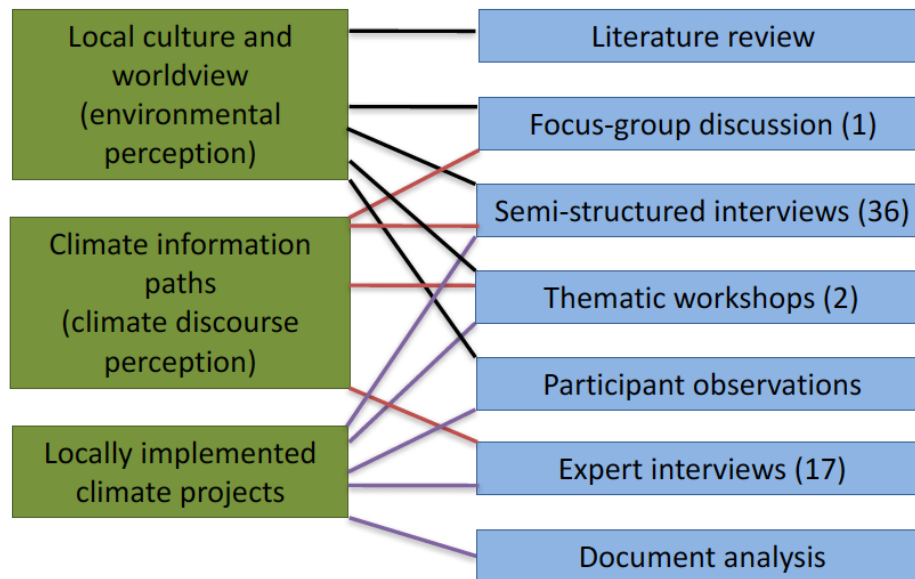
- What climate change information is communicated by locally implemented projects, and in what way is it communicated?
- What importance is given to local or traditional knowledge within applied adaptation measures?
- How does newly arrived knowledge interact with local adaptation strategies and secured livelihoods?
- What conclusions for the global climate change discourse and for projects on climate change adaptation can be drawn from the knowledge about the existent means of climate change communication and the local socio-cultural reinterpretation of the transmitted information?

These three areas of investigation laid the foundation for the selection of adequate field research methods and, further, to construct the guidelines for the semi-structured interviews.

### **3.2 Field research methods**

The field research was based on a combination of different qualitative methods that were particularly suitable for the determination of cultural specifics in local contexts, such as the local perception of climate (change) information or the cultural interpretation and integration of that information into local structures. In this context, participant observations, informal interviews, and free conversations were of considerable importance during the field research because they allowed for certain topics, concepts, and social relations, which often are not mentioned or discussed in shorter interview situations, to be more fully discussed. In a next step and in many cases based on former free conversations, interviewees were either selected for semi-structured interviews, or the free conversations only served as an expanded framework for the interpretation of

the interview results. During the field visits, conversations, observations, and ideas were registered in a detailed way (c.f. Fischer, 2003). Based on the basic principles of *Grounded Theory* (Glaser & Strauss, 1967), the findings from the field were integrated into the evolving research process leading to continuous rethinking and adjustment, and thus to the continuous development of the research design. To address the research questions, the applied methods were assigned to the three sets of questions outlined above. An overview of the questions and methods chosen to explore them is included in Figure 5.



**Figure 5: Set of questions and methods used**

Source: Own elaboration

(A) *Local culture and worldview*: To explore the question of cultural understanding, existing knowledge, and problem awareness of climate (change) and transformation processes, I used participant observation; semi-structured, theme-centred interviews; and participatory methods such as focus group discussion and thematic workshops. Here, both their relationship with the environment and the way of integration or non-integration of climate (change) information were explored. Additionally, important moments or places within the transformation processes for the population were addressed.

(B) *Climate information channels*: The aim for this set of questions was to examine and to localise the different channels of the incoming climate (change) information. It was also focused on the local perceptions and processing of the climate change discourse and capturing prevailing perceptions through an *emic* description. For this topic, one of the main tools applied was semi-structured, theme-centred interviews. Discussions in a

focus group and in thematic workshops complemented these interviews, revealing how community members interpret incoming information on climate change. In this context, expert surveys beyond the local level played a crucial role, especially with political and scientific institutions in Lima and Cusco. Here, specific information on the channels and types of climate information was obtained and, thereby, assessments and interpretations of the international climate discourse from the Peruvian point of view were obtained.

(C) *Locally implemented climate change projects*: In order to answer questions on the content and impacts of the project on local strategies and their cultural (re)interpretation, a direct cooperation with an organisation working on climate change related topics with local community groups was important. Here, insights were gained into the existing channels of climate change information, as well as into the role of (international) development cooperation. The goal was to comprehend the direct impacts, reinterpretations, and the integration of the communicated information into existing worldviews. In this context, the following methods were used: Review and analysis of documents and local discourses; semi-structured, theme-centred interviews with project staff, project participants, and the local government; expert interviews; participant observation; and thematic workshops.

### 3.2.1 Participant observations

The decision to include participant observation as a “strategic method” (Bernard, 2006: 343) into the research framework and thus, “going out and staying out, learning a new language [...], and experiencing the lives of people you are studying as much as you can,” as Bernard (2006: 344) puts it, “is based on the recognition that engaging in daily life and social relationships provides a contextual understanding of cultural realities that cannot be captured by formal research methods” (Roncoli, 2006: 82). Thus, as part of a longer field research period, local processes, *emic* perspectives, and interpretations of information and processes can be more fully captured through participant observation. Given that the research topic on socio-cultural perceptions and that access in the field can be demanding, due to physical as well as (inter-)cultural reasons, especially for foreigners, time and a certain level of confidence are needed in order to make personal contacts and have deeper conversations that provide valuable insights that contribute to answering the research questions. Here, a deep and careful preparation, as described above, and the use of already established local connections helped me to enter the field at the beginning of my stay. Thus, the following study is based on participant observation, using methods that are common in so-called “rapid assessment” (Bernard, 2006: 352) approaches, such as group discussions and thematic workshops, and

involving the participants into mapping on environmental perceptions and key events that construct their environment (see Chapter III, 3.2.5).

Within the field research, participant observations were conducted during my stay in Santo Tomás and during visits to communities. In the beginning, I was accompanied by staff-members of the organisation to the different villages. Later on, during repeated visits to select villages, I conducted the observations on my own or together with a translator. In this regard, I attended village meetings, ceremonies, and workshops; stayed in villagers' houses for cooking; or just held conversations with one or more family member while helping in the field or in the household. The participant observations helped me adjust the questions of the semi-structured interviews after the first research phase, which enabled me to hold interviews in a more confident and, therefore, relaxed and open way, and further allowed me to understand and embed the things I was told and heard, improving my interpretation of the observed and conversed as, "participant observation maximizes your chances for making valid statements" (Bernard, 2006: 356).

### 3.2.2 Ethnographic, semi-structured focused interviews

Focused or in depth-interviews have the characteristic that one is able to focus them on a special thematic area, and even though the questions are usually posed narrative-generative and the conversation-style is sensitive, queries are more structured, meaning they progress within the previously developed topics and work with leading questions (i.a. Schlehe, 2003: 78). Ethnographic interviews focus on the interpretive re-enactment of other (sub)cultures and (sub)cultural every day practices from an aspired *emic* perspective (Kruse, 2008: 47). In this case, thematic areas were developed in advance to create a semi-structured guideline, including a set of potential questions, depending on the background of the interview partners. The guideline was then further developed and adapted with the help of a local translator (Quechua) after the first interviews. The guideline was used more as a tool to lead into a discussion of all of the main topics during the interviews, but was handled flexibly, especially the sub-questions. Therefore, the sequence of questions and the intensity of further inquiries depended on the narrative flow of the interview. This form of interview allowed me, in the relatively short time available, to carry out the interviews in an open and flexible way that allowed the interview to remain thematically targeted, while at the same time also providing the opportunity to incorporate new aspects, or to amend or supplement others. Finally, semi-structured interviews usually allow for certain aspects to be compared more easily

between different interviews, which has been done in regards to some aspects within the analysis (Bernard, 2006: 212; Schlehe, 2003: 78).

While some of the interviews took place during workshop breaks or during other somewhat limited time frames, other interviews were conducted in more relaxed and intimate situations that were more open-ended in nature. Thus, interviews lasted from 10 to 115 minutes (longer ones were mainly conducted with key informants). In Chumbivilcas, all 36 interviews were conducted between July and October 2013. Seven interviews were fully, or partially, carried out in Quechua, with translation into Spanish *in situ*. All interviews were recorded and later transcribed, partly by a native Spanish speaker and partly by myself. All interviews conducted in Quechua were transcribed into Quechua and then translated into Spanish by a native Quechua speaker who teaches at the university in Cusco.<sup>16</sup> Even though the original transcriptions were transcribed in a literally, in order to increase the readability of the English translations, a standard English was chosen for the interview quotes. In this context, grammatical errors were also corrected and half-started sentences and expletives – if not necessary to support the content – were largely omitted.

Additionally, some of the "open talks" or "informal interviews" (Bernard, 2006: 211) that took place were registered in the field notes and were later incorporated into the analysis. Table 2 provides an overview of the interviews conducted in Chumbivilcas. A full, anonymised, and more detailed list of the conducted interviews can be found in Appendix 1.

**Table 2: Interviews conducted in the districts of Llusco, Quiñota, and Santo Tomás of Chumbivilcas, by age and gender**

Age	Llusco		Quiñota		Santo Tomás		Total	
	Female	Male	Female	Male	Female	Male	Female	Male
< 20	1	0	0	0	0	0	1	0
21-30	1	2	1	1	1	3	3	6
31-40	1	3	0	1	2	3	3	7
41-50	1	0	2	2	1	1	4	3
51-60	0	5	0	0	0	2	0	7
> 60	0	2	0	0	0	0	0	2
<b>Total</b>	<b>4</b>	<b>12</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>9</b>	<b>11</b>	<b>25</b>

Source: Own elaboration

<sup>16</sup> All transcriptions in Quechua and translations from Quechua into Spanish were conducted by Milton Gamarra in Cusco, Peru in 2014.

### 3.2.2.1 *The interview guideline*

Guides for the semi-structured interviews were developed before the fieldwork was conducted. In cooperation with a local assistant, they were adjusted following the first interviews. The interview guide for the interviews conducted in the communities (see Appendix 2) is divided into two main parts: 1) Biographical information of the interview partner and 2) perception and change, which was then further divided into four sub-parts: The cycle of nature and agricultural life, transformations in the natural cycle, mines,<sup>17</sup> and climate and climate change.

1) Biographical information of the interview partner: This allowed, on the one hand, a generally easy and pleasant introduction to the conversation as the interviewee was able to provide insights about her-/himself and her/his life, and, on the other hand, allows the interviewer to embed the person in her/his context and identify how he/she is rooted in the community and the environment.

2) Perception and change: This piece covered most of the interviews and reports and focused predominantly on the *Local culture and worldview* questions (see sets of questions presented above; Chapter III, 3.1). The sub-part to this was introduced here, the *Cycle of nature and agricultural life*, resulting in a record of the respondents familiar and everyday work in the field. Here, by and by, a conception of the origins of their environment and its direct relation to their work were reconnoitre, meaning which environmental aspects are rethought or considered, and to what extent a (spiritual) connection to their prevailing environment and nature exists. At the end of this sub-part, the question of perceived changes in the person's life and environment was specifically addressed, however still without – if not already done so by the interviewee her-/himself – directly addressing the issue of climate change. Here, the changes were often associated with the presence of the mines. For this reason, I retrospectively included this sub-theme.

The subsequent sub-chapter of the guide dealt explicitly with the issue of climate and climate change. It solicited information to answer the questions on *Climate information channels*, such as: What is the state of knowledge on climate change; where did the interview partner obtain her/his knowledge; what does he/she think about it; what does this mean for her/his life, or rather, has this caused any changes for her/him and her/his

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<sup>17</sup> Mining is a very complex, and one of the most conflictive, topics in Peru, and is the reason for countless, many times violent, clashes. Also in Chumbivilcas, the commercial activities in the mines are strongly developed. Many people are worried, and are connecting environment and climate change problems especially with the extraction activities in their region. Therefore, this topic – even though not included prior to the fieldwork – was included subsequently into the research topic. Box 2 provides a broader outline of the mining issue in Chumbivilcas.

environment (simplification in lifestyle, degradation of traditional customs, etc.)? When an interviewee was a project participant, this allowed me to also discuss some questions on *Locally implemented climate change projects*.

Interviews with Chumbivilcanos working in government positions or as village authorities were constructed in a slightly different way, leaving the part about local culture and worldview out, and focusing instead on climate change related governmental structures and activities (see Appendix 3). Here, the aim was to find out whether local authorities have knowledge about climate change, to what extent climate change related activities exist at the political level, how networking with the other governmental levels works, and how local authorities become informed about the topic.

### *3.2.2.2 Interview partners and selection method*

Qualitative research usually does not aim for statistical representation. What is important is that cases presented attempt to represent the maximum possible range of heterogeneity in the field (Kruse, 2008). Thus, local interview partners for this research included both project participants of the locally implemented climate change related project and people who were not involved in the project. This combination allowed me to gain a wider insight into the discourse and information paths in the research area, as well as to draw differentiated conclusions with respect to climate change knowledge and its embeddedness into prevailing worldviews and local discourses. In addition, government actors, teachers, and lecturers were interviewed (see Figure 4), which I classified as “expert” interviews if they did not originally come from Chumbivilcas (see the next sub-chapter, Chapter III, 3.2.3). Due to the local conditions, the interview partner selection was based on a “*non-probability sampling method*” (Bernard, 2006: 186ff; Shively, 2011: 57), taking into consideration the two established target groups – project members and non-project members that belong to the active labour age group. Here again, the approach taken is common for ethnographic field research. Due to the short time frame available for this research, I narrowed down the interviewee-selection process and concentrated on a certain community or on obtaining equilibrated insights and results by gender, age, and professional aspects after the first trip. These characteristics were then used to reveal interesting, comparative results. Even though I started with a focus on localities and gender, to adequately address the research questions, I expanded to focus on common spaces instead of one special locality, allowing a broader insight into existing information paths, levels of knowledge, and prevailing ways of interpretation.



As a first step, interviews were conducted with project participants in three of the project's districts – Llusco, Quiñota, and Santo Tomás – in order to have balanced conversations with men and women from each previously established age range (see Table 2). Here, the objective was to detect potential gender or age-specific differences. Out of the 36 interviews conducted, 21 respondents had participated in the organisation's climate change related project activities. The focus was then placed on the active labour age group, which was established to be between 21 and 60 years (33 of the 36 Interviews). One exception to this was a 17-year old girl from a family in which interviews with three generations were conducted, including one with the daughter still living at home, who was in her last year of high school. The two additional interviews that were exceptions were conducted with two men over 60 years of age, who provided some valuable insights into transformation processes and to what extent the term climate change is known to, and perceived by, them. Obtaining a gender-balance within the interviews conducted turned out to be more difficult than expected, and I was unable to comply with the aim of completing an equal number of interviews with men and women; out of the 36 interviews, 11 were conducted with women. I found that women stay at home more, have multiple work loads that don't leave them much free time, and/or sometimes don't feel comfortable speaking to strangers or speaking in Spanish. In general, I found that older people and women felt more comfortable speaking Quechua in rural areas, and even though I have some basic knowledge of the language, it was not sufficient to conduct interviews. Furthermore, in most cases, women tended to be more reserved and timid when in public or when men were around. This aspect relates to the role of women in rural societies in the Peruvian Andes; until about twenty years ago (Interview, B22, September 21, 2013), women hardly had a voice in public, political areas. Even today, public and government positions are usually filled with men, especially in rural areas. Therefore, with women, more time and providing a confidential environment were more important during conversations.

Rural populations in the Andes are, in general, rather cautious and can sometimes be sceptical towards strangers and/or foreigners. This is connected to historical and socio-cultural developments within the Peruvian society, which have contributed to forming today's socio-cultural characteristics and the inequalities between rural, mainly indigenous, and the urban, predominantly non-indigenous, populations (see Chapter V). Therefore, sometimes interview partners responded very little, and with a tendency towards saying what they think the interviewer wants to hear or what he/she thinks they might be expected to say. A small example showing this bias, will be drawn from an interview situation in Chumbivilcas, showing how answers given by an interviewee can rely on who is asking and/or who is present when the question is asked. More precisely,

this means that the ancestry of those being interviewed, or the relationship between the interviewee and the persons present during the interview (for example, the interviewer, translator, or other people such as family or community members), and any pre-consolidated social behavioural patterns such as a feeling of inferiority or superiority, etc. are important to consider when conducting and analysing interviews. First, the interview took place just between the interviewer and the interviewee:

AW: Are you carrying out some customs, [...] rituals, rites, as an offering to the *Pachamama* [mother Earth]? Are you doing this or something else to see how the weather in the coming months will be for the sowing [...]?

B14: No, we are not used to doing this anymore. My parents, yes, were used to it, but we are not anymore.

AW: And can I ask why, well why do you think parents have always done it, and usually children do what the parents do, or no? And, why are you not doing it anymore?

B14: It's because we think that it is for pleasure. So I think. So no longer then, I don't follow the footsteps of my father anymore.<sup>iv</sup> (Interview, B14, October 16, 2013; own translation)

At the end of the interview, somebody working in a local organisation joined the interview. Here, referring to the same topic of the practise of cultural rituals, the following conversation evolved:

OM: But you alone could not do it, well, like our grandparents did before the smoke cloud, watching the water springs, or making offerings; these practices are no longer in practice?

B14: That of the offering we have completely forgotten [...] [Mr/s. X], the latest generations don't perform even a bit of these [practices] any longer.

OM: You neither?

B14: In no way, only when the hailstorm is coming do we do smoke clouds. Only this, yes.

OM: According to your perception, are these [practices] good or not? To perform them again.

B14: They are fine these [practices] [...] [Mr/s. X], because before they performed them, they made offerings to the *Pachamana*, joyfully made the toast, and they really produced well with good products, as well as with the animals.<sup>v</sup> (Interview, B14, October 16, 2013; own translation)

Thus, reflections on the interview situation are of importance and were recorded in the field notes. Usually, once the interview partner knew the interviewer, knew me, which implies multiple interactions, longer stays, or that the interview was mediated by a closer contact, the conversations developed greater depth and the answers could be quite different. The first interviews conducted were made based upon contacts of the organisation CADEP and with the relatives or acquaintances of the first interviewees. Further interviews evolved via repeated visits to communities themselves. In the second phase I selected two villages where I regularly visited and where the two thematic workshops were carried out (see Chapter III, 3.2.5). The selection of these two villages was based upon two main criteria: 1) That I could access the village itself and 2) that the

village community was open towards my presence, both of which were determined during the official village meetings and in conversations with village members. Concentrating on these two villages resulted in, over time, conversations and interviews with residents who were not connected to the organisation's work, but who had already seen me in and around the community or with other residents. Their familiarity with me, meant that I was able to establish a basic trust, making interviews possible. Further, I repeatedly visited one family where I conducted four interviews with three generations of family members and who developed to become my main informants within the research.

### 3.2.3 Expert interviews

First, I would like to say a few words about the term "expert interview" and how to understand its use in this study. More precisely, who is an expert? In fact, technically spoken, everybody is or could be an expert and, thus, of course, every single interviewee was an expert, knowing specific things about the aspects that they were asked about and were being investigated. There are different kinds of interview partners, however. For this research, individuals native to Chumbivilcano, living in or being from the communities where the research took place, were not considered as "experts," and are, therefore, included in section 3.2.2 of Chapter II (see Table 2).

I divided the group of interviewees considered to be so-called experts for this research into two groups: "Internal experts" and "external experts." Both types of experts are not originally from Chumbivilcas. While the "internal experts" live in Chumbivilcas, though just temporally and because of their work (e.g. working at the government, in a NGO, at the university, as a teacher, lecturer, etc.), "external experts" are defined in this research as not living in Chumbivilcas. For example, foreigners that have maybe never heard about Chumbivilcas but who have a specific expertise or knowledge about certain aspects of the region, such as cultural aspects, socio-cultural transformation processes, or climate change specific developments in the region or country (c.f. Kruse, 2008: 47; Liebold & Trinczek, 2009: 33ff; Schlehe, 2003: 80f). These external experts were interviewed because of their external, different, and particular knowledge and point of view.

A total of 17 expert interviews (8 internal and 9 external) were conducted between 2012 and 2014. They were transcribed at a later date in the same way as described in section 3.2.2 of Chapter II. For the expert interviews, like for the semi-structured interviews, a manual was developed before my departure to Peru. I produced interview guidelines for semi-structured expert interviews for authorities in Cusco and organisations working in Chumbivilcas and Cusco (see Appendix 4). As for the semi-structured interviews,

interviews with authorities working mainly in Cusco were performed with the aim of finding out to which extent climate related activities exist at the political level, how networking with other governmental levels works, and how they learn about the topic. Interviews with (development) organisations were conducted because climate change related projects are one of the main channels of information about climate change at the local level. I asked these individuals about their organisation's work on the topic of climate change; their knowledge on the subject, as well as about government activities (at the national, regional, and local level); the organisation's integration and networking in the respective areas, as well as internationally; and finally, what they communicate to the local communities and how they themselves perceive climate change and the discourse about it.

The guidelines for expert interviews were focused more on special topics and were adjusted prior to each interview, depending on the background or working area of the expert (government, science, NGO, etc.). The selection of experts, mainly based in Cusco but also some in Chumbivilcas, was grounded on their function and connection to the topic of climate change, or their knowledge about the Andean worldview and culture. Criteria for the selection of the experts were focused on the the questions: 1) Who is working within the government or in an organisation on the issue of climate change? and 2) Who is able to say something about the worldview and cultural relation to the environment?

#### 3.2.4 Focus group discussion

The focus group discussion was developed in cooperation with an associate professor of the UNSAAC (*Universidad Nacional de San Antonio de Abad del Cusco*), Santo Tomás branch. Five students participated in the focus group discussion. They were between the ages of 22 and 25 and were studying agricultural engineering in their 6<sup>th</sup> through 10<sup>th</sup> semester. All five students (3 female and 2 male) were from different communities of Chumbivilcas. We met on a Saturday night at the office of CADEP in Santo Tomás for two hours.

The decision to conduct this focus group discussion with students from Chumbivilcas on the topic of transformations (including climate change) was made because of their different background compared to the majority of the interview partners from the communities. Even though they are from the region, they belong to a small group that passed various semesters of studies in Santo Tomás, with visits to the branch in Cusco, and, thus, they provide another perspective, a more scientific one. This allowed me to draw conclusions regarding the role of scientific knowledge as one incoming path for

information on climate change and its role in embedding that information into local transformation processes. This focus group did not comply with one of the principles of the “factorial design” (Bernard, 2006: 335f, 238) of focus group discussions that says that the series of groups or the participants should not know each other, the group had a homogeneous characteristic (students from Chumbivilcas studying in Santo Tomás between 20-25 years old). In fact, knowing each other was not a problem in this group, as the topic was not seen as a sensitive one. The focus group provoked interesting discussions on what they had heard in classes and what changes they perceive in their environment and different communities, and how they interpret them. I moderated the focus group discussion.

The students knew the overall topic of environmental and cultural transformation and climate change. The questions were based on the semi-structural interview guideline, adapted to the context and divided into three parts: A) Changes, transformations, and impacts; B) history and customs; and C) climate and climate change. The three parts, with some leading questions, were used as a rough guide for the conversation and, thus, the group conversation was open and flexible, leaving space for the students to include their own topics, interests, and knowledge. The primary results were written down on flip-chart paper and the group discussion was recorded and later transcribed as described in section 3.2.2 of Chapter II.

### 3.2.5 Thematic workshops

Thematic workshops were also part of the research. For this, two villages were selected and a concept developed for two, six-hour workshops conducted in mid-October 2013. Both villages had already dealt with the topic of climate change, as they were both project-villages for CADEP. The presidents of the villages officially announced that the workshops were open for anybody who was interested. Not all workshop participants had participated in the climate change related workshops and activities of CADEP, which resulted in interesting results (see Chapter V). The goal of the workshop was the acquisition of information about the transformations and changes that had taken place in the village. The workshops also allowed for the gathering of existing knowledge related to climate change via:<sup>18</sup>

A) A timeline: A historical perspective on how the village used to be and the transformations that took place to make it the place it is today, looking at: environmental and climate change, social and cultural change, and political and economic change in conjunction with the environment (e.g. times of famine or further extreme climatic events

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<sup>18</sup> More details about the methods used and the sub-questions are provided in Appendix 5.

that influenced the lives of the population, the existence of churches, the implementation of different projects by organisations and the government, reforms, etc.)

B) An annual calendar: The calendar outlined: 1) Agriculture, 2) weather and climate, and 3) customs and festivals (especially those meant to help to predict or to influence weather and climate)

C) Drawings: The participants created visualisations of their village that included drawings of: 1) The past, 2) today, and 3) the future (see Picture 1)

D) Group discussion: The participants shared reflections about the village and its transformations, their perceived causes, as well as prevailing knowledge about climate change.



**Picture 1: Participants drawing during Workshop 1 in Llusco, October 2013**

Source: Anja Weber-Alvarez (2013)

Each of the workshops had approximately 20 participants. For this reason, after a general introduction and a first round of discussions on the topic (see Appendix 4 *Agenda of the workshop*), we split into three groups to work on the three main topics: A) Changes, transformations, and impacts; B) history and customs; and C) climate and climate change. The methods utilised for the group work were based on the "Climate

Vulnerability and Capacity Analysis Handbook" developed by CARE (2009: 29ff), which were adapted or modified to fit our topic and work environment. The two group facilitators of CADEP were experienced in the selected methods and fluent in Quechua. The results of the discussions were documented through the taking of meeting notes, recordings, and by photographs and were incorporated in the analysis.

## 4. Data analysis

Having gained an overview of how the data was gathered for this research, the following section will outline how the data was processed and analysed.

### 4.1 Interview analysis

The semi-structured interviews were conducted and transcribed in Chumbivilcas between July and October 2013. Eight of these interviews were carried out (partly) in Quechua and translated into Spanish (see section 2.2.3, Chapter II). The analysis of the empirical data was done using qualitative data analysis. As qualitative data analysis is always based on interpretative conclusions (Bernard, 2006: 451), a solid and controlled methodical approach for the text analysis is essential. This should be based on sound techniques for the classification and systematic ordering of the data (Kelle & Kluge, 2010: 57). In this context, the *Grounded Theory* approach offers a number of techniques for the analysis: First, by identifying categories and concepts taken out of the text, thus arising inductively, and second, by connecting the concepts to substantial and formal theories (Bernard, 2006: 492). This means that the first step is to code the interview transcriptions, field diaries, and notes with coding variables. Through these coding variables, relationships are established that are then compared (Bernard, 2006: 463). First hypotheses, theories, and focal points are generated based on these codes and their connection to one another. This iterative process is supported in that during the whole process, thoughts and ideas are written down that, in turn, serve as fundamental information for the theoretical construction (Bernard, 2006: 492, 499). The analysis itself is a constant process, accompanying the writing of the dissertation, in which assumptions and findings can change as new categories are developed. This fluid process, and the constant interplay between hypothesis and empiricism, is based on a model of abduction or hypothetical conclusion established by Charles Sanders Peirce (cf. Kelle & Kluge, 2010: 16ff). This model reconstructs the empirically based generation of concepts and theoretical assumptions as a process in which previous theoretical knowledge can be linked in a creative and, at the same time, methodically controlled way, with knowledge gained through empirical observation, according to Kelle & Kluge

(2010: 13). In this context, an abductive approach is similar to an ongoing intermingling of: 1) A prior knowledge sensitised perspective on the research field (determines theoretically informed hypotheses and questions), 2) the observed phenomena (review of hypotheses and questions with the help of empiricism), 3) derived statements (adjustment of hypotheses and research questions), and 4) the verification of the modified hypotheses and questions with empiricism.

The data analysis for this research was conducted with the help of the software programme MAXQDA.<sup>19</sup> Here, the centre of the analysis is the systematic use of texts, a largely codified procedure in which it is not just about the selective plausibility of one's own hypotheses through purposively selected quotations (Kuckartz, 2010: 14). Key elements of the analysis include the following steps that can be performed with MAXQDA: Exploration, interpretation, categorisation, classification (also type formation), data display and visualisation, theory construction, and presentation of results. The qualitative analysis was conducted as outlined in Kuckartz (2014), involving a stepwise approach. Thus, the following steps were carried out:

- 1) Textual work: Interviews were first perused; important passages, questions, and ruptures marked; and first ideas, thoughts, assumptions, and hypotheses captured in memos. Case summaries were created of all the important interviews and assigned a case summary heading.
- 2) First coding: This involved the creation of main categories based on the research questions (see the three sets of questions above; Chapter III, 3.1), following the interview guide, and constructing the definitions for the main categories. The interviews were then coded using the five main categories developed.
- 3) Forming sub-categories: Text-retrievals of each major code were then created. Along the text retrievals, sub-categories were also formed, taking into consideration the research questions.
- 4) Second coding: Interviews were then coded again, according to the main categories and their formed sub-categories (for the list of the codes developed, see the screen-shot taken from MAXQDA in Figure 6).
- 5) Thematic summaries: In each sub-category, summaries were created for the interview partners.

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<sup>19</sup> See [www.maxqda.de](http://www.maxqda.de).



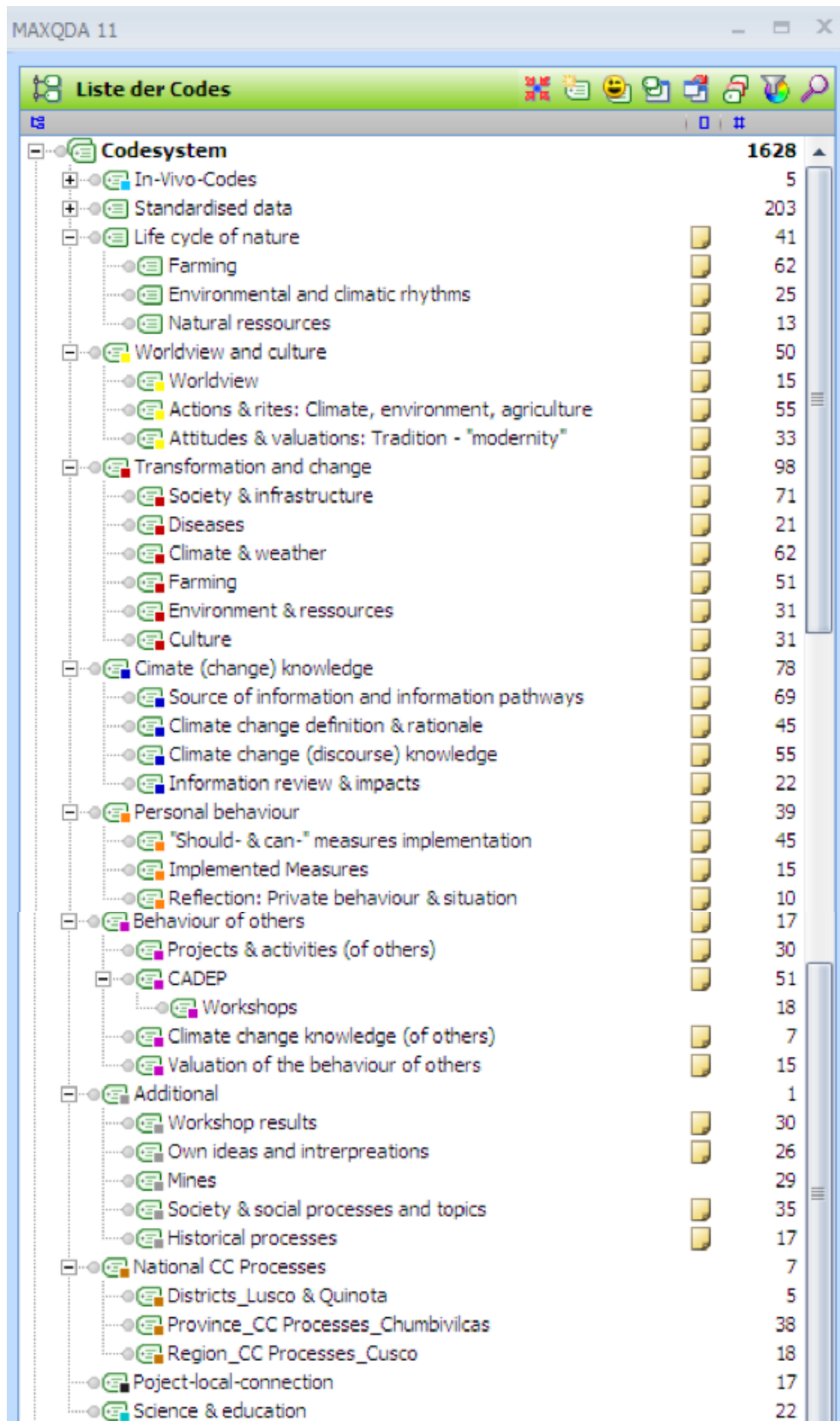


Figure 6: Codes and sub-codes developed for the text analysis of the transcribed interviews

Source: Screen-shot of own study elaboration in MAXQDA (March 24, 2016)

The thematic summaries, already containing the first interpretations, were always analysed together with the original coded citations compiled into grid tables for each sub-code. During the analysis of the codes or sub-categories, in many cases I additionally considered the quotations directly. This combination of interview-overview allowed for a strong connection to the original interview transcriptions, while already synthesising the information they contained. Thereby, each topic (=main codes) that is described in Chapter V is based on this outlined procedure, and led to the research outcomes.

The recorded and transcribed pieces of the thematic workshops and the group discussion were analysed in a similar way, using the same set of codes. For the analysis, additional existing materials, such as the drawings and charts produced during the workshop about history and the annual calendar were also considered. For the two workshops, a report was written afterwards and was shared with the villagers.

Expert interviews were analysed in a similar manner, but not in such a detailed way. As far as applicable, the coding system outlined above was used, and additional, new codes were added; for example, estimations and comments on (inter)national political climate change processes.

## **4.2 Analysis of the climate change discourse in Peru**

After having described the importance of the role of the (critical) discourse analysis, which runs through this work like a leitmotif, in the following section I briefly outline how, and with which methodology, the climate change discourse in Peru has been captured. As there is very little secondary literature written about Peru's climate change discourse, the analysis was based mainly on primary literature that was accessible, like publications by the ministries, such as national communications and agendas, but also on internet articles and web-pages, and (recorded) presentations and talks by the Minister of Environment and his team (see Chapter IV). Further information was drawn from conferences like the InterCLIMAs from 2012 and 2013 in Lima and Cusco, and from expert interviews conducted in Peru between 2012 and 2014 with individuals from (inter)national institutions, organisations, consultancies, and the science sector. The aim of this work was to provide an elaboration on the evolution and inclusion of the topic of climate change within public politics and Peru's policy framework, rather than to provide a whole discourse analysis as outlined by Siegfried Jäger (2011: 113ff; 2012: 90ff) amongst others; though this would have certainly revealed new and interesting aspects, it would be a topic of a full dissertation on its own. Therefore, Chapter IV outlines how the issue of climate change turned into a national discourse, taking the interconnections

of the international level and the public into account to outline important information pathways. The same form of analysis used for the political national level was utilised for the regional example, to demonstrate how the climate change discourse impacted Cusco's political processes, showing the process of integration of the topic within regional development and policy frameworks. Additionally, based on an interview with a Peruvian scientist, the current state of Peruvian science was analysed regarding climate change aspects and observations on the country's processes were recorded.

## IV. Climate change and its discourse in Peru

Based on the first part of this work, the aim of the upcoming analysis of the Peruvian case is to visualise the development process of a discourse and adaptation in the Peruvian contexts and the processes by which the discourse emerged, like the (trans)formation of new institutions; the creation and adaptation of new terms, definitions and concepts; and a certain shift of power within and/or between institutions, demonstrating the force of the discourse. This chapter presents an analysis of the national and a regional climate change discourse, looking at the regional example of Cusco. After a brief overview of the climatic conditions, the current state of climate predictions, and already perceived climate change impacts in the Southern Peruvian Andes, an elaboration on the evolution of the climate change discourse within public politics and Peru's policy framework will be given, taking into account interrelations between the international level and the public. Then, another sub-chapter, will focus on the current state of Peruvian science regarding aspects of climate change and observations of the country's processes. Finally, this chapter will conclude with a regional example of how the climate change discourse has impacted Cusco's political processes, showing the involvement process of the topic within regional development and policy frameworks.

### 1. Life and climate change in the Southern Peruvian Andes

#### 1.1 Climatic conditions and changes in the Southern Peruvian Andes

The climatic conditions of Peru are highly diverse, but can be divided into three main regions (see Map 1): 1) The mainly narrow and desert like Pacific coastline that measures 3,079 km in total, covering 10.61% of Peru's surface; 2) the high-mountain range of the sub-tropical Andes, running parallel to the coastline and divided into the occidental, central, and oriental mountain ranges, covering about 30.49% of Peru, with differing micro climates and the Huascarán (6,768 m) as its highest mountain; and 3) the tropical, Amazonian lowland, covering 58.9% of the country's surface (CONAM, 2001: 1f). Peru's climate is mainly influenced by the mountain range of the Andes, the high-pressure cell of the Southern Pacific, the phenomenon of *El Niño*, the *Humboldt Current* passing by the Peruvian coast, and the high pressure area of the Southern Atlantic (Gallardo, 2009: 13).



**Map 1: Physical map of Peru**

Source: Martin Trippmacher, 2015

Climate extremes and high climatic variability are not new phenomena in Peru, especially in the Peruvian Andes. Pre-Colombian cultures already had highly elaborated knowledge pertaining to interpreting climate and constellations in the sky and changes in flora and fauna (Gallardo, 2009: 15; Postigo, 2013: 195f). This knowledge was essential to surviving under the highly variable climatic conditions. However, archaeological research assumes that over the centuries some of the pre-Colombian cultures like *Wari*, *Tiwanaco*, and even the coastal cultures like the *Moche* “perished” because of sudden

extreme climatic events, like the impacts of an extreme *El Niño* event,<sup>20</sup> along with other destabilising factors like overpopulation and its accompanying conflicts (e.g. Behringer, 2007: 99f).

Even though the Andes have always been affected by high climate variability and extremes, a common phrase that can currently be heard everywhere in the Andes is, “climate is changing” (PRATEC, 2009: 8; own investigation, 2013). This phenomena is supported by results from qualitative research conducted in mountain areas of Peru. Thus, Gallardo (2009: 15) points out that rural communities frequently report severe and rapid changes in their microclimates, especially in the last 30 years. This is supported by research carried out by NACA (*Nuclei for Andean-Amazonian Cultural Affirmation*) and by my own research conducted mainly in 2013 (see Chapter V). What this means for each community in particular can differ. In general, however, the felt changes reported by communities in the Andes include hotter days and colder nights, meaning an intensification of temperature extremes; a shift in rain patterns (i.a. the dry and wet seasons); and a shift in, and higher frequency and strength of, incidences like droughts, frost, and hail, as well as extreme weather events like severe rainfalls and thunderstorms (Gallardo, 2009: 15; Postigo, 2013: 187ff; PRATEC, 2009: 8; own investigation, 2013) that impact the flora, fauna, and humans in a complex manner. The following quotation from one of the research communities illustrates an example of a felt shift in climatic incidents:

Climate change, for example, [is] for me, when our climate is no longer in its due time, for instance, the rain, the frost for example, the snow, the hail is no longer in its right time like it used to be. For example, now there are years where no snow falls, there are years where it rains a lot, some years there is no rain at all, and now this year where there is no frost.<sup>vi</sup> (Interview, B10, July 18, 2013; own translation)

However, as was pointed out by a scientist working on climate change impacts in a Peruvian research institute, while talking about their working-experience on climate change perceptions in local communities: “The perception of the people [just] goes back about twenty years, that is not [...] very long, which means that his/her memory of the climate is not very extensive”<sup>vii</sup> (Interview, E3, November 20, 2012; own translation). Therefore, further research has been carried out to scientifically retrace climatic changes in the Andes in recent decades. The 5<sup>th</sup> Assessment Report of the IPCC, Working Group II, brought together the few existing investigations on changes in climatic conditions in

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<sup>20</sup> *El Niño* is an irregularly occurring incident, happening every three to seven years, when the Equatorial Pacific is warming, bringing precipitation to the usually very dry northern coast of Peru and all year long dryness to the Southern Andes, which normally have an annual dry season (May through October) and rainy season (November through April) (Lagos et al., 2008: 232). *El Niño* can last months or, in extreme cases, years, and is usually followed by a *La Niña* phenomenon, a reverse effect of the *El Niño* event.

the Southern Andes (Alfaro et al., 2014: 7), though the results are not always completely congruent: The studies have shown that, for example, according to Marengo et al. (2009), an increase of air temperature between 1964 and 2006 took place, but that no changes in precipitation patterns could be found. Lavado et al. (2012) support this finding, as they identified an increase of 0.09°C per decade between 1965 and 2007 over the Peruvian Andes. Moreover, Vuille et al. (2008) detected a profound change in the tropical Andes over the last 50-60 years. However, based on his research, these changes came along with a small increase of precipitation in the second half of the 20<sup>th</sup> century. His results are consistent with observed changes in the large-scale circulation that suggest a strengthening of the tropical atmospheric circulation.

## **1.2 Climate change predictions for the Southern Peruvian Andes**

To predict climate change is a complicated undertaking. This is especially true when it comes to climate change predictions in mountain regions. This could partially explain the diverging impact-perceptions and the seemingly dissenting scientific results mentioned above. Due to their complex topography and differing microclimates, regional or local specific projections are very difficult to implement, even though such projections have already been intensively investigated within the scientific development of climate models. Additionally, it is difficult to predict, as temperatures vary with altitude and thus, the impacts within warmer climates are different than those in colder climates; for example, climates above or below the snow-line (Kohler & Maselli, 2009: 7). Based on this, Kohler and Maselli (2009: 7) point out that there remains a lack of more precise model simulations of climate change in mountain areas, and that the results obtained still demonstrate major disparities between the different models. Based on past trends, research on future impacts of the global climate change on the Southern Andes of Peru indicates an increase in temperature at higher altitudes and an increase in annual temperature variability (for scenarios with greater global warming). It is expected that in the future, changes in precipitation patterns will depend first of all on changes of *El Niño* (Kohler & Maselli, 2009: 9). Even though the changes of *El Niño* patterns are still poorly understood (Kohler & Maselli, 2009: 9), it is expected that *El Niño* might intensify with global warming (Lagos, 2007: 28). The warming of the oceans is expected to further impact on Peru's climate. Some fear that the warming ocean will impact the *Humboldt Current*<sup>21</sup> and that this could have strong impacts on the precipitation cycle of the Peruvian Andes.

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<sup>21</sup> The *Humboldt Current* is a cold, low-salinity ocean current flowing along the west coast of South America, starting in the south of Chile and reaching up to northern Peru.

Scientific models are not the only ones that have problems making climate predictions; traditionally applied environmental observations that are used for weather forecasts and climate-related predictions also do not seem to produce the same results as before. Here, in recent decades, climatic changes have been imposing increasing difficulties on the population in terms of predicting weather events through their traditional annual calendar or by relying on their commonly used natural signals (Gallardo, 2009: 15). This leads for example, as pointed out by Kronik and Verner (2010: 150), to a loss of the credibility and authority of mainly older people and traditional cultural practices. Examples for this transformation process will be provided in Chapter V.

### **1.3 Climate change impacts and their effect on the Andean society**

Impacts of the above listed perceived changes – ranging from a slower increase of temperatures to a more frequent appearance of climatic hazards and extreme events – are manifold, including environmental impacts, on the one hand, and bio-physical and socio-economic impacts, on the other. A greater focus is put on human-related impacts, such as loss of lives, damages to infrastructure, and a reduction in agricultural production. In this regard, for Peru, the topic of mountain ecosystems is of high relevance. Mountains often function as the host of a huge diversity of ecosystems, which is why Ariza et al. (2013: 23) name the mountains the, “hotspots of global biodiversity.” Forecasts about global climate change impacts assume that there will be increasing impacts on the highly sensitive mountain areas, meaning profound influences on, and especially losses of, their wide biodiversity, an important factor when it comes to the resilience of ecosystems. The impacts are basically caused by on-going and further expected climatic changes such as warming, which is particularly a problem when the pace of evolution exceeds the coping capacity of the migration systems of the flora (Kohler & Maselli, 2009: 43). The transformations of and within ecosystems entail impacts on every piece of the “ecosystem-chains,” as well as on interrelations between flora and fauna, which in both cases can impact the local context and its inhabitants. The impacts on existing ecosystems create vulnerabilities, resulting in a need to cope in one way or another with the respective changes.

One of the most obvious and visible examples of the effects of increasing temperatures in the area of the Southern Peruvian Andes is the reduction in the size of the glaciers. The Southern Peruvian Andes belong to the tropical Andes, hosting about 70% of the world’s tropical glaciers. They are considered, like many other mountain regions, to be the key water supply for the dry but densely populated coast, in particular, and for the



Amazonian Basin. Between 1970 and 1997, Peru lost 22% of its glaciers<sup>22</sup> (Kohler & Maselli, 2009: 26; Lagos, 2007: 29; Postigo, 2013: 186; PRATEC, 2009: 6) and with it, a part of its available fresh water supply. Thus, the securing of water and energy supply poses an increasingly bigger challenge (Kerres, 2010: 4), as about 80% of Peru's total electricity is produced via hydropower (Kohler & Maselli, 2009: 26). Studies from the *Cordillera Blanca*, the Central Andes of Peru, indicate that the level of run-off water from the glaciers has already reached its peak and that it has now started to decline (Baraer et al., 2011 in Postigo, 2013: 186). Areas close to the glaciers currently still profit from a larger level of run-off, meaning that they are not solely dependent on rain water, which at the same time changes their determined seasonality and increases the income of rural families (PRATEC, 2009: 6). Places further away from the glaciers, however, suffer more from droughts and a lack of rain. An example of this trend in the water supply can be seen by the decrease or drying up of water springs detected in several locations in Chumbivilcas (own investigation, 2013), though specific reasons for this have not yet been clarified. To be able to secure a regular water supply for the local population, broader investigations in the near future would be important. Having said this, a shifting of the cultivation of agricultural products uphill has been identified, mainly in areas distant to the glaciers (Postigo, 2013: 182). Due to this shift uphill,<sup>23</sup> one can now find cultivation of grain, maize, and fruit trees in altitudes where this was previously not possible, which also comes along with a loss of pasture land and a reduction of wild areas (PRATEC, 2009: 6).

Besides being a hotspot of biodiversity and an important water resource, the mountain areas in Peru are the most important areas for agricultural production (Lagos, 2007: 29; Cancino, Mendoza, & Postigo, 2011: 15). Here, not only is an adequate water supply at the usual time important, but also an appropriate agricultural system adapted to the different altitudes. In this sense, the Peruvian Andes have a long tradition of a highly specified agricultural system that was already developed in pre-Colombian times.<sup>24</sup> That the changes already pose negative impacts for rural families can be seen in the quotation above (sub-chapter 1.1, Chapter IV; Interview, B10). This means, not only that the rain no longer comes at the "right" time, but also that more frequent climatic hazards result in

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<sup>22</sup> This corresponds to about 7 billion cubic metres, which means a decline of 12% of the available fresh water on the coast, where more than 60% of the Peruvian population lives (MINAM & Proyecto Segunda Comunicación Nacional de Cambio Climático, 2009b: 22). This accounts for about ten years of water consumption in Lima (PRATEC, 2009b: 6). Forecasts assume that glaciers will have disappeared below 5,500 metres by 2025, which, together with a decrease in one of the currently most important resources of water and energy supply, will leave Peru in about 40 years with just 60% of the fresh water available today (GORE, 2012b: 22; PRATEC, 2009b: 6).

<sup>23</sup> The upward shift, mentioned by various people during my investigations, was considered to be about 100-150 meters (own investigation, 2013; see also PRATEC, 2009b: 18ff).

<sup>24</sup> This aspect of climatic conditions of the highly adapted agricultural system to specific altitudes is well elaborated on and outlined by John Murra (1972, 1975) in his concept of a maximal "vertical control" of ecological levels (see as well Chapter V).

regular losses in agricultural production and livestock rearing, which in turn results in substantial economic losses and losses of lives. The following provides two regional examples. In May 2013, entire villages lost their agricultural production shortly before harvest: “Grain, we don’t even have any to give to the chickens, nothing more than corn and potatoes, and barley. All cereals are missing. Yes, we were about to harvest everything, then everything [fell to] the ground [because of] the hailstorm”<sup>viii</sup> (Interview, B22, September 21, 2013; own translation). In May and July 2014, online newspapers reported sub-zero temperature extremes of about -25°C in the Southern Peruvian Andes, provoking a very high mortality rate within the Alpaca population, which is usually very well adapted to the climatic conditions of high altitudes.<sup>25</sup>

In Peru, 25.1% of the economically active population worked in the agricultural sector in 2010. When considering only the economically active rural population, the results show that 73% worked in the agricultural sector,<sup>26</sup> contributing 6% (2013)<sup>27</sup> of the GDP. This shows clearly the importance of agriculture for the daily life and survival of large parts of the Peruvian population. The comparatively small percentage of GDP stemming from agriculture, provides some indication that there is a connection between the agricultural sector, rural areas, and the country’s poverty rate.

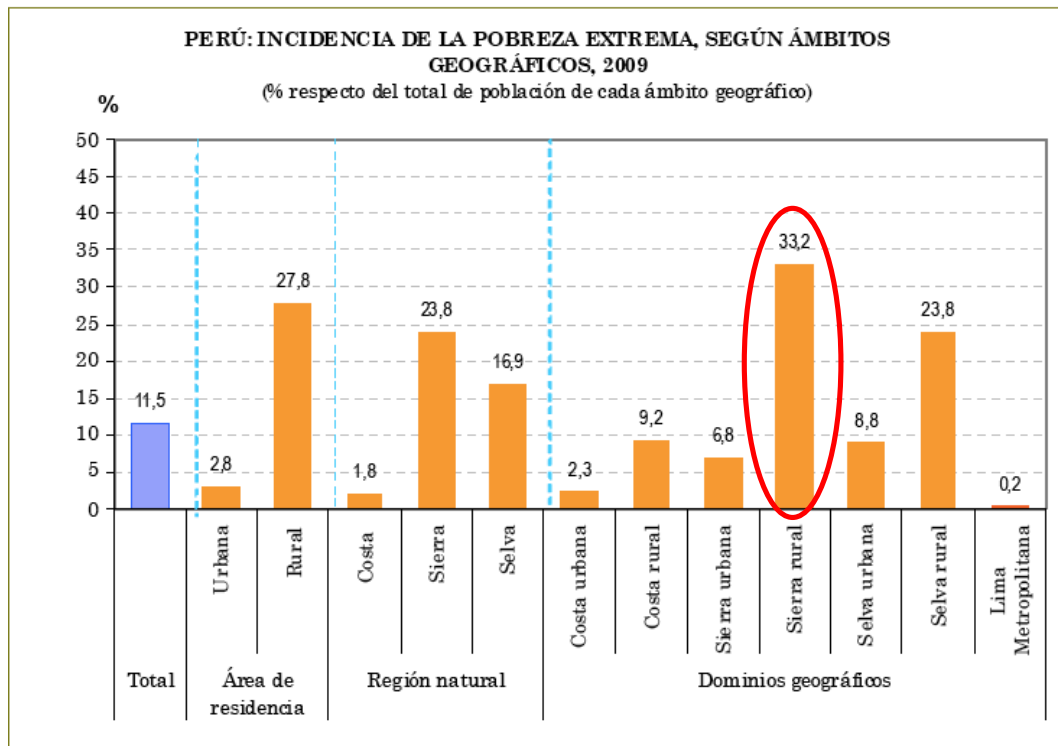
Thus, people that depend to a greater extent on natural resources are more sensitive to climatic changes, especially those working in the primary sector. Despite being more sensitive to climatic hazards, due to their remote location and difficult access, however, rural, mountainous areas commonly remain more marginalised in a political and economic way, showing also less economic investment and infrastructure (Ariza et al., 2013: 11; Macchi et al., 2011: 3). In the Peruvian Andes, 33.2% of the rural population was affected by extreme poverty in 2009 (see Figure 7; red circle).

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<sup>25</sup> See, for example: <http://latina-press.com/news/182435-peru-temperatur-in-cusco-faellt-auf-minus-20-grad> [generated July 20, 2014]; <http://latina-press.com/news/183005-minus-15-grad-ueber-3-000-alpakas-in-peru-getoetet> [generated July 31, 2014]; [www.rpp.com.pe/2014-05-19-puno-bajas-temperaturas-provocan-muerte-de-alpacas-noticia\\_693216.html](http://www.rpp.com.pe/2014-05-19-puno-bajas-temperaturas-provocan-muerte-de-alpacas-noticia_693216.html) [generated May 19, 2014; accessed August 8, 2014].

<sup>26</sup> <http://interclima.minam.gob.pe/IMG/swf/INDEX.swf>, slide 4 [accessed August 5, 2014].

<sup>27</sup> Source: INEI, *Producto Bruto Interno según Actividad Económica (Nivel 9), 1994-2013*; [www.inei.gob.pe/estadisticas/indice-tematico/economia](http://www.inei.gob.pe/estadisticas/indice-tematico/economia) [accessed August 5, 2014].



**Figure 7: Percentage of the population living in poverty in different categories of locations in Peru (2009)**

Source: INEI, 2010: 19

With regard to the impacts of changing climatic conditions in mountain societies, Kohler and Maselli project a rather dark future:

In summary, climate change will worsen the living conditions of mountain farmers who are already vulnerable and food insecure. Rural mountain communities dependent on agriculture in a fragile environment will face an immediate risk of increased crop failure and loss of livestock. As a result of all these trends, hunger and malnutrition will increase. (Kohler & Maselli, 2009: 51)

While certain aspects of socio-cultural conditions and changes have been discussed in this chapter, specific climate change impacts for the local population will be outlined in a more detailed way in Chapter V. This chapter has already provided an overview of the climatic conditions and changes occurring in the Southern Peruvian Andes. It has also illustrated the newly arising, increasing, and worsening impacts of the multiple climatic transformations that the Andean society has had to cope with, or will have to cope with in the near future.

## 2. The climate change discourse in Peru

After having provided an overview of Peru's climatic conditions, changes, and its impacts, the following section will outline how the topic of climate change turned into a national discourse. Peru is a very good example for retracing the processes and transformations at different levels in connection with, and as a result of, the international climate change discourse. The climate change discourse is primarily assimilated, replicated, and spread via three main means – public politics, media,<sup>28</sup> and national science. The first and the third areas will be described in more detail in the following below. Thus, the questions of focus for this section are: 1) How did Peru's politics become involved with climate change and how did they further develop the topic? and 2) How is climate (impact) research integrated into Peru's scientific community?

Lima, Peru's capital, is the centre of the country's national politics and economy and also is the centre where "modern" public and social life is being reproduced and spread to other areas of the country.<sup>29</sup> In total, Lima hosts 28.4% of the Peruvian population (8,751 million inhabitants, according to the INEI (2014: 5)). Therefore, the focus in the following is mainly on Lima.<sup>30</sup> Connections between the national, international, transnational, and institutional levels, as well as with the civil society, however, will be drawn. It will be shown how the topic of climate change was dispersed at various levels, as well as the inequality of distribution within this process, a process that produces differing effects at and on the various levels. Thus, decisions and transformations that are valued to be positive at the international level are not necessarily considered the same way at the local level and *vice versa*. As there is only a limited amount of secondary literature available about Peru's climate change discourse, the following section is based mainly on primary literature, such as publications of federal ministries, national communications and agendas, internet articles, and presentations and talks by the Minister of Environment and his team, as well as interviews I conducted in Peru from

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<sup>28</sup> In this work, a detailed analysis of the climate change discourse in media is missing: The online-archives of the following newspaper were checked: El Comercio, Correo, Peru21 (the only newspaper covering the larger time-span of the analysis, going back to May 2004), La República, La Primera, La Razón, Expreso, El Peruano, and El Tiempo, Diario16 [accessed August 22, 2014]. Here, no noticeable changes in the frequency of the topic could be detected, since the accessible material does not go back far enough in time. Further, studies on climate change and mass media coverage is hardly existent in Peru. Takahashi (2010: 547), in his article on the mass media coverage of climate change in Peru during the Fifth *Latin America, Caribbean and European Union Summit* in May 2008, is therefore somewhat of an exception and a pioneer. Therefore, the decision was made to leave the media-analysis aside. Even though the media analysis would have been interesting, for purposes of this research, it was only of secondary importance, since it would have just shown one further aspect of information dissemination for predominantly the urban level. However, for the local, rural level of the case study, internet-based media and newspapers are (still) of minor importance. Here, the political processes and decisions, as well as (inter)national development projects are more significant for the local dispersal of climate change information.

<sup>29</sup> The role of Lima in relation to its regions, especially to Cusco and the Southern Peruvian Andes, will be further discussed in Chapter V, 1.3.1.

<sup>30</sup> Regional and local insights will be provided in more detail in the context of the empirical research study in Chumbivilcas, Cusco in Chapter V.

2012-2014 with experts from (inter)national institutions, organisations, and scientific institutions.

## 2.1 The climate change discourse and public politics in Peru

### 2.1.1 Peru's role in international climate politics

Latin America, including Peru, is a block of rather “marginal actors” within the process of international climate change negotiations, as noted by Manuel Pulgar-Vidal, Peru's Environmental Minister since December 2011, in his publication “*Peru in the face of climate change*” (Pulgar-Vidal, 2010: 195). Still, Peru was among the first countries that signed and ratified the *United Nations Framework Convention on Climate Change* (June 12, 1992 and June 7, 1993, respectively) and signed and ratified the *Kyoto Protocol* (November 13, 1998 and September 12, 2002, respectively), which entered into force on March 21, 1994 (UNFCCC) and February 16, 2005 (Kyoto Protocol).<sup>31</sup>

In the international negotiation processes, due to Latin America's highly diverging interests,<sup>32</sup> the community of Latin American Countries (LAC) never spoke with one voice or appeared as one organised group, unlike the European Union (Garibaldi et al., 2012: 2). Peru played an important role, however, when a group of Latin American middle income and low-emission countries<sup>33</sup> put forward specific propositions to voluntarily reduce their emissions during COP17 in Durban, with the aim “to build bridges and break down the North-South firewall and promote the case for all countries to take on binding obligations,”<sup>34</sup> so Edwards, and to also exert pressure on the big emitters who object to action (Garibaldi et al., 2012: 3f). Additionally, “Peru [...] remains up to now the only one to have formally increased the level of its offer” (Garibaldi et al., 2012: 4). This commended, pioneering role at the international level has been, in turn, highly criticised at the national level by Cancino et al. (2011: 11). Cancino et al. “complain” about Peru's selected focal point, concentrating on mitigation and emissions reduction, instead of focusing on adaptation. This trend in Peru's environmental politics

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<sup>31</sup> [http://unfccc.int/essential\\_background/convention/status\\_of\\_ratification/items/2631.php](http://unfccc.int/essential_background/convention/status_of_ratification/items/2631.php);  
[http://unfccc.int/kyoto\\_protocol/status\\_of\\_ratification/items/2613.php](http://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php) [accessed July 14, 2014].

<sup>32</sup> Peru's Minister of Environment, Manuel Pulgar-Vidal, described the Latin American context for the COP20 as driven by, “a current deeply ideological and economic debate,” divided by mainly three blocks: 1) The ALBA-States (*Bolivarian Alliance for the Americas*, consisting of nine countries: Antigua and Barbuda, Bolivia, Cuba, Dominican Republic, Ecuador, Nicaragua, Saint Lucia, Saint Vincent and the Grenadines, and Venezuela (<http://albatcp.org/en/albatcp>) [accessed July 22, 2014]; 2) the block related to the *Free Market* approach, like Peru; and 3) the “big players” like Brazil (Pulgar-Vidal, President's talk at Brown University, May 21, 2014, [www.youtube.com/watch?v=OTnl42opLNg](http://www.youtube.com/watch?v=OTnl42opLNg)) [generated May 21, 2014; accessed July 22, 2014].

<sup>33</sup> Peru represents 0.4% of global emissions of greenhouse gases (GORE 2012b: 22).

<sup>34</sup> [www.trust.org/item/20130214151200-1t6m7/?source=search](http://www.trust.org/item/20130214151200-1t6m7/?source=search) [accessed May 08, 2017]. Edwards, G. (2013, February 14). Climate Conversations: Why Peru should host COP20. In: *AlertNet – a Thomson Reuters Foundation Service*.

results, according to the authors, in the problem that Peru's relationship with climate change (impacts) is not sufficiently understood and reflected.

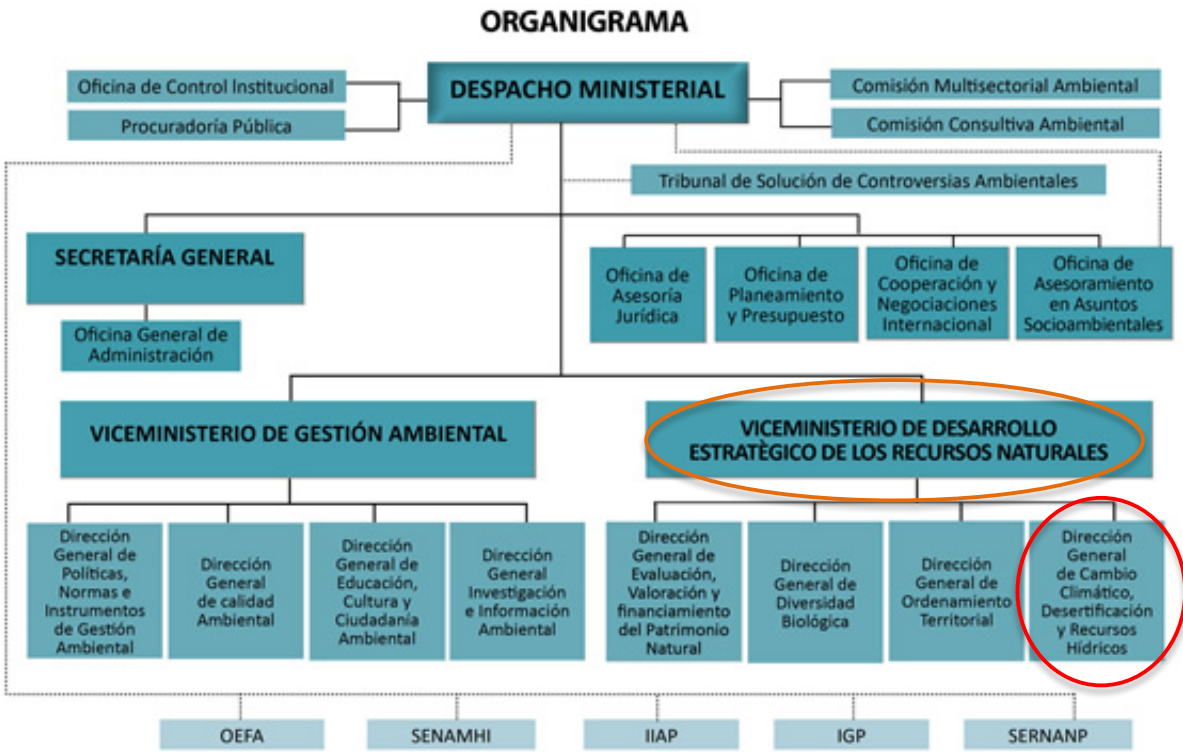
With its role as the host of the COP20 in Lima in December 2014, Peru moved more into the "limelight" of the international negotiation processes, a role that the Ministry of Environment (MINAM) took very seriously, especially in terms of its preparations. This has had strong impacts on the country's public politics addressing different aspects of climate change, particularly in Lima, which will be further outlined within the successive sub-chapters.

### 2.1.2 Peru's political climate change framework

In Peru, great efforts have been made to integrate, develop, and thus, institutionalise the issue of climate change, in particular since 2008, transforming parts of the political structure within the country. The topic of "climate change" is nationally attached to the Ministry of Environment.<sup>35</sup> Here, it is integrated into the *Vice-Ministry of Strategic Development of Natural Resources* (orange circle), and specifically into the work of the *Department of Climate Change, Desertification and Water Resources* (DGCCDRH) (red circle) (see Figure 8).

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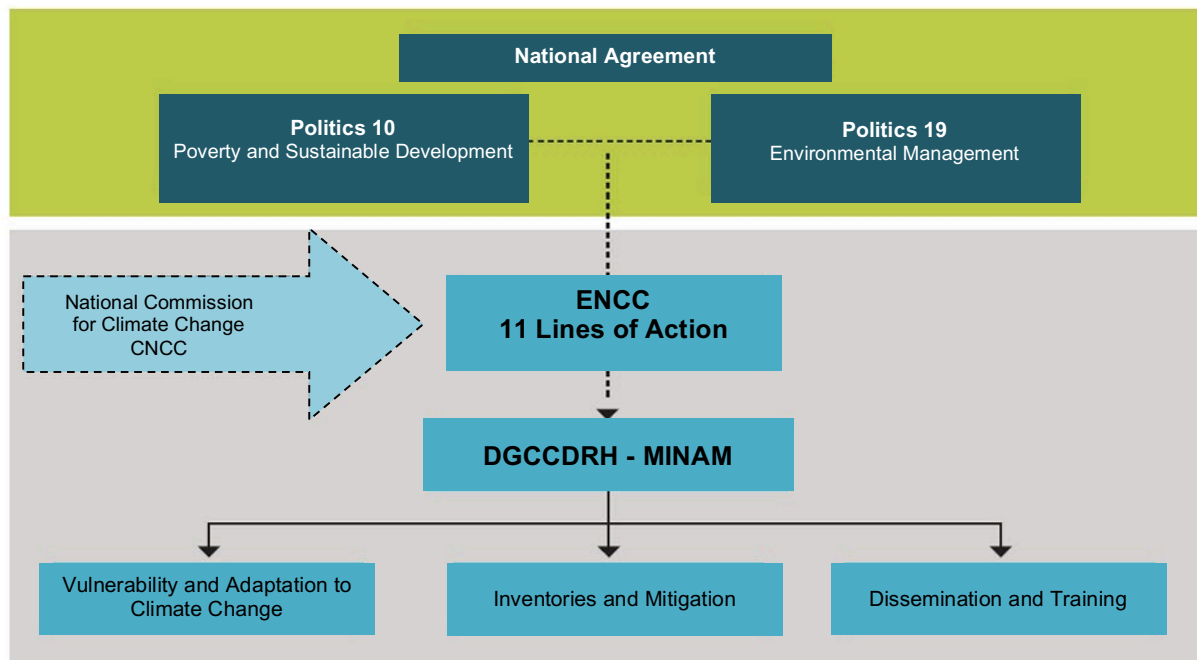
<sup>35</sup> MINAM's Ministers so far: 1) Antonio Brack Egg (May 16, 2008 - July 28, 2011) under president Alan García Pérez (2006-2011); 2) Ricardo Giesecke Sara-Lafosse (July 28, 2011 - December 10, 2011); and 3.) Manuel Pulgar Vidal Otálora (since December 11, 2011), the last two under the government of Ollanta Humala (2011-2016). For more information on MINAM and its activities see [www.minam.gob.pe/cambioclimatico](http://www.minam.gob.pe/cambioclimatico) and <http://cambioclimatico.minam.gob.pe> [accessed July 17, 2014].



**Figure 8: Organisational chart of the *Ministry of Environment (MINAM)* with the *Department of Climate Change, Desertification and Water Resources (DGCCDRH)* circled in red**

Source: [www.minam.gob.pe/el-ministerio/organigrama-equipo-funcionarios](http://www.minam.gob.pe/el-ministerio/organigrama-equipo-funcionarios) [accessed July 18, 2014]; accentuation by the author

Moreover, as Figure 9 shows, the area of climate change is legally based on, and integrated into, Politics 10 “Poverty and Sustainable Development” (2002) and 19 “Environmental Management” (2002), within the framework of the National Agreement.



Fuente: Elaborado por el MINAM

**Figure 9: National framework for Peru’s environmental management**

Source: <http://cambioclimatico.minam.gob.pe/la-gestion-del-cc/marco-institucional-de-cambioclimatico/marco-nacional-de-cc> [accessed July 17, 2014]; own translation

At the national level, before the establishment of MINAM, the subject was handled by the *National Commission for Climate Change (CNCC)*, which was founded in 1993. In 1996, the presidency of the commission was handed over from the Ministry of Foreign Affairs to the *National Council on Environment (CONAM)* (Gallardo, 2009: 15f). The CNCC consisted of sixteen representatives from different governmental committees, ministries, and from the private sector.<sup>36</sup> The function and aim of the CNCC was to coordinate and implement the matters of the international climate treaties, under the umbrella of the CNCC. Thus, Peru conducted a situational-based, cross-sectional approach to address the topic of climate change from the beginning, with limited success, an approach that is strongly desired today. The foundation of MINAM<sup>37</sup> in 2008 bundled the formerly institutionally strongly fragmented subject, and with it the diverse and diverging interests of the former representatives of the CNCC. Thereby, it had the

<sup>36</sup> The *National Council of Science and Technology (CONCYTEC)*, the *National Confederacy of Private Business Institutions (CONFIEP)*, the *National Fund of Environment (FONAM)*, the Chancellery, the *Ocean Institute of Peru (IMARPE)*, the *Institute of Natural Resources (INRENA)*, the Ministry of Economy and Finance (MEF), the Ministry of Transports and Communication (MTC), the Ministry of Energies and Mining (MINEM), the Ministry of Production (PRODUCE), the *National Service of Meteorology and Hydrology (Senamhi)*, the *National Council on Environment (CONAM)*, the *Universidad del Pacífico-Investigation Centre*, NGO representatives, the Association of Peru’s Municipalities, and the Ministry of Foreign Affairs (Gallardo, 2009).

<sup>37</sup> MINAM was initially founded to, “meet the requirements of the 2006 United States-Peru Trade Promotion Agreement” (Orlove, 2009b: 156), though it had demonstrable limits because decisions concerning mining and the extraction of petroleum and natural gases are made within other Ministries that are more closely linked to the industry and commonly do not share the same goals as MINAM, according to Orlove.



political authority to require implementation for the first time. Beyond that, as mentioned in an expert-interview with a national institution, the creation of MINAM was important for Peru's climate change related structural development because the government invested its own money in the development of climate change related topics and to pay a salary to its "own" people for the first time. Previously, different actors of the international development cooperation community had introduced climate change initiatives that were mainly responsible for paying the salaries (Interview, E1, February 2, 2014). The creation of MINAM is also of vital relevance within the scope of international climate negotiations, as Peru's government now has one responsible entity with the mandate to make decisions in the negotiation processes. Using the newly created space, MINAM updated and developed strategies, agendas, and public documents, and since 2012 has executed its own InterCLIMAs<sup>38</sup> – an annual space for meeting of, exchanging between, and reporting on actors engaged in the context of Peru's climate change management at all levels. Furthermore, and as mentioned above, Peru was the host of the COP20 in December 2014.

Peru's legal and institutional framework is responsible for handling climate change issues, and has developed strongly. This development was attended by an emergence of a series of (inter)national programmes and projects that were mainly carried out in the subsequent core areas: Mitigation, reduction of vulnerability, and adaptation to climate change. On the international level, before the foundation of MINAM, the CNCC ratified the Kyoto Protocol in 2002 and nominated CONAM as the responsible authority for the implementation of the *Clean Development Mechanism* (CDM) in Peru, based on an international agreement that was established at COP7 in Marrakesh in 2001 (Gallardo, 2009: 16). At the national level, the CNCC published the first *National Communication on Climate Change of Peru to the UNFCCC* in 2001 (CONAM, 2001), followed by a *National Climate Change Strategy* (ENCC) in 2003 (CONAM & CNCC, 2002) that was implemented through the *National Programme on Capacity Empowerment for Climate Change Impact Management and Air Pollution* (PROCLIM),<sup>39</sup> and has been developed further in the *National Agenda on Environment – 2005-2007* (CNCC, 2004) (Gallardo, 2009: 16).

Table 3 provides an overview of the most important national climate change related documents published, along with the document aims and their main content (see, as well, MINAM, 2015: 32f).

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<sup>38</sup> The first InterCLIMA in 2012 concentrated on climate risk management, the second in 2013 focused on low emission and climate resilient development (<http://interclima.minam.gob.pe>) [accessed July 15, 2014].

<sup>39</sup> See, as well, <http://www.met.igp.gob.pe/proyectos/proclim> [accessed July 21, 2014].

**Table 3: Overview of Peru's most important national climate change related documents**

Year	Document	Aim and/or main content	Published by...
1992	National Report prepared for the United Nations Conference on Environment and Development (CNUMAD)	Identification of fundamental and critical environmental problems and outline for the development of long-term politics and programmes. Climate change issues already appear in the report in the context of greenhouse gases (GHGs) emissions and forests, pointing out a common but differentiated responsibility (Pulgar-Vidal, 2010: 179).	National Committee CNUMAD
2001	First National Communication on Climate Change of Peru to the UNFCCC	A compilation of the current state of affairs of Peru's legal and institutional framework and activities, focusing mainly on mitigation, negative impacts, and vulnerability to climate change (glaciers/hydrology, <i>El Niño</i> ).	CONAM
2003	National Climate Change Strategy (ENCC)  Supreme Decree N° 086-2003 PCM	The main objectives are to reduce adverse climate change impacts through integrated studies of vulnerability and adaptation, and to control the emission of local pollutants of GHGs through programmes dealing with renewable energies and energy efficiency in different sectors of production (MINAM, 2011: 15).	CONAM, CNCC
2010	National Politics on Environment	The document addresses public and private activities, while at the same time integrating social, environmental, and economic public politics. It further serves as a base for the formulation of public environmental management instruments such as the <i>National Environmental Action Plan</i> .  Climate change is mentioned as the last of eleven listed essentials. In addition, climate change adaptation and mitigation is outlined as the seventh of ten objectives of the first axis of "Conservation and sustainable use of natural resources and biological diversity," and the ninth point of political outlines for "Mitigation and adaptation to climate change."	MINAM
2010	Second National Communication on Climate Change of Peru to the UNFCCC	A compilation of the current state of affairs of Peru's legal and institutional framework, activities, and especially, achievements in the scope of investigations, mitigation, adaptation, and reduction of vulnerability.	MINAM  Financed by the Global Environmental Facility (GEF) and supported by the United Nations Development Programme (UNDP)
2010	Climate Change Adaptation and Mitigation Action Plan	Summarizes the actual state of affairs of Peru's climate change actions, and describes the proposal of MINAM for the programmes, projects, and priority activities in regards to climate change in the short and medium-term, constituting a first approach to the Strategic	MINAM

		Outline of Climate Change Adaptation and Mitigation that are in process of being formulated (MINAM, 2011: 15).	
2011	National Environmental Action Plan (PLANAA) Peru 2011-2021  Supreme Decree N° 012-2009-MINAM	This plan is a long-term, national planning instrument containing environmental goals for the next ten years. Climate change is integrated into the fourth objective (out of seven): "Forests and climate change." <sup>40</sup> The main objectives are to reduce the emissions of deforestation to zero (from 54 million hectares of primary forests), to reduce the country's GHG emissions by 47,5%, and to lower vulnerability to climate change. Along with mitigation actions, the eight strategic actions listed also include adaptation and reduction of vulnerability actions (MINAM, 2011: 58ff).	MINAM  Supported by the German Corporation of International Cooperation (GIZ) and the Development Bank of Latin America (CAF)
2011	Bicentenary Plan - Peru till 2021	The first national strategic development plan outlining Peru's national development politics through 2021. Climate change is mentioned as one of eleven mega development trends of Peru and adaptation to climate change is, within the Strategic Axis N° 6 "Natural Resources and Environment," one of five priorities (CEPLAN, 2011).	National Centre of Strategic Planning (CEPLAN)
2012	Risk and Climate Change Management Plan in the Agrarian Sector, Period 2012-2021 (PLANGRACC-A)  Ministerial Resolution N° 0265-2012-AG	This plan is a management instrument that provides strategies, political outlines, proposals, and agreed upon actions with the regions to reduce risks, vulnerability, and climate change impacts in the Agrarian Sector.  The objectives of this plan are to contribute targets and strategic actions for national development, in terms of vulnerability reduction for the population directly related to agriculture (MINAGRI, 2012: 15).	Ministry of Agriculture and Irrigation (MINAGRI)  Supported by the Food and Agriculture Organisation of the United Nations (FAO)
2015	Second National Climate Change Strategy (ENCC)	The National Strategy on Climate Change reflects the commitment of the Peruvian State to act against climate change in an integrated, transversal, and multi-sectoral way, fulfilling the international commitments made by Peru to the UNFCCC, and taking into particular account the prevention efforts, the actions to adapt the production systems, social services, and the population affected by climate change (MINAM, 2015: 9).	MINAM  Supported by the German Cooperation of International Cooperation (GIZ)
2016 (planned)	Third National Communication on Climate Change of Peru to the UNFCCC	The aim is to improve the national capacity to integrate climate change in national development processes and poverty reduction, and to enhance sustainable development (MINAM, 2015: 33).	MINAM

Source: Own elaboration (red documents are directly aligned with climate change)

<sup>40</sup> Further topics include: Water, solid waste, air, biodiversity, mining and energy, and environmental governance.

The *National Climate Change Strategy* (ENCC) is probably the most important document for Peru's climate change framework. The ENCC, as a legally binding document, has to be implemented in sectional and regional programmes. Further, based on Constitutional Law N° 278967 and in the scope of the National Strategy, each regional government is mandated to develop their own *Regional Strategy on Climate Change* that reflects their regional realities (MINAM, 2011: 15).<sup>41</sup> An example for the region of Cusco will be outlined more explicitly at the end of this chapter. The National Strategy comprises eleven strategic lines that are, in order of priority, almost evenly split, meaning that half of the strategies are addressing mitigation and an equal ratio refer to adaptation or vulnerability reduction:

1. Promote and develop scientific, technological, social, and economic investigations on vulnerability, adaptation, and mitigation with regard to climate change.
2. Promote politics, activities, and projects to develop adaptive capacity for the impacts of climate change and to reduce vulnerability.
3. Active participation of Peru in the international climate change negotiations to defend the interests of the country and to protect the world atmosphere.
4. Develop politics and activities orientated to the rational handling of GHG emissions, other air pollutants, and the reduction of climate change impacts, considering the available mechanisms of the Kyoto Protocol and other economic instruments.
5. Distribute knowledge and information, as well as information about climate change in Peru in its aspects of vulnerability, adaptation, and mitigation.
6. Promote projects that have the objective of alleviating poverty, reducing of vulnerability, and/or mitigating GHGs.
7. Promote an appropriate use of technologies that are suitable for climate change adaptation and mitigation of GHGs and atmospheric pollution.
8. Achieve the participation of civil society in order to improve the adaptive capacity to climate change impacts, to reduce vulnerability, and to mitigate emissions of GHGs and environmental pollutants.
9. Manage forest ecosystems to mitigate vulnerability to climate change and to improve the capacity of carbon capture.<sup>42</sup>
10. Explore the possibility of achieving fair compensation for the adverse effects of climate change generated principally by the industrialized countries.
11. Manage the fragile ecosystems, especially mountainous ecosystems, for the mitigation of vulnerability to climate change.<sup>43</sup>

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<sup>41</sup> See, as well, <http://cambioclimatico.minam.gob.pe/la-gestion-del-cc/marco-institucional-de-cambio-climatico/marco-nacional-de-cc> [accessed July 17, 2014].

<sup>42</sup> One important issue MINAM is working on is reducing the net rate of deforestation of primary forests to zero by 2021 ([www.trust.org/item/20130214151200-1t6m7/?source=search](http://www.trust.org/item/20130214151200-1t6m7/?source=search); accessed Mai 08, 2017). In this context, the *Regional Climate Change Strategy* of Cusco states: "A game of soccer lasts 90 minutes. At that time in Peru an area of the Amazon equivalent to 43 sports fields is deforested" (GORE, 2012b: 22; own translation). Peru's 2020 pledge includes reducing the net rate of deforestation of primary forests to zero by 2021.

<sup>43</sup> Own translation into English; for the original version in Spanish see <http://cambioclimatico.minam.gob.pe/la-gestion-del-cc/marco-institucional-de-cambio-climatico/marco-nacional-de-cc> [accessed July 22, 2014].

Having a look at the last four to five years reveals that more and more work has been put into the topic of climate change and more importance placed upon it. This becomes evident when looking at the growing work-output, for example in the shortening periods between which publications are released (i.a. the National Communications from 2001, 2010, and planned for 2016). It also becomes evident when comparing content of such publications; here, taking the First and the Second Communication as an example, clearly illustrates the evolution of the institutional and legal framework in Peru (MINAM, 2010b: 51ff), the improvement in the systematisation of information on mitigation and adaptation in Peru (MINAM, 2010b: 87ff/115ff), and how much more information and knowledge has been generated, for instance, on climate scenarios (MINAM, 2010b: 121ff). Furthermore, a strategic development can be observed in the Third National Strategy on Climate Change (MINAM, 2015: 42f). Additionally, the Second Communication clearly shows two achievements of Peru's climate change politics: 1) The integration of climate change issues into development politics and processes and 2) the acknowledgement of the high vulnerability of the agricultural sector (Baca 2013: 21). Thus, a spreading and vast incorporation of the topic into various sectors of Peru's politics through 2010 can be observed. Before further describing the processes of mainstreaming climate change in Peru, however, the following sub-chapter will briefly examine the role that international and bi-national (development) cooperation plays in the implementation of projects and programmes in regards to mitigation, adaptation to climate change, and reduction of vulnerability to climate change in Peru.

### 2.1.3 Projects and programmes addressing climate change

Looking at the previous sections, it can already be seen that international, multi-, and bilateral (development) cooperation have played a crucial role in the development of Peru's climate change politics. This has influenced the design and implementation of projects and programmes, and the compilation of nationally relevant documents listed above, leaving a world of sometimes confusing and intertwined climate change initiatives that are primarily initiated, supported, and/or funded by the international and multilateral (development) cooperation community. Thus, they have been crucial for the development of Peru's climate change management.

Having a look at the national documents listed in Table 3, both, the *National Report* (1992) and the first *National Communication on Climate Change* (2001) were formulated in response to an international demand, such as from the *United Nations Conference on Environment and Development* (CNUMAD) in Rio or as member-state of the UNFCCC. Additionally, as has been mentioned in the table above, the *Second Communication on Climate Change* was financed by the *Global Environmental Facility* (GEF) and

implemented with the support of the UNDP. Moreover, the elaboration of the *National Environmental Action Plan* (PLANAA) was supported by the German Cooperation of International Cooperation (GIZ) and the Development Bank of Latin America (CAF) (MINAM, 2011b: 7). Finally, the *Risk and Climate Change Management Plan in the Agrarian Sector, Period 2012-2021* (PLANARACC-A) was developed under a technical cooperation programme with FAO.

Generally, it is difficult to obtain a fully comprehensive overview of all climate change-related projects and programmes<sup>44</sup> in Peru. In Peru, one can find the whole range of possible project and programme designs: International, multi-, and bilateral projects; programmes and initiatives at the national, regional, and grassroots levels; and just regional or even supra-regional, government-, and NGO-initiatives, financed by and/or with national and international donations and loans.

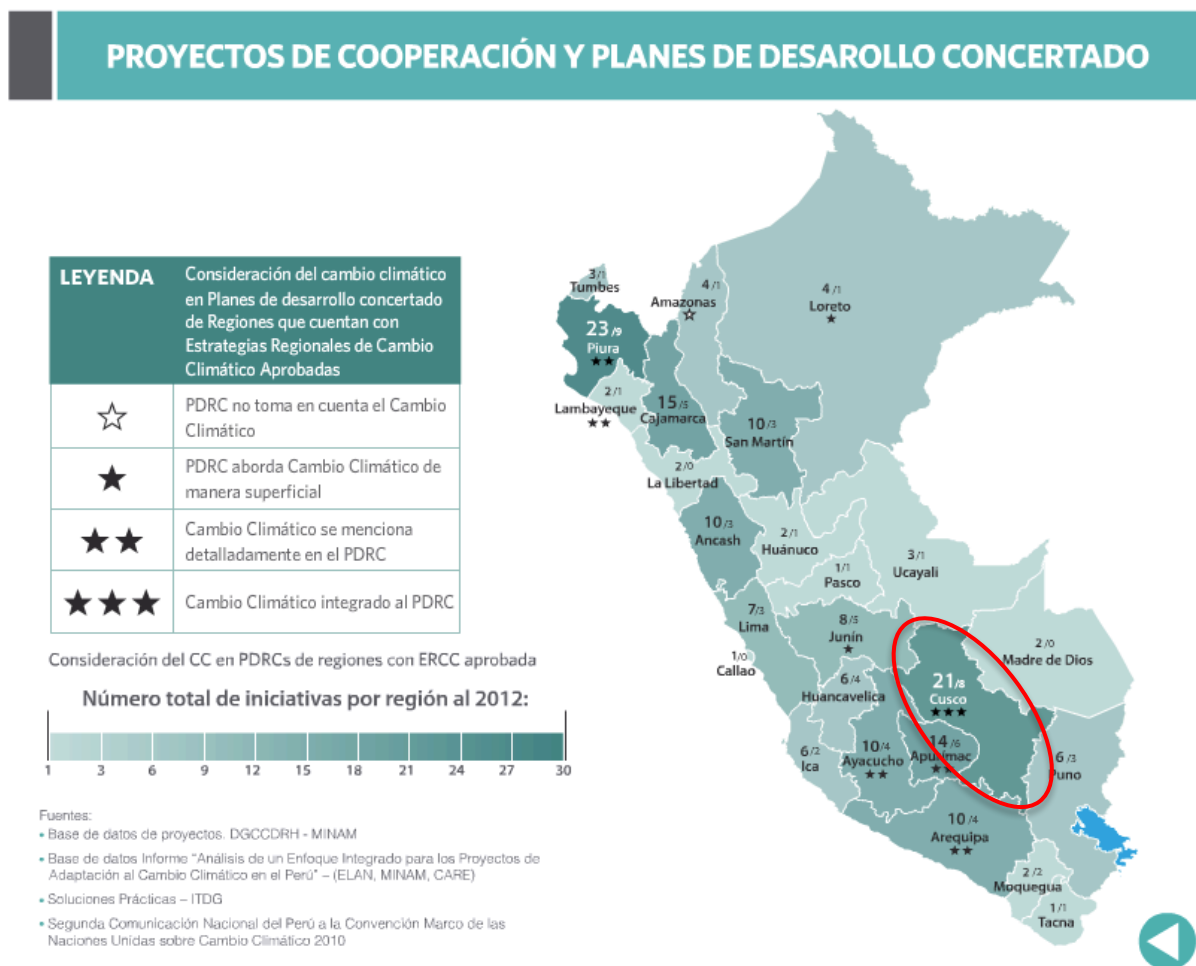
Lately, there have been some attempts to bring together parts of existing projects and programmes, such as the publications by the international NGO *Practical Action*. The first one was published in 2008, followed by a second updated edition in 2009 (Gallardo, 2009). Gallardo identified 13 programmes carried out in Peru targeting aspects of climate change, out of which nine focused on adaptation, one on mitigation, and three on both (Gallardo, 2009: 56ff). None of the programmes are completely Peruvian, meaning that either international technical cooperation and/or money is involved. He further specifies 45 projects, out of which 32 have a focus on adaptation, seven on mitigation, and six on both (Gallardo, 2009: 60ff). Out of these, two do not have any other technical or financial participation apart from national ones. All programmes and projects, in each case, are implemented at the national level.

Moreover, there are two other publications that include a kind of project register. One of these is the *Climate Change Adaptation and Mitigation Action Plan* (MINAM, 2010a: 32ff), which lists 68 programmes, projects, and initiatives (the summary of the results are listed in Figure 10). The other one of these is the *Second National Communication*, in which twelve projects and programmes are listed at the local level, 32 at the regional level, and 22 at the national level (MINAM, 2010b: 122f). The *Climate Change Adaptation and Mitigation Action Plan* includes 18 projects that focus on mitigation and 20 on adaptation, drawing an alternative picture of the distribution of adaptation and mitigation from the analysis of Gallardo. Furthermore, eleven programmes and projects address both topics, seven are related to climate science, seven to building capacity and raising public awareness, and finally, three-target financing (two are not allocated).

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<sup>44</sup> A programme, compared to a project, exist of a number of (thematically) related and possibly interdependent projects meeting an overall objective.

These publications do not include non-governmental projects. Having only referred to the national based programmes and projects, the large number of projects and programmes carried out by NGOs and other non-governmental institutions should not be ignored. Examples of projects carried out by NGOs will be further provided in the chapter on the region of Cusco and the case study in Chumbivilcas (see Chapter V). As shown in Figure 10, Cusco is the region with the second largest number of national-based programmes and projects (in total 29, red circle), and at the time the figure was published, was the only region that had integrated climate change into its *Agreed Regional Development Plan (PDRC)* (three black stars)<sup>45</sup>.



**Figure 10: Development cooperation projects and agreed developments plans in Peru**

Source: Presentation of Peru's Vice-Minister for Strategic Development and Natural Resources, Gabriel Quijandría, InterCLIMA 2012, <http://interclima.minam.gob.pe/IMG/swf/INDEX.swf>, slide 45 [accessed July 18, 2014]

<sup>45</sup> 1 white star = PDRC does not take climate change into account;  
 1 black star = PDRC tackles climate change in a superficial way;  
 2 black stars = climate change is mentioned in a detailed way in the PDRC;  
 3 black stars = climate change is integrated in the PDRC.

Even though the above provides a small insight in what has happened and been done so far within the area of climate change in Peru, we can see that many of the activities carried out were strongly supported by external technical and/or financial support. One can only assume that many projects and programmes would not have been implemented without that support, especially in the beginning of the process, when the international climate change discourse still had not influenced the integration of the topic into Peruvian politics. How the topic of climate change found its way into other political sectors will be subject of the next sub-chapter.

#### 2.1.4 Mainstreaming climate change across sectors

In Peru, like in many other countries, climate change was initially perceived as an environmental challenge for the most part. Pulgar-Vidal (2010: 179) describes that Peru's first discussions on climate change were formulated in 1992 in the *National Report prepared for the United Nations Conference on Environment and Development* in Rio de Janeiro, defined in Chapter II as one of the discursive events for the climate change discourse, but as well for the merger of the climate, the environmental, and the development discourses. On the political level, climate change in Peru is thematically subordinated to the Ministry of Environment. The environmental focus became reflected in the vast majority of official documents like agendas, political laws, and other official documents, as can be seen in the *National Agenda on Environment*, the *National Politics on Environment* in 2010, and the *National Environmental Action Plan (PLANAA)* in 2011. Quickly, the relevance of other sectors became linked to "climate change," and the subject became mainstreamed across other crucial sectors and development processes, as can be found, for example, in the *Second Communication on Climate Change* that was published in 2010:

The main challenge lies in the mainstreaming of the prospect of climate change into on-going development processes (mainly efforts to reduce poverty, risk management, management of agriculture and food security, the design and implementation of economic and social infrastructure, energy provision, and management of natural resources), and in the process of national development planning at all levels (national, regional, and sectoral).<sup>ix</sup> (MINAM, 2010b: 186; own translation)

This idea has been emphasised recently by Peru's current Minister of Environment; for example, during the opening speech of the second InterCLIMA Conference held in December 2013: "It is not a meeting for environmentalists: Climate change is economy, development, future"<sup>x</sup> (Pulgar-Vidal, 2013: Ppt slide 2; own translation).<sup>46</sup> It can also be seen in his presentation at the President's Talk at Brown University: "This is not a

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<sup>46</sup> [http://interclima.minam.gob.pe/IMG/pdf/Decalogo\\_del\\_InterCLIMA\\_2013.pdf](http://interclima.minam.gob.pe/IMG/pdf/Decalogo_del_InterCLIMA_2013.pdf); ppt slide 2 [accessed July 17, 2014].



process just for environmentalists. This is a process for the Minister of Finance, this is a process for the Minister of Defence, and this is a process for the Minister of Health. And probably what we need, is to bring together all those sectors” (Pulgar-Vidal, Minister of MINAM, President’s Talk at Brown University, May 21, 2014; own translation).<sup>47</sup> While the approach to mainstreaming climate change has repeatedly been emphasised by the Ministry of Environment, other sectors, such as planning and development, agriculture, economics and finance, production, energy, and mining, are starting to catch up:

- A) The *Bicentennial Plan – Peru to 2021* was published in 2011 by the *National Centre of Strategic Planning (CEPLAN)* as the first national strategy development plan to outline Peru’s national development policy through 2021 (CEPLAN, 2011: 2). In this plan, climate change is mentioned as one of Peru’s eleven “mega development trends.” It concluded that not adapting to the negative impacts of climate change could bring costs of up to 20% of the annual GDP in 2050 and would, therefore, seriously limit the country’s targets for growth and development (CEPLAN, 2011: 19f). Additionally, adaptation to climate change is included as the fourth of five priority targets<sup>48</sup> under “Strategic Axis N° 6: Natural Resources and Environment:<sup>49</sup> Population and productive systems being vulnerable to climate change are adapted,” and is coming in conjunction with an outline of indicators and aims and its strategic activities (CEPLAN, 2011: 253f).
- B) The *Risk and Climate Change Management Plan in the Agrarian Sector, Period 2012-2021 (PLANGRACC-A)* was launched by the Ministry of Agriculture and Irrigation (MINAGRI) in 2012. This Management Plan was elaborated by the ministerial *Technical Working Group on Food Security and Climate Change* (Ministerial Resolution N° 0166-2011-AG) that went into session in 2008 with the aim to, “develop activities to generate policies, outlines, early-warning systems, and information platforms to respond to climate change impacts in the agrarian sector.”<sup>50</sup> The Management Plan outlines political strategies and makes proposals for reducing climate-related risks, vulnerability, and climate change impacts in the agrarian sector across the country (MINAGRI, 2012: 15).

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<sup>47</sup> [www.youtube.com/watch?v=OTnI42opLNg](http://www.youtube.com/watch?v=OTnI42opLNg) [generated May 21, 2014; accessed July 22, 2014].

<sup>48</sup> The five priorities are: 1) Use and sustainable handling of natural resources; 2) improvement of environmental quality (air, water, and soil); 3) assurance of sufficient water availability in the whole territory; 4) adaptation to the climate change of the country; and 5) implementation of the National System of Environmental Management (CEPLAN - Centro Nacional de Planeamiento Estratégico, 2011).

<sup>49</sup> The six strategic axes are: 1) Fundamental rights and dignity of people; 2) opportunities and access to services; 3) state and governance; 4) economy, competitiveness, and employment; 5) regional development and infrastructure; and 6) natural resources and the environment (CEPLAN, 2011).

<sup>50</sup> For the original Spanish version, see: <http://dgaaa.minag.gob.pe/index.php/base-legal/cambio-climatico>; <http://dgaaa.minag.gob.pe/index.php/tematica/cambio-climatico> [accessed July 25, 2014].

- C) The Ministry of Economy and Finance (MEF) established a *Department of Climate Change*, with the support of the Inter-American Development Bank.<sup>51</sup> Within the scope of climate change, the department has the objective of dealing with economic impacts, such as losses and opportunities, and suitable financing mechanisms. Additionally, the MEF has supported the International Climate Change Negotiations of the UNFCCC since 2009, being part of the Peruvian delegation. In addition, the MEF, which commonly does not take part in any commissions, now takes part of the *Commission Against Desertification and Drought*, which Pulgar-Vidal interprets as a result of recognition of the importance of climate change and its financial and economic impacts (Pulgar-Vidal, Minister of MINAM, Environmental Dialogues, February 18, 2014).
- D) The Ministry of Production (PRODUCE), in the fishing sector, and the Ministry of Energy and Mines (MINEM), are also taking some relevant political aspects of climate change into account.<sup>52</sup> They have made commitments, like executing studies and taking part in activities such as trainings and knowledge diffusion on climate change, which were noted as new achievements under the *Second National Communication* in 2010 (MINAM, 2010b: 15).

Thus, to put it in Baca et al.'s words: "The phenomenon of climate change is no longer an academic trend or part of the discourse of some politicians, but became an absolute need to be integrated into a new paradigm of economic development that considers the variables of this phenomenon while establishing policies or decisions on investments" (Baca et al., 2009: 95; own translation). The mainstreaming trend mentioned above makes clear that the integration of "climate change" in a cross-sectional way and the integration of the topic into political processes can largely be perceived as successful; which, finally, is another relevant impact of the global climate change discourse.

In summary, mainstreaming climate change across other relevant governmental sectors became one of MINAM's main strategies to emphasise the importance of the topic, mainly under the guidance of Minister Manuel Pulgar Vidal. Other key sectors are now actively involved into establishing adequate response strategies for facing climate change in Peru.

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<sup>51</sup> [www.mef.gob.pe/index.php?option=com\\_content&view=article&id=2435&Itemid=101688&lang=es](http://www.mef.gob.pe/index.php?option=com_content&view=article&id=2435&Itemid=101688&lang=es) [accessed July 18, 2014].

<sup>52</sup> A good overview of strategy and management instruments and institutional transformations, including climate change issues (directly or indirectly), can be found in the presentation of Peru's Vice-Minister for Strategic Development and Natural Resources, Gabriel Quijandría, during the first InterCLIMA on October 29<sup>th</sup> 2012, under the header, "¿Y Qué Hemos Avanzado desde el 2009? Un Muestreo de Sectores y Regiones:" <http://interclima.minam.gob.pe/IMG/swf/INDEX.swf>, slides 28ff [accessed July 18, 2014].

### 2.1.5 Strategies for reaching out to the public and working with local initiatives

Along with the efforts to mainstream the topic of climate change across sectors, the Ministry of Environment follows a “outreach” strategy, meaning to facilitate existing communication and cooperation gaps across different levels, such as the international, national, regional, and the more and more the local level, and to get climate change-related information through to Peruvian civil society and its citizens. In this process, the Minister himself is playing an active role in the visibility strategy.

An example of how the strategy for closing the gap between the international, national, and local level is addressed is the “PACC-Peru” (*Adaptation to Climate Change Programme Peru*), which is being implemented by MINAM and the *Swiss Agency for Development and Cooperation (SDC)*, with additional support from other implementing agencies. The project is implemented in two target regions, Cusco and Apurímac (see further below in this chapter for more information). The programme strategy involves bringing together international scientific knowledge of global climate models and local knowledge on vulnerability, as well as experiences drawn from local pilot projects. The programme aims to develop more coherent national adaptation policies that can be applied across all levels, from the national down to the local. Figure 11, presented by Gabriel Quijandría at the InterCLIMA Conference in 2012, visualises the top-down strategic approach of the programme.

On the national political level, official documents such as agendas, strategies, etc. support the approach to work with regional and, in particular, local initiatives, and to integrate knowledge generated regionally and locally into national policy processes (see, i.a. CONAM, 2001: IX; MINAGRI, 2012: 1; MINAM, 2009: 2, 2011a: 5, 2011b: 7). For example, a draft-version of the second ENCC was published in July 2014, which noted the participation of more than 40 institutions from civil society and from regional and local governments. This draft was made available to the public online for 20 days, during which time people had the opportunity to provide support, comments, and proposals.<sup>53</sup> This input was then reviewed and integrated into the final version of the Strategy in 2015 (MINAM, 2015). Even though I cannot give any evaluation of how, and how far, the comments were integrated, one can see changes and amendments in the text when comparing the two versions (e.g. MINAM, 2015: 28ff, 57ff, etc.).

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<sup>53</sup> [www.cop20.pe/4053/minam-pone-a-consulta-publica-la-estrategia-nacional-ante-el-cambio-climatico](http://www.cop20.pe/4053/minam-pone-a-consulta-publica-la-estrategia-nacional-ante-el-cambio-climatico) [generated July 25, 2014; accessed July 30, 2014].



Fuente: Presentación de Lenkiza Angulo y Maruja Gallardo. "La Gestión de Conocimientos en el PACC: Modelo de gestión participativa y de desarrollo de capacidades de adaptación al Cambio Climático en los Andes Peruanos"



**Figure 11: PACC Strategy of intervention by level**

Source: Presentation of Peru's Vice-Minister for Strategic Development and Natural Resources, Gabriel Quijandría, InterCLIMA 2012, <http://interclima.minam.gob.pe/IMG/swf/INDEX.swf>, slide 59 [accessed July 18, 2014].

A similar participatory process was also planned and carried out by MINAM for the preparation of the COP20 held in Lima in December 2014: "For us, for the Peruvian government, it is particularly important that this COP will be a participatory one and that it is perceived in this way, and that the people feel that they had the opportunity to make their voices heard"<sup>xi</sup> (Reyes, MINAM, Environmental Dialogues, February 18, 2014; own translation). In this context, two examples of the government's strategy to reach out to the public can best be shown by looking at two already on-going initiatives carried out by the Ministry: Firstly, the "Environmental Dialogues," and secondly, the initiative "Pon de tu parte – compromisos por el clima," which translates as, "Do your part – commitments for the climate."<sup>54</sup>

- *Environmental Dialogues*: MINAM re-initiated the Environmental Dialogues in February 2014 under the topic of "Action for a Change." The aim is to provide an area for information exchange and conversation to discuss the pre-COP20 preparations and the country's role during the COP20, on the one hand, and to discuss progress made on the environmental targets in the frame of the *Environmental Agenda 2013-2014* that is phasing out by the end of 2014, on the other hand. After having addressed different groups of the civil society with former

<sup>54</sup> [www.pondetuparte.com](http://www.pondetuparte.com) [accessed July 26, 2014].

Environmental Dialogues in 2013, such as journalists and businessmen, this time the Environmental Dialogues targeted the Peruvian citizens directly.<sup>55</sup> During the first Dialogue on COP20 in February 2014, the Minister and three of his team-members – one person from the *Department of Climate Change, Desertification and Water Resources*; one responsible for the stakeholder-relations for the COP20; and one responsible for communication and knowledge management for the COP20 – gave an overview of the current state of the art of the political processes on climate change, the work, the aim and targets for Peru for the COP20, and the role and work of knowledge and information transfer in preparation for and during the COP itself. This was commented on by three representatives from different institutions: MINAGRI; “Perú 20/21,” a civil society association whose members consist of socially committed business people;<sup>56</sup> and MOSICC, the *Civil Movement in the View of Climate Change*.<sup>57</sup> During the second hour the audience was able to ask questions and give comments.

- *The initiative “Pon de tu parte – compromisos por el clima:”* During the dialogue mentioned above, the Minister and his staff put emphasis on the importance of knowledge and information transfer and the sensitisation of the population to “climate friendly behaviour.” Thus, the Minister stated that an active participation of all citizens is also needed: “We [MINAM] are leading this [climate change] process but we are not the owner of the process. In reality, climate change has so many owners as existing citizens”<sup>58</sup> (Pulgar-Vidal, Environmental Dialogues, February 28, 2014; own translation). The campaign “Pon de tu parte” was started, however, to directly applying the knowledge gained. Its aim is to sensitise and to involve all Peruvians to act more and more “climate-friendly” by making use of newly gained information and knowledge. The campaign can be described as a “bottom-up initiative,” targeting the individual. To commit themselves to one or several of seven key topics – water preservation, responsible energy consumption, biodiversity, waste management, agriculture, sustainable transportation, and one’s carbon footprint – people need to register online and enter their commitments, after a transmittance of information that also provides some small examples. The profile of each person can be visited on the internet and people can share information via *Facebook* and *Twitter*. By September 13, 2014, 66,123 commitments had been

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<sup>55</sup> [www.minam.gob.pe/notas-de-prensa/minam-inicia-nuevo-ciclo-de-dialogos-ambientales-con-la-ciudadania](http://www.minam.gob.pe/notas-de-prensa/minam-inicia-nuevo-ciclo-de-dialogos-ambientales-con-la-ciudadania) [accessed July 26, 2014]. The dialogues can be viewed at [www.youtube.com/watch?v=a3NgB35HT8c](http://www.youtube.com/watch?v=a3NgB35HT8c) for the session on February 18, 2014 under the topic of COP20, and at [www.youtube.com/watch?v=a3NgB35HT8c](http://www.youtube.com/watch?v=a3NgB35HT8c) for the session on May 14, 2014, with the title “On the way to COP20” [accessed July 26, 2014].

<sup>56</sup> [www.peru2021.org/principal](http://www.peru2021.org/principal) [accessed July 26, 2014].

<sup>57</sup> [www.mocicc.org](http://www.mocicc.org) [accessed July 26, 2014].

<sup>58</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014].

registered (own access to the website). Not only private citizens, however, are committing themselves: *El Comercio* wrote on May 16, 2014 that 57 companies had decided to reduce their impact on the environment as part of the campaign. The results from this initiative were to be presented during the COP, but will also go beyond that, as Vanessa Morales from MINAM noted during the Dialogue in February 2014 (Morales, Environmental Dialogues, February 28, 2014).<sup>59</sup> The initiative, which started on March 6, 2014, raised attention across various media.<sup>60</sup> In Lima, the campaign was to be accompanied by an installation of solar panels, a vision to reduce GHG emissions by 30%, and the planting of 400,000 trees. As the Minister pointed out, “[t]his campaign not only seeks out followers but is to cause changes in people’s attitude through a clear, ambitious, strong, and future directed message, recognizing that the change of personal behaviour is the only way to fight climate change”<sup>xii</sup> <sup>61</sup> (own translation).

According to Fabiola Muñoz from MINAGRI, all these initiatives and strategies show a big movement: “The country does not sleep, it’s in motion” (Environmental Dialogues, February 18, 2014, minute 31:06).<sup>62</sup> However, one needs to consider that this movement is mainly limited to, and targeted on, Lima’s population or at the very most to other urban areas. This signifies that large parts of the country, especially those where reliable internet-access is not available, are left out. Many citizens living in rural areas have hardly heard about governmental activities on climate change, as will be shown in Chapter V, and probably heard much less about initiatives like “Pon de tu parte.”<sup>63</sup> The next section will discuss Peru’s role as the host of the COP20, and which main topics Peru was interested in as the chair of the COP and as a participating country.

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<sup>59</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014].

<sup>60</sup> Some of the online articles picking up the topic of the initiative include: [www.avina.net/esp/9739/peru-lanzaran-campana-que-acompanara-cop20-2/](http://www.avina.net/esp/9739/peru-lanzaran-campana-que-acompanara-cop20-2/) [generated February 28, 2014], [www.ecodes.org/noticias/el-proximo-jueves-6-de-marzo-se-lanzara-en-peru-pon-de-tu-parte-la-campana-que-busca-crear-una-comunidad-de-ciudadanos-empresas-e-instituciones-comprometidas-con-el-cambio-climatico#.U9PAPai49GQ](http://www.ecodes.org/noticias/el-proximo-jueves-6-de-marzo-se-lanzara-en-peru-pon-de-tu-parte-la-campana-que-busca-crear-una-comunidad-de-ciudadanos-empresas-e-instituciones-comprometidas-con-el-cambio-climatico#.U9PAPai49GQ) [generated March 3, 2014], <http://peru21.pe/actualidad/celebridades-y-autoridades-se-unen-lanzar-campana-pon-tu-parte-2173602> [generated March 10, 2014], <http://noticias.terra.com.pe/nacional/pon-de-tu-parte-minam-lanza-campana-contra-cambio-climatico,56b259665ee84410VgnVCM5000009ccceb0aRCRD.html> [generated March 4, 2014], [www.infoandina.org/es/content/en-el-per%C3%BA-%E2%80%9Cpon-de-tu-parte%E2%80%9D-promover%C3%A1-compromisos-ciudadanos-con-el-cambio-clim%C3%A1tico](http://www.infoandina.org/es/content/en-el-per%C3%BA-%E2%80%9Cpon-de-tu-parte%E2%80%9D-promover%C3%A1-compromisos-ciudadanos-con-el-cambio-clim%C3%A1tico) [generated March 5, 2014], and [www.larepublica.pe/04-03-2014/campana-pon-de-tu-parte-promovera-en-los-ciudadanos-compromisos-frente-el-cambio-climatico](http://www.larepublica.pe/04-03-2014/campana-pon-de-tu-parte-promovera-en-los-ciudadanos-compromisos-frente-el-cambio-climatico) [generated March 4, 2014; accessed July 26, 2014].

<sup>61</sup> [www.minam.gob.pe/notas-de-prensa/hoy-se-lanzo-pon-de-tu-parte-unete-tu-tambien](http://www.minam.gob.pe/notas-de-prensa/hoy-se-lanzo-pon-de-tu-parte-unete-tu-tambien) [generated March 6, 2014; accessed July 26, 2014].

<sup>62</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014].

<sup>63</sup> On the member page of “Pon de tu parte” – [www.pondetuparte.com/miembros.php](http://www.pondetuparte.com/miembros.php) [accessed July 26, 2014] – it is not apparent where in Peru the committed participants come from.

### 2.1.6 The road towards the COP20

In December 2014, it was the fourth time that a COP took place in a member country of the *Group of Latin American and Caribbean States* (GRULAC),<sup>64</sup> one of the five regional UN-groups.

For Peru's political processes on climate change, the COP20 can be considered an important milestone. As analysed before, it provided MINAM the opportunity to use the pre-COP phase for informing and sensitising the Peruvian population and, additionally, to push and mainstream the topic across sectors and levels (Reyes, MINAM, Environmental Dialogues, February 18, 2014).<sup>65</sup> Whereas, during one of the expert interviews conducted in February 2014, it was argued that the political commitment from the president's office to incorporate climate change into the national agenda and, therefore, to formulate it as one of the national priorities, was seen rather as a point of critical importance (Interview, E2, February 12, 2014), a more recent statement from the Minister of Environment supported this, albeit pointing out that there were on-going changes to the president's involvement in the topic:

Take a look yourself at how the President of the Republic strongly supports the issue. He is beginning to strongly lead the topic at the global level: In his speech at CELAC he mentioned it; when the General Secretary of the United Nations came, they mentioned it together during the occasion of the general conference of UNIDO; now with President Santos in Colombia – for those who heard about it on television, of the President Santos and the President Humala – it was a topic of their conversation.<sup>xiii</sup> <sup>66</sup> (Pulgar-Vidal, Environmental Dialogues, February 18, 2014; own translation)

MINAM appeared to take its triple role for the COP20 quite seriously: a) The role as the host; b) chair and, thus, facilitator of the COP; and c) representative of the country and its political objectives (Reyes, Environmental Dialogues, February 18, 2014, minute 13:54; Pulgar-Vidal, Environmental Dialogues, February 18, 2014). In public presentations and speeches, the minister outlined that the logistic preparations were moving along and that the country is developing its own position and objectives in regards to forests, mountain glaciers and water security, sustainable/renewable energy, and sustainable cities (Reyes, MINAM, Environmental Dialogues, February 18, 2014).<sup>67</sup> By taking these aspects together, the minister explained Peru's role as follows:

Peru facilitates an agreement when it is presidency of the COP, and one principle of the presidency is to be without prejudice. That is a fundamental principle in the negotiation because if we start to prejudice we do not facilitate anything. Consequently, the role of Peru is a role of equilibrium, is a

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<sup>64</sup> COP 4 (1998) and 10 (2004) took place in Buenos Aires, Argentina and COP 16 (2010) took place in Cancun Mexico (<http://unfccc.int/meetings/items/6240.php>) [accessed 3 August 2014].

<sup>65</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014].

<sup>66</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014].

<sup>67</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014].

role of generating an atmosphere of confidence [...] and this generation of confidence is where you can arrange a healthy negotiation.”<sup>xiv 68</sup> (Pulgar-Vidal, *Environmental Dialogues*, February 18, 2014; own translation)

He did not see the event as holding the country back from more urgent actions, but rather as an investment for the country’s development, growth, and an important for raising awareness of a topic that will play an important role in the country’s future (Pulgar-Vidal, *Environmental Dialogues*, February 18, 2014).<sup>69</sup> In all this, Pulgar-Vidal found it crucial that the formal and informal processes would be linked in a better way, that things would need to move quickly and that decisions would need to be taken in view of, and in, 2015 itself, and last but not least that, “plans should definitely not stop with Paris” (Pulgar-Vidal, President’s talk at Brown University, May 21, 2014).<sup>70</sup> The key topics planned for the COP mentioned by MINAM were:

- 1.) The future of the climate financial system
- 2.) The future of climate change mitigation
- 3.) The future role and definition of developed and developing countries in the post-annex/non-annex 1 country process
- 4.) Adaptation – to give adaptation more content
- 5.) The role of forests
- 6.) Technology transfer
- 7.) Capacity building

Finally, the principle of recognition of the “common but differentiated responsibility” and what “legally binding” means for the upcoming agreement urgently needed to be clarified (Reyes, *Environmental Dialogues*, February 18, 2014).<sup>71</sup> Even though the Minister seemed optimistic in the run-up to the COP20,<sup>72</sup> he was aware of crucial and rather sensitive aspects that had to be clarified in the forefront of, and during, the COP between the different countries, which were the “common but differentiated responsibility” and the international fund for the fight against global warming; both topics which were discussed and approved during the COP.<sup>73</sup> Thus, the Minister noted that, “[i]t is ‘necessary to create a balance between developed and developing countries,’ further achieve an appropriate balance between government programmes and the base proposals, and ‘listen to more voices’ from the private sector, civil society, and

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<sup>68</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014].

<sup>69</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014]. This was raised in a question by someone in the audience during the *Environmental Dialogues* (February 18, 2014, minute 1:31:30).

<sup>70</sup> [www.youtube.com/watch?v=OTnI42opLNg](http://www.youtube.com/watch?v=OTnI42opLNg) [generated May 21, 2014; accessed July 22, 2014].

<sup>71</sup> [www.youtube.com/watch?v=2ORAdD7\\_TOA](http://www.youtube.com/watch?v=2ORAdD7_TOA) [accessed July 26, 2014].

<sup>72</sup> “Pulgar-Vidal “optimista” de cara a la Cumbre del Clima de Lima” <http://cambia.pe/?p=5515> [generated July 15, 2014; accessed July 30, 2014].

<sup>73</sup> <http://newsroom.unfccc.int/lima/lima-call-for-climate-action-puts-world-on-track-to-paris-2015/> [generated December 14, 2014; accessed March 24, 2016].



NGOs.”<sup>xv74</sup> Once more, he expressed the high value and importance he placed on integrating voices from outside of the government into the political climate change processes.

At the end of the COP20, Christiana Figueres, the executive secretary of the UNFCCC since 2010, provided a summary, saying: “They leave Lima on a fresh wave of positivity towards Paris with a range of key decisions agreed and action-agendas launched, including on how to better scale up and finance adaptation, alongside actions on forests and education.”<sup>75</sup>

### 2.1.7 Drawing a conclusion: Peru’s national climate change discourse, its public policy, and remaining challenges

Peru’s climate policy started through the signing of the international convention on climate change in 1992 (Interview, E1, February 14, 2014; MINAM, 2011a: 14), and, therefore, can be said to be based on international impulsion. Even though Peru did not play an important or pioneering role from the outset of the process in 2011 at the international level, the country was among the first middle-income countries to take a big step towards stronger commitments to become a low emissions country. Peru then also took over the duty to host the COP20 in December 2014.

A big impact on Peru’s climate policy was the creation of MINAM in 2008, which brought about numerous activities, such as formulating strategies and agendas; enacting laws; initiating spaces of communication, such as the InterCLIMA Conference; and starting public initiatives like “Pon de tu parte.” In this regard, Minister Manuel Pulgar Vidal has contributed strongly to the visibility of the topic of climate change in the public since the end of 2011.

MINAM initiated a cross-sectional mainstreaming process at all levels, from the national to the regional to the local, attaching more value to the topic. Moreover, it initiated the on-going transfer of knowledge, and stronger integration of and commitment by the civil society and the private sector towards climate change. Even though there are some slight critiques, such as that the focus Peru’s climate politics is “wrong,” and about how the process is slow and not all-encompassing, these have been very few in number, very gentle, and have never questioned the topic itself and the processes themselves.

Thus, one can conclude that the international climate change discourse has impacted national politics in Peru, and that the country fully took on and assimilated the discourse;

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<sup>74</sup> Own translation, <http://cambia.pe/?p=5515> [generated July 15, 2014; accessed July 30, 2014].

<sup>75</sup> <http://newsroom.unfccc.int/lima/lima-call-for-climate-action-puts-world-on-track-to-paris-2015/> [generated December 14, 2014; accessed March 24, 2016].

firstly, through the formation and development of new institutions in Peru and secondly the creation of new terms, definitions, and concepts can also be observed. Technical terms used in documents are equivalent to the ones used at, and communicated from, the international level; the concepts of adaptation and mitigation are also explained in the same way they are formulated by the international community, as could be seen for example during the *Environmental Dialogues*. Third, a certain power execution and shift within and between institutions can be sensed. While the topic of the environment, and thus climate change, previously garnered hardly any attention and Ministries such as the MEF have always been considered the ones that had the power to determine or block other's decisions, they are becoming more and more a part of the processes themselves. How seriously the different actors take their fairly new task of considering aspects of climate change, especially in comparison to their other tasks, which also include climate change conflictive topics, remains an open question within this work.

The whole political process was mainly limited to Lima and other cities in Peru. Besides the national policies and politics of MINAM, and some influences on other policy areas, Peruvian players that have engaged in the climate change discourse so far remain absent. Additionally, the national–regional nexus and, even more so, the national–local nexus at all levels are still considered weak by all parties (MINAM, 2010b: 186; Programa Conjunto, 2010: 23), which will be an issue raised over and over again in the work that follows. One major weakness that is limiting and needs to be urgently addressed is described by MINAM as follows: “Absence of an integrated or articulated information system between ministries, institutions, regional and local governments, with the knowledge sector (research institutes and universities), which is evident in the dispersion of information collection channels”<sup>xvi</sup> (MINAM, 2010b: 186; own translation). Thus, before turning to the regional context, the upcoming sub-chapter will outline what kind of attention and importance science attaches to the topic. The following will include an analysis of Peru's state of research on climate change and related topics, and what this means for the national climate change discourse.

## **2.2 Knowledge generation for whom? Climate Change science between scientific standards and national dilemmas**

There is very little research [about climate change] in universities, which means almost nothing, neither in the physical nor the social division. This means, there are efforts to get to know a little more about the economic impacts, how much it costs. Economists are making their models to make approximate estimates. There are some universities, particularly private ones doing this, but social research like that does not exist.<sup>xvii</sup> (Interview, E3, November 20, 2012; own translation)

In this context, in one of the results of the InterCLIMA Conference held in October 2012, it was highlighted that universities in Peru are not taking a leading role in climate research (Interview, E3, November 20, 2012). In Peru, research on climate change started around 2003; interestingly, though, without the active participation of Peruvian universities, which is even more interesting because the international climate change discourse originally evolved first within science (see Chapter II, 2.3.1). Research has, rather, been practically driven and placed within the framework of climate change-related technical cooperation projects.<sup>76</sup> Thus, observing the process, it can be stated that in Peru, climate change science developed in line with international development cooperation initiatives and the need for information for these activities, as well as in response to the processes of the international climate change framework of the UNFCCC (see Chapter IV, 2.1).

In Peru, scientific literature on the topic of climate change has been closely linked to research on “environmental disasters,” such as floods, droughts, avalanches, glacier (melt), and the *El Niño* phenomenon (i.a. Clark, 2002; Drenkhan, 2010; Franco, 2007; Lagos et al., 2008; Orlove et al., 2000), which basically evolved within the natural sciences and/or disaster risk research. While it can be stated that climate change and impact research has evolved to a small extent, it should be stressed that the process is still in the beginning stages and has so far only produced rather vague results (for example, Peru’s current state of research on the elaboration of climate scenarios, which has been outlined in Chapter IV, 1.2). Additional literature dealing with, or including first attempts at elaborating small-scale climate scenarios have been done by, for example Bury et al. (2010), IGP (2005), Kerres (2010), MINAM (i.a. 2009a: 85ff, 2009b: 98ff); Obregón et al. (2008), SENAMHI (2009),<sup>77</sup> and Suarez (2012). The first two publications by Bury et al. (2010) and IGP (2005) were elaborated within the project of the second *National Communication on Climate Change*, and the last two by SENAMHI (2009) and Suarez (2012) as part of a project.<sup>78</sup> Some of the few available studies are linked to

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<sup>76</sup> In this context, one of the first initiatives was the *Programme for Strengthening National Capacity to Manage the Impact of Climate Change and Air Pollution (Programa de Fortalecimiento de Capacidades Nacionales para Manejar el Impacto del Cambio Climático y la Contaminación del Aire)* (PROCLIM), supported by the Development Cooperation of the Netherlands. The programme worked with thirteen public and private institutions to achieve effective management of human and financial resources for potential climate change impacts in Peru (IGP, 2005: 11). Here, the *Geophysical Institution of Peru* (IGP), a research institution and decentralized public agency of MINAM, was assigned the task of developing studies and background information on the Mantaro River Basin.

<sup>77</sup> Local projections (20 x 20 km) for Peru officially exist following the Second National Communication for the valleys of the Piura River (2012-2035), the Mayo River (2012-2035), the Santo River (2012-2035), the Mantaro River (for 2055/2100), and for the Urubamba River (for 2100) (MINAM, 2010b: 127).

<sup>78</sup> Project 1.) (SENAMHI, 2009): *Adaptation to the Impact of Accelerated Glacier Retreat in the Tropical Andes Project* (PRAA), which was implemented in Bolivia, Ecuador, and Peru with funding from the GEF, coordinated by the *General Secretariat of the Andean Community* (CAN) in Peru and implemented by MINAM. Project 2.) (Suarez, 2012): The Climate Change Adaptation Programme (PACC) Peru, a bilateral project between Peru (MINAM) and Switzerland (Swiss Agency for Development and Cooperation, the SDC).

mountainous areas (i.a. Kohler & Maselli, 2009), and among them, some focus particularly on topics such as: Biodiversity (Arnillas et al., 2010; Báez et al., 2011; Cuesta & Becerra, 2013), glacial retreat (Bury et al., 2010; CAN et al., 2007; Carey, 2010; Chevallier et al., 2011), food security (Sietz et al., 2012), and water resources (Bueno et al., 2010; Buytaert et al., 2011; Chevallier et al., 2011; Llosa Larrabure et al., 2009; Bury et al., 2010).

What becomes obvious when reviewing the available studies, is that Peru follows the common tendency of Latin American research on climate change to focus on the natural/biophysical aspects of climate change, rather than societal, or social facets of it.<sup>79</sup> Only recently, has there been a growing number of publications developed by social scientists that take into account the linkages between climate change aspects and Andean society and culture, such as the impacts and the perception of climate change (CAN, 2008; Flores Moreno & Valdivia Corrales, 2009; GTZ, 2008a; Llosa, 2008; Milan & Ho, 2014; Postigo et al., 2008; Postigo, 2013; PRATEC, 2009a; 2009b; Rhoades et al., 2008; Valdivia Corrales, 2010; Zapata Caldas et al., 2011) and adaptation to climate change (Oxfam Perú, 2011; PRATEC, 2009; 2011; Valdivia Corrales et al., 2012).

As shown in the previous sub-chapter, scientific literature dealing with socio-political climate change processes in Peru is rare and only emerged after the founding of MINAM. Aside from Cancino et al. (2011a; 2011b), Esquivel (2010), and Pulgar-Vidal (2010) who analyse Peru's political processes related to climate change, in recent years, reports dealing with special political involvement like assessing public costs for climate change adaptation (Baca, 2013; Baca et al., 2009) have also emerged. Additionally, publications about technical aspects can also be found, such as the ones on adaptation to climatic changes in agriculture and water management, or on vulnerability in more general terms (e.g. ASOCAM 2009; ESF 2010; Kerres, 2010; Martínez et al., 2008; 2007; Oba et al., 2010; PACC, 2009; Romero Zeballos et al., 2012; SENAMHI, 2009; Silva et al., 2005). Studies with a more technical relevance are mainly published by organisations and institutions that deal with the implementation of local, national, and international projects, and are primarily developed in the frame of running project processes. They are primarily aimed at the amalgamation and development of different knowledge strands, the dissemination of knowledge, and the use of techniques to support a future adaptation.

While hosting about 8.5% of the world's population, Latin American countries constitute only around 3.5% of the international research community, and produce 4.9% of

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<sup>79</sup> [www.trust.org/alertnet/blogs/climate-conversations/a-voice-for-latin-americas-climate-scientists](http://www.trust.org/alertnet/blogs/climate-conversations/a-voice-for-latin-americas-climate-scientists) [accessed July 25, 2014].

scientific publications.<sup>80</sup> This is primarily due to a lack of funding, as Latin American countries only invest around 0.6% of their GDP into research, which is one third of the global average, and from which only a couple of major universities are benefitting. For a couple of years now, newspapers in Peru regularly report on and lament the low level of investment in the country into science and research.<sup>81</sup> According to the *Organisation of the Ibero-American States* (OEI), Peru invests only 0.15% of its GDP into activities of Investigation and Development (I&D) despite having a consistently increasing GDP<sup>82</sup> and a decreasing poverty rate (Villarán & Golup, 2010: 4). This accounts for 9 US\$ per inhabitant (in comparison to Brazil, Argentina, and Mexico, which invest 92, 76, and 56 US\$ per person, respectively, or 1.0%, 0.7%, and 0.5% of their GDP) (Villarán & Golup, 2010: 5).

These numbers are also reflected in the IPCC Assessment Reports in which Latin America cannot be said to have been a crucial or major contributor. Latin America authors represented only 12% of the 620 contributing authors in the IPCC's Fourth Assessment Report in 2007 and 10% in the IPCC's Fifth Assessment Report, European authors represented 32% of the total; the United States accounted for 25%; and Russia, Central/East Asia, and India for 16%.<sup>83</sup> Within the Latin American countries, contributions came mainly from Brazil and Mexico (30% and 26%, respectively), Argentina (13%), and Chile and Cuba (each contributing 7%). Peru is positioned somewhere among the remaining countries, which accounted for 17% of all Latin American contributions together.

In Peru, justification of political actions and legitimisations for decision-making concerning climate change aspects were, therefore, largely based on external scientific results. The Ministry of Environment's presentation on climate change on its webpage states that the two main reasons why climate change needs to be dealt with by the Peruvian government are: First, because it is one of the current major global problems and second, because Peru is the, "third most vulnerable country worldwide to climate change," due to its high climate variability and extremes.<sup>84</sup> This sentence has been adopted as a menu item on the same webpage, asking: "Why is Peru the third most

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<sup>80</sup> [www.trust.org/alertnet/blogs/climate-conversations/a-voice-for-latin-americas-climate-scientists](http://www.trust.org/alertnet/blogs/climate-conversations/a-voice-for-latin-americas-climate-scientists) [accessed July 25, 2014].

<sup>81</sup> See, for example: <http://mass.pe/noticias/2012/05/peru-solo-invierte-el-015-de-su-pbi-en-investigacion-y-desarrollo> [elaborated May 2, 2012]; [www.larepublica.pe/27-03-2013/peru-invierte-el-015-del-pbi-en-ciencia-y-tecnologia-considerada-una-cifra-baja](http://www.larepublica.pe/27-03-2013/peru-invierte-el-015-del-pbi-en-ciencia-y-tecnologia-considerada-una-cifra-baja) [elaborated March 27, 2013]; <http://gestion.pe/economia/gobierno-peruano-invierte-solo-015-su-pbi-ciencia-tecnologia-innovacion-mientras-que-chile-invierte-05-2087516> [elaborated January 28, 2014; accessed July 25, 2014].

<sup>82</sup> An increase of 16% per year between 1990 and 1997 and 24% from 2001 to 2008.

<sup>83</sup> [www.trust.org/alertnet/blogs/climate-conversations/a-voice-for-latin-americas-climate-scientists](http://www.trust.org/alertnet/blogs/climate-conversations/a-voice-for-latin-americas-climate-scientists) [accessed July 25, 2014].

<sup>84</sup> [www.minam.gob.pe/cambioclimatico](http://www.minam.gob.pe/cambioclimatico) [accessed July 25, 2014].

vulnerable country to climate change?”<sup>85</sup> A guide, developed by MINAM (2011: 10) for the elaboration of the regional climate change strategy, starts the introductory chapter with this statement, which then constitutes the foundation for Peru’s need to act. Also, the MEF bases its reasoning for why Peru should act on the fact that it is one of the most vulnerable countries to climate change worldwide,<sup>86</sup> and the Second National Communication on Climate Change mentions this statement four times (MINAM, 2010b: 20/29/49/117).<sup>87</sup> Revealing this point shows two things: First, that the decision to include and address the topic of climate change within Peru’s political processes did not result from Peruvian studies, and second, international scientific research can have very important impacts and can be powerful in altering political processes, as it is used to legitimise actions and for decision-making; especially when there is a lack of locally produced research.

To address research needs and gaps on climate change, Peru’s policy framework on climate change has recently covered scientific investigations such as the *National Agenda on Scientific Climate Change Research 2010-2021* (MINAM & Ministerio de Educación, 2010) and the *Agenda on Environmental Research 2013-2021* (MINAM, 2013), in which the aspect of climate change is included. Moreover, the *Second National Communication* touches upon the topic of science and investigation, too. Thus, the *National Agenda on Scientific Climate Change Research* had the aim of functioning as a dynamic mechanism to guide the activities of scientific research and the technological development of regional governments and research institutions in the country (MINAM, 2013: 53). The agenda defined four thematic axes: 1) Predictions of climate change, 2) mitigation of greenhouse gases, 3) vulnerability and adaptation to climate change, and 4) tools for decision-making. Points 1) to 3) are outlined in more detail in the *Agenda on Environmental Research 2013-2021*. Among them, just two research areas focus on more socio-cultural related aspects, such as under point 1, “Rescue of traditional knowledge on climate prediction,” and under point 3, “Development and transfer of advanced technologies and rescue of traditional technologies to reduce the vulnerability of agricultural and forestry production systems to climate change” (MINAM, 2013: 58; own translation).

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<sup>85</sup> [www.minam.gob.pe/cambioclimatico/por-que-el-peru-es-el-tercer-pais-mas-vulnerable-al-cambio-climatico](http://www.minam.gob.pe/cambioclimatico/por-que-el-peru-es-el-tercer-pais-mas-vulnerable-al-cambio-climatico) [accessed July 25, 2014].

<sup>86</sup> [www.mef.gob.pe/index.php?option=com\\_content&view=article&id=335&Itemid=100234&lang=es](http://www.mef.gob.pe/index.php?option=com_content&view=article&id=335&Itemid=100234&lang=es) [accessed July 25, 2014].

<sup>87</sup> These citations derive from the technical report “*New indicators of vulnerability and adaptive capacity*” that was published by the Tyndall Centre for Climate Change Research in January 2004. Here, Peru is listed in a table among the first nine of thirty countries that show the highest number of people being killed in disasters which, as argued by the authors, is suitable as an indicator for risk (Adger et al., 2004: 63; Brooks, 2003: 19).

More recently, some universities have started to develop degree programmes or in-depth courses on climate change. For example, the *Institute of Natural Science, Territory and Renewable Energy* of the *Pontifical University of Peru* (INTE-PUCP) now offers specialisation classes in adaptation to climate change.<sup>88</sup> Further, the Institute hosts its own research group on climate change and disaster management.<sup>89</sup> In July 2014, during the pre-phase of COP20, the Institute organised a discussion on, “Contributions of research and of the IPCC within the negotiations of the global climate change summit: Towards a new climate deal, COP20.”<sup>90</sup> One of the objectives of the discussion was to, “encourage students and researchers to engage from academia and generally from civil society in the monitoring processes related to the COP20 in Lima.”<sup>91</sup> A research section at the *Universidad Nacional Agraria La Molina* in Lima investigates renewable energy<sup>92</sup> and in 2010, the *Universidad de San Marcos* developed the first diploma degree course in Peru that directly addresses climate change: “Risk management and climate change adaptation” (Interview, E4, November 20, 2012).<sup>93</sup> In 2013, the *Universidad de San Marcos* further created the “General Office of Risk Management and Climate Change Adaptation,” the first of its kind in Peru and Latin America.<sup>94</sup> Another university, the *Universidad del Pacífico* in Lima, organised an international forum on opportunities for climate change adaptation in June 2014.<sup>95</sup> In July 2014, the 5<sup>th</sup> Forum of National Universities, Environmental Management, and Sustainable Development, took place in Tacna on the topic of, “Our actions against Climate Change.” It was attended by delegations from 34 universities from 17 regions of the country.<sup>96</sup>

A great deal of importance is attributed to the decentralisation of the topic of climate change by different actors, meaning bringing it directly to the regions that are closer to the respective local populations and their realities. Thus, in Cusco, a regional

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<sup>88</sup> <http://inte.pucp.edu.pe/capacitacion/cursos/adaptacion-al-cambio-climatico> [accessed August 21, 2014].

<sup>89</sup> <http://inte.pucp.edu.pe/grupos/cambio-climatico-y-ger/presentacion> [accessed August 21, 2014].

<sup>90</sup> <http://inte.pucp.edu.pe/archivo-de-noticias/conversatorio-contribuciones-de-la-investigacion-y-del-ipcc-a-las-negociaciones-de-la-cumbre-mundial-sobre-cambio-climatico-hacia-un-nuevo-acuerdo-sobre-el-clima-cop20> [accessed August 21, 2014].

<sup>91</sup> <http://inte.pucp.edu.pe/archivo-de-noticias/conversatorio-contribuciones-de-la-investigacion-y-del-ipcc-a-las-negociaciones-de-la-cumbre-mundial-sobre-cambio-climatico-hacia-un-nuevo-acuerdo-sobre-el-clima-cop20> [accessed August 21, 2014].

<sup>92</sup> [www.lamolina.edu.pe/ler](http://www.lamolina.edu.pe/ler) [accessed August 21, 2014].

<sup>93</sup> The course was established with its teachers and supported by the NGOs *Practical Solutions* and *OIKOS*. It consists of five modules: A global overview of climate change; international and national legal aspects of climate change; vulnerability, adaptation mechanisms, and mitigation of climate change; climate change risk management; and project development ([www.unmsm.edu.pe/noticias/ver/1054](http://www.unmsm.edu.pe/noticias/ver/1054)) [accessed September 16, 2014].

<sup>94</sup> [www.unmsm.edu.pe/noticias/ver/2907](http://www.unmsm.edu.pe/noticias/ver/2907) [accessed September 16, 2014].

<sup>95</sup> [www.inforegion.pe/portada/182872/universidad-del-pacifico-realizara-foro-sobre-adaptacion-frente-al-cambio-climatico](http://www.inforegion.pe/portada/182872/universidad-del-pacifico-realizara-foro-sobre-adaptacion-frente-al-cambio-climatico) [generated June 2, 2014; accessed August 21, 2014].

<sup>96</sup> [www.iagua.es/noticias/peru/14/07/09/las-universidades-peruanas-se-comprometen-luchar-contr-el-cambio-climatico-y-firman-la-declaracion-51871](http://www.iagua.es/noticias/peru/14/07/09/las-universidades-peruanas-se-comprometen-luchar-contr-el-cambio-climatico-y-firman-la-declaracion-51871) [generated July 9, 2014; accessed August 21, 2014].

government invested in the development of a diploma degree at a local university for the first time:<sup>97</sup>

Seeing that the capacities in Cusco on climate change ... then we have [developed] three diploma degrees [...] in agreement with the *Universidad San Antonio Abad* [UNSAAC]. The diploma degree is called, "Climate Change Science and Management," together with the universities of Zurich and Panama, and national universities. Seventy-five graduates now speak in a coherent way about climate change with theoretical and technical support, and we also did another diploma on governance and climate change.<sup>xviii</sup> (Interview, E12, August 6, 2013; own translation)

Speaking of a topic in a coherent way can be an indicator that the discourse has established itself and is now communicated with a common voice: It is becoming common knowledge.

As a brief summary, even though in the international context climate change (impact) research played and still plays a major role within the emergence of the climate change discourse, unlike in many other Latin American countries, this is not the case for Peru. During an interview with a Peruvian scientist, who has been working for many years in a research institution, has experience with various research projects, and has additionally been involved in university tasks in Lima and in political climate change processes, he noted that there were various constraints for national development and for scientific involvement within the national climate change discourse. During the interview, the following dilemmas were identified:

1. A lack of acknowledgement of profound scientific results
2. Dissonance between "supply" and "demand"
3. Dependency on funding
4. Scientists not being strong salespeople
5. The existing gap between project demand and rural reality
6. The many different languages and the need to know the local context
7. Choosing the correct or right data collection methods

These dilemmas will be explained in additional detail in the following.

#### 1. The dilemma of a lack of acknowledgement of profound scientific results

There is very little investment in what is science and technology, it continues without the use of basic information. This is practically not considered because when you go and ask for a budget or ask for money, they will ask you for a result that is applicable to the reduction of poverty. I have a basic research, I have a well-known and cited publication, this does not count here. We put sustainability indicators in the public sector in which we are currently located. They do not accept you. To have a research that is internationally known does not count for the legislators here.<sup>xix</sup> (Interview, E3, November 20, 2012; own translation)

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<sup>97</sup> See [www.unsaac.edu.pe/investigacion/iur/diplomado/cambioclimatico](http://www.unsaac.edu.pe/investigacion/iur/diplomado/cambioclimatico) [accessed September 16, 2014].



This quotation shows that science, and thus scientific results, do not hold the same value in Peru that it does in other regions in the world. It is, therefore, not acknowledged just for the sake of a mere knowledge-generation.

## 2. The dilemma of dissonance between “supply” and “demand”

Yes, you can see [...] that more importance is given to what is now known, what is understood, what science is doing for decision-making. Worse still, it is not well articulated, from the scientific information that is being introduced, to how it arrives and is considered. But the authorities are concerned with their decision-making and they are concerned about this topic, but still they do not really understand. This means that they usually use what suits them at that moment. [...] For example, sometimes they are interested, ‘we want to know when an event will happen.’ But even when we do have expectations that something will happen, fifty years is a long time, twenty years is long, too, and ‘I want to know five years because five is my period, if I am an authority in five years I am gone. Then, I want to do things in this period [...]’ So, it comes along with the fact that priorities change a lot according to the entering [...] authority. [...] We published, we carried out conferences, we delivered reports, [...] they take it into account, but not one hundred percentage, not how it is intended, it has not been implemented. If they can postpone they postpone it, it is not so urgent then, climate scenarios for two thousand and fifty, which you can still look at later. ‘Right now, we have a need for a school, a bridge or something, build a square [...].’ The authority is better recognised and will be more beloved because people can see something physical.<sup>xx</sup> (Interview, E3, November 20, 2012; own translation)

This paragraph demonstrates clearly the different purposes science and scientific results are used for. In this context, the interviewee further explained the diverging realities between what science can and wants to offer, and what political decisions need or want:

We in the mountains. Due to an anomaly in the Atlantic, droughts occur every five years, which is very important information for us because we can predict and know; this could be used in planning. But we will not do the planning; the planning will be made by planners, the local governments. But when they start to invest in something or do something, there must be a high level of certainty, which in science is not always possible. We will tell them that eighty per cent this thing will happen, for example. We have a period cycle between five and seven years, it may be five or seven years, we use deviations. Politicians do not like this, they want to know it accurately. This is not yet discussed well or communicated well. They do not understand the scientists and the scientists do not understand either.<sup>xxi</sup> (Interview, E3, November 20, 2012; own translation)

Thus, the relatively high remaining uncertainty of scientific results concerning climate change issues further opens the gap between demand, what decision-makers expect, and what science can offer. Further, as already mentioned before, while science intends – and is expected to – to close the gap between research results and political demand, in terms of climate change, uncertainties continue to exist. This might be the reason why it is mainly the more flexible, professional, and demand-driven research institutions, and not the universities that have become involved in climate change-related investigations,

as universities tend to follow a more academic and, thus, “sluggish” way that is often not flexible enough, and therefore is not compatible with political demands.

The topic of knowledge generation, indeed, universities are by and large absent. [...] In other words, almost all existent dissertation topics in the universities are linked to very academic things, very academic [which means not applicable], meanwhile in the district they need a lot of information, to be able to make decisions.<sup>xxii</sup> (Interview, E3, November 20, 2012; own translation)

Thus, one might ask, why are research and knowledge not generated for their own sake, and why do they depend so much on political demand? This leads to dilemma number 3.

### 3. The dilemma of dependency on funding

The existing balance between science to generate objective knowledge for the sake of knowledge generation that, in the very best case scenario, will be further developed or used, and science generated with the objective to answer specific questions for a specific project or to support political decision-making, seems to be clearly weighted in favour of the latter in Peru. As financial support from public budget sources is rare, research needs to rely on other financial sources. In this case, private funding with specific research aims on climate change,<sup>98</sup> often stems from climate change-related technical cooperation and development aid projects. Thus, Peru’s climate change research is greatly impacted by third party funding:

There are many adaptation projects and that’s also a little bit the uncertainty, there are adaptation projects being implemented, some already finished, based on the perception of people – or even more what is just the perception of people – on concrete results, on studies, because the question always is: We will adapt ourselves, but you need to know to whether there will be less rain or more rain? So, this is it, yet, we are [working] on this. The projects are coming, there are many projects that want to implement, [or] already, implement measures. But a baseline study needs to be done. This needs to be done, a study. But then there is no time to do the studies, ‘we want to implement.’<sup>xxiii</sup> (Interview, E3, November 20, 2012; own translation)

The fact that lots of climate change-related research relies on funding of specific projects, limits more foundational research. More often than not, researchers find themselves in the unpleasant situation of not being able to carry out their work in a way that they want to – in accordance with scientifically required standards. This, in the end, also puts a limit on the influence of science and research:

If there is no information you cannot make decisions at the end. Without decisions, there is no action taken. But, this does not exist yet. I do not know, in the developed countries I imagine science has more weight, suddenly has more influence.<sup>xxiv</sup> (Interview, E3, November 20, 2012; own translation)

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<sup>98</sup> Even though, research on disasters and climatic impacts like from the *El Niño* phenomenon were already there.

This leads to the question of why researchers do not try to obtain money from alternative sources.

#### 4. The dilemma of scientists not being strong salespeople

For science, it is quite important to have the larger or more complete picture to then be able to zoom into more local contexts:

For us, as institutions, it is necessary to know the behaviour of the climate of all South America, all Latin America, the oceans, to understand what will locally happen. But locally, they care more about knowing if there will be rain or if there won't be rain, in which months, and why it will rain. Then you need to give them the information they need. Then, this [climate change] discourse you are talking about, is still from academia, from the institutions we generate information, we are working on it on how to get to them [to local authorities, to the local population].<sup>xxv</sup> (Interview, E3, November 20, 2012; own translation)

This shows that aside from the requested information, scientific results generally need to be “sold” to be considered. In this context, the interviewee said, “we have had a very low budget for a long time, even in some years much less because we did not know how to sell what we were producing,” because, “in the end what commands is the economy”<sup>xxvi</sup> (Interview, E3, November 20, 2012; own translation). This means, for the interviewee, that research needs to produce “something” that is directly applicable for ministries or local political decision-makers, and based on this, to develop results further in order to publish them in a scientific context. Most important for “selling markets,” is to learn to offer what is already “there.”

#### 5. The dilemma of the gap between project demand and rural reality

What has already become clear in Peru, is that science is highly noticed and demanded for its practical usefulness. However, another, equally weighted situation emerges when it comes to developing scientific projects or supporting “demand-driven” projects with the help of scientifically generated local information:

And one of the things is, because the projects are being formulated from here, for example from Lima. I have the possibility of funding, I will formulate a project, I will look for my area of study based on certain parameters, I will identify this area and I will do my whole project design from here. And only later, when I implement the project, will I go into the area. At that time, the local population sometimes does not like it because you have not let them participate when you were preparing because there... Or some, well, accept it because it is already there, but they are not part of the project. So, there are many things that are missing considering this subject, let's say to link this with the social, with the people who are finally [...] the ones who have to adapt themselves.<sup>xxvii</sup> (Interview, E3, November 20, 2012; own translation)

This dilemma leads to dilemma number six:

## 6. The dilemma of different languages and the need to know the local context

We are really isolated because we ourselves, we have started the projects; we will study climate change; we have meteorological information, weather services from fifty years; we will begin to study everything about climate; and we have the information in relation to climate and action. We have gone to the area and presented this. The people do not understand all these graphs and all those things and we are also speaking different languages, we are talking about drought from our technical definition, missing climate [rain] for many years. And when they talked about drought, about the “*veranillos*” [late summer] that bring absences of rain in the summer time for 10 to 15 days, and this is drought for them. Thus, we have done research and have published everything from our point of view, not really understanding what they really wanted.<sup>xxviii</sup> (Interview, E3, November 20, 2012; own translation)

However, defining the same words in the same ways is important, but not enough, as it is also important to know the local context. This can be seen in following quotation:

Then, in the end, we give some recommendations. Among them, we are recommending to start projects; that they should go first to the project area considering all points of view: The environmental, the social, the economic, the political, the cultural. The culture is important because sometimes projects on irrigation infrastructure that might be very good ones are coming into being, but the local population has a different concept of how it should be. Water is sacred; they have their different cultures. So, they are not willing to redirect a channel that remains here despite it being for their own benefit, because culturally or religiously this means something to them.<sup>xxix</sup> (Interview, E3, November 20, 2012; own translation)

Thus, knowing the local circumstances, meaning the situation, language, culture, and different meanings of things is quiet demanding, requires time, and implies a greater knowledge than what climate scientists usually learn at university.

## 7. The dilemma of choosing the correct or right data collection methods

Research on climate change includes a wide range of topics and, thus, also comprises research methods that are appropriate for their respective aim. In order to choose the right methods, one needs sufficient background knowledge of concepts and the specifics of the localities need to be considered. This usually takes more time than is available in project-related research, time that is usually not available for projects with mainly short time-frames and that need to have and show first results very quickly. Not producing quick results doesn't mean one does not have results in the end. But the question is which results will be meaningful and reflect the reality.

Conducting surveys, you know that interview surveys are also a research task. So, you can't only do the survey and take the results, there they are. This is not being handled very well, not being done very seriously. Then, the perception of the people is – let's say going back maybe twenty years – which means it is not [...] very long, which means the, their memory of the weather is not

very ample. We can't talk of climate change if we are uncertain in predictions to ten years or twenty years only. So, under the title of climate change, what we are actually working on is climate variability. So, it is more variability, and the extreme events. Yes, we do have them, we always have had them. Then suddenly we might be in a period where they could be more recurrent, but we cannot blame them one hundred per cent on climate change.<sup>xxx</sup> (Interview, E3, November 20, 2012; own translation)

In summary, publications on climate change aspects in Peru mainly emerged starting in 2007 and onwards, at the time when the *Fourth Assessment Report (AR4)* of the IPCC was published and MINAM came into being, which provided the topic a higher relevance in the country. In general, universities from other countries, mainly from North America and Europe, have a long tradition conducting research in Peru. While investigations on climatic impacts like *El Niño* were already part of the national science agenda, research on climate change then developed mainly in connection with international development aid projects, national project cooperation, or through the provision of international funding.

This leads to several dilemmas about climate change-related science that Peru is confronted with, most of all that there is a more project-oriented and, thus, strongly action-oriented interest in science. Moreover, many of the projects still use findings from the international climate change discourse, rather than being based on Peruvian primary research, which still only rarely exists. Project-bounded funding is directed to research institutions for doing "practical" research, and mainly leaves universities out. Thus, universities are still not taking part in this component of knowledge generation. Universities, however, seem to be discovering the topic of climate change and developing training and courses of studies, developing curriculums and organising forums on climate change related topics that will construct the groundwork for the discourse to become common knowledge.

Climate change in Peru is a topic that has evolved first from a rather scientific perspective, then entered political processes in a different manner, to now becoming step-by-step a public discourse; which is a classical way of how discourses unfold and gain power. Here, existent power structures are used and even reinforced. In this context, the climate change discourse additionally widens already existing gaps between urban and rural areas and prevailing structures of social in- and exclusion within the Peruvian society. So far, this aspect has been illustrated by outlining the national operations and objectives on this topic, as well as by showing the accessibility to, and active participation of, just part of the Peruvian society. In upcoming chapters this point will be returned to, based on examples extracted from the empirical case study, in order to support, further outline, and develop this hypothesis.

### 3. Case study – the climate change discourse in the region of Cusco

The previous chapter presented the process on how Peru's national government adapted, integrated, and then further developed the international climate change discourse, thereby, creating a political framework on climate change that aims to mainstream climate change across sectors and to reach out to the public. The national initiatives have also had impacts in other areas such as the regional governments. This is particularly the case because, as MINAM states in its guide for the elaboration of regional climate change strategies, "the elaboration of the ENCC is mandatory and must be included in sectional and regional politics, plans, and programmes [... and] requires each regional government to have its own Regional Strategy on Climate Change, in the framework of the national strategy; meaning, to maintain consistency and contribute to the achievement of the national objectives, but also considering their own regional reality" (MINAM, 2011a: 15; own translation). What this means for the regions and which processes this entails, will be shown in the case study of Cusco, which will be presented in the next section. As shown in Figure 10, Cusco had the second largest number of national-based programmes and projects of all regions in the country in 2012, and was the first region to fully integrate climate change into its development plan or PDRC.

After a brief introduction to the physio-geographic and socio-demographic characteristics of Cusco, the political processes that contributed to bringing about these results will be outlined. Information regarding these processes was mainly extracted from government and project publications, supplemented by interviews carried out between July and November 2013 in Cusco.

#### 3.1 Physio-geographic and socio-demographic conditions in the region of Cusco

The region of Cusco is located in the southern part of the Peruvian Andes. Being one of twenty-four regions of Peru, Cusco covers an area of 5.6% of the national territory (71,986.5 km<sup>2</sup>) (INEI, 2014: 3), and has a identically called capital, Cusco (see Map 1). The region includes very different topographic areas, ranging from the high mountains with a peak point of 6,372 m (Ausangate, part of the Willkanuta Mountain Range), to the tropical forest of the lowlands.<sup>99</sup> The region of Cusco is home to 25% of Peru's glaciers (GORE, 2012: 27).

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<sup>99</sup> In total, the region of Cusco has the following breakdown of topographic coverage: Lowland (<500 m), 8,480.7 km<sup>2</sup> = 11.7%; High forest (500-2,500 m), 29,306.1 km<sup>2</sup> = 40.3%; Inter-Andean valleys, 760.7 km<sup>2</sup> = 1.0%; Meso Andes (2,500-3,600 m), 8,035.6 km<sup>2</sup> = 11.1%; and High Andes (3,600-6,372 m), 26,069.8 km<sup>2</sup> = 35.9% (GORE, 2012c: 75).

Due to its diverse topography, the region of Cusco is home to nine different types of climate, predominated by the characteristics of a tropical rain forest climate. Its climatic variables are strongly connected to the thermal gradients ranging from a warm humid, to a very humid, climate in the northern and central eastern tropical rain forest region, with temperatures ranging from 20 to 32°C and with an annual rainfall of 3,000-8,000 mm; to a frosty and semi-dry climate in the highland regions, with temperatures of -4 to 12°C and 200-1,000 mm of rainfall (GORE, 2012a: 56). In general, the climate in Cusco can be divided into a dry period, with almost no rainfall between May and September, and a rainy season beginning in October and peaking between January and March. The coldest time of the year occurs between the second half of June and early July, while between December and February, the weather is generally warmer and rainy (GORE, 2012a: 56).

The region is divided into 13 provinces; 108 districts; 887 rural communities; 5,278 population centres; and 62 native communities (GORE, 2012a: 5). In 2014, the population of the region of Cusco was estimated at 1,308,806 residents, of which 38.6% (504,500) were younger than 20 years old. Cusco, therefore, constituted 4.2% of the country's population (INEI, 2014: 36). For the period from 1993-2007, Cusco's population grew by 0.91% per year. This is lower than when compared to the period from 1981-1993, when the population increased annually by 1.7%. Thus, Cusco has recently recorded a declining population growth rate, in particular in rural areas. This is seen as being mainly the result of a strong migration towards the cities, especially by the younger generation (GORE, 2012a: 4f). The pyramid in Figure 12 shows the decrease of births between the census of 1993 and 2007, resulting in a reduced base and a slightly more rounded middle section.

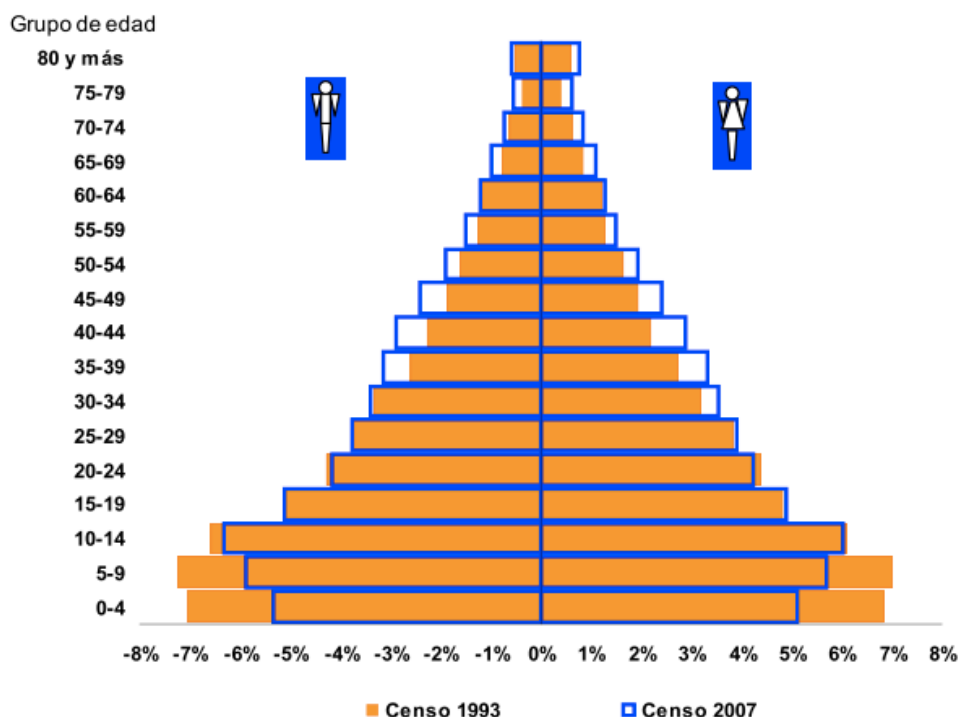


Figure 12: Population census pyramid, 1993 and 2007 (by age and per cent)

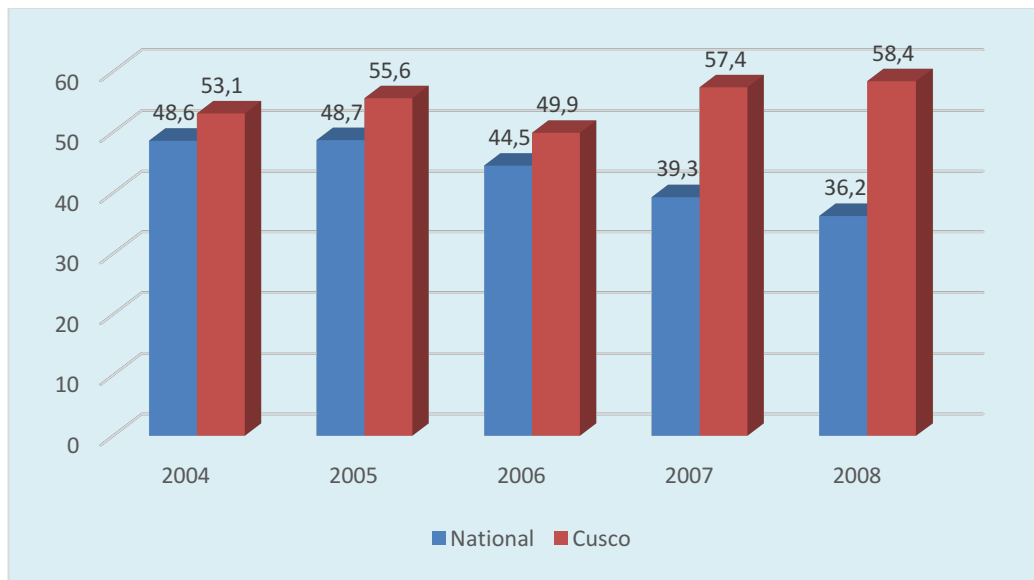
Source: GORE, 2012a: 6

Migration and human mobility compose important factors in daily life in the Andes, and in the make-up of its population. Even though this will be elaborated in more detail in Chapter V, the numbers outlined by GORE (2012a: 5) and the INEI (2008: 28) already provides a visualisation of the tendency of a population decrease in rural areas and an increase in urban areas. Thus, in the region of Cusco according to the population and housing census from 2007, 55% (644,684) of the 1,171,403 inhabitants corresponded to urban population and 45% (526,719) were living in rural areas. Comparing these results with the previous population distribution reveals a constant declining rate of the rural population. In 1940, the region of Cusco had an urban population rate of 25.2%, in 1961 it was 32.4%, in 1972 it was 36.7%, in 1981 it was 41.8%, and in 1993 it was 45.9%. As outlined in the Annex of the *Regional Strategy on Climate Change* (ERCC), between 2002 and 2007, 68,361 people of the region emigrated from the region, with the main destinations being the capital of Lima (31.5%) and the nearby city of Arequipa (29.1%). Migration within the region of Cusco has occurred primarily towards the cities of Cusco and Sicuani, therefore, the two districts grew more than the average of the rest of the region. But in general, a growing importance of intermediate urban agglomeration can be observed (GORE, 2012a: 7).

Another important factor to consider is the poverty rate. In the region of Cusco in 2009, the rate was 51.1%, significantly above the country's mean value rate of 34.8% (INEI,



2010: 20). While the poverty rate in Peru declined from 2004 to 2008, from 48.6% to 36.2%, Cusco's varied more, as illustrated in Figure 13.



**Figure 13: Poverty rate in the region of Cusco and the country as a whole: 2004-2008 (by per cent)**

Source: Modified figure based on INEI Encuesta Nacional de Hogares (ENAHO) 2004-2008 in GORE, 2012a: 79

One of the main reasons for the high poverty rate is the importance of agricultural production and livestock as a main livelihood source.<sup>100</sup> Agricultural households are considered to be highly vulnerable to climate variability and the negative impacts of extreme climatic events (GORE, 2012a: 7). In Cusco, 606,862 people over the age of three belonged to households engaged in agricultural and/or livestock production; 435,663 of these grew up with Quechua as their first language (INEI & MINAGRI, 2012: 60). Cusco is a region with a high percentage of Quechua speaking people, the language of the Inca. The *Socio-demographic Profile of Peru* (INEI, 2008: 119) notes that in Cusco, 52% of the population above the age of five were growing up with Quechua as their first language, 46.3% with Spanish, and 1.6% with other native languages (INE 2007c: 119). Out of these people, 21.8% of the Quechua native speakers are illiterate, compared to the Spanish native speaker, where just 4.3% cannot read and write (INEI, 2008: 120). Having a total illiteracy rate of 13.9%, the numbers in the region of Cusco reveal big differences in distribution; firstly, between rural (24.7%) and urban (6.2%) and secondly, between men (6.7%) and women (21%) (INEI, 2008: 100). Of the 180,641 agricultural producers in Cusco, 32,205 have no school education; 87,882 had started or finished primary school; and just 3,360 possessed a university degree (INEI & MINAGRI, 2012: 61).

<sup>100</sup> In Peru, 7.5% of the GDP came from agricultural/livestock production and fishing in 2006, while 31.6% of the total population (8.1 million people) worked in this sector (Cancino et al., 2011b: 15).

The physio-geographic, as well as socio-demographic conditions,<sup>101</sup> already highlight what are some of the challenges of the political processes of the regional development planning focused on climate change: A strongly varied topography and climatic zones; a high proportion of people living in poverty, especially in rural areas; relying mainly on rather climate sensitive livelihoods such as agriculture and livestock; a multicultural population with an imbalance between the rural, rather indigenous population and the urban; and finally, a high migration rate of the rural population. Situated against this background, Cusco's political and thus, policy processes within the scope of climate change will be the main focus of the subsequent sub-chapter.

### 3.2 Political processes and climate change in the region of Cusco

Actually, the issue of climate change here in Cusco is very well positioned, a very good work has been done. Within the regional government there is a climate change unit operating, afterwards, the regional technical group for climate change has been formed. This means, when you ask why all this has been achieved, it is because of an institutional strengthening of the topic of climate change. So, in the strategy you will see all the institutions involved in the formulation of this strategy, all are there, many, almost sixty institutions, and [for] the formulation of this strategy we visited province by province, all, to get to know what people think and what they proposed about climate change. So, this is a genuine public policy, it comes from below.<sup>xxxix</sup> (Interview, EI2, August 6, 2013; own translation)

This quotation from an expert interview in Cusco in 2013 shows two things: First, that institutional support for climate change took place in Cusco, playing a crucial role for the establishment of the topic, and second, great institutional participation and a bottom-up approach was sought. How this evolved, on whose initiative, and who participated will be shown in this sub-chapter.

Look, we are already now, three years, going on four years, already working more or less on the topic of climate change. Because actually, ours, the issue of climate change, let's say, it must have been some five or six years ago that it started to work a little, but very slightly, in the region. Well, there were first of all some institutions and offices that looked into the issue of risk [...]. Well, we had approved, well we had reviewed, all of the information on climate change, and basically the risks in the region were increasing. And it was in 2010 in Cusco, we had a heavy weather event, terrible rain fell. It flooded half of our region. It carried houses away. Well, it was a disgrace. So, all those things made us worry about the topic of climate change and we were trying to organise ourselves, a group of professionals, within the region. [...] Well, some cooperation projects entered, the *Programme for Adaptation to Climate Change* came, the PACC, and by that time also a project of [...] the United Nations stepped in that worked in Chumbivilcas [...], [the] *Programa Conjunto*

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<sup>101</sup> Even though economic numbers like the ones integrated into the HDI do not reflect the whole picture of the local conditions, which is why other concepts like the *Buen Vivir* (Ecuador) and *Vivir Bien* (Bolivia) and indexes like the *Genuine Progress Index* (GPI) (see Albó & Galindo, 2012: 24ff) or the *Gross National Happiness* (GNH) Planet Index in Buthan attempts to counter this lop-sidedness.

[Joint Programme] [see Chapter V]. And, in the area of Santa Teresa, the project *Adaptation to the [Impact of] Rapid Glacier Retreat [in the Tropical Andes]*, the PRAA,<sup>102</sup> also entered, which also conducted some studies on the surrounding areas.<sup>xxxii</sup> (Interview, E11, August 6, 2013; own translation)

The issue of climate change, first considered within the topic of risk management from more or less 2007/2008 onwards, became more relevant to the public when a climatic extreme event hit the region of Cusco in 2010, building the basis to legitimatise and intensify the topic within regional political processes (Interview, E12, August 6, 2013). Knowing that there have always been disasters and extreme events and that not everything is evidence of climate change, this and the glacier retreat served as important indicators demonstrating that something is changing and that action is needed:

Look, we have seen that, for example, what I [just] said, the disasters of 2010, which was a terrible rain and we're not exactly sure if it was climate change or if it was a matter of other climatic processes. But we have used it well to tell them, look this what has happened. It can be a warning of what can happen in the future, this event that you can see coming after many years may be coming back with more frequency just because of all these alterations of the climate. So, if today, can it happen again? Yes, it can happen again and faster. [...] So there is already concern. So this, let's say, helped us a bit to point out to people that something was going on.<sup>xxxiii</sup> (Interview, E11, August 6, 2013; own translation)

The context in Cusco needed additional investigation and initiatives, as on the one hand, there was still very little scientific information on climate change available for the region (Baca et al., 2009: 49) and, on the other, there was a lack of technical knowledge on how to implement projects or programmes on climate change adaptation or reduction of vulnerability. This is why the first steps and initiatives for programmes such as PACC (2009-2016), *Programa Conjunto* (2008-2012), and PRAA (2008-2014), which were supported by bi- or multinational funding and by the international technical cooperation community, also contained a broader scientific data collection and generation as a part of their initial start-up phase. Whereas solid background information is of high relevance, if you want to know what exactly is happening and how negative impacts can be avoided, the establishment of a political and policy framework is crucial to being able to put the findings into action. Thus, the processes to elaborate the *Regional Strategy on Climate Change* started.

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<sup>102</sup> The project "Adaptation to the Impact of Rapid Glacier Retreat in the Tropical Andes (PRAA)" was approved in May 2008 by *The World Bank* and closed in March 2014. It was carried out in 29 locations in Ecuador, Peru, and Bolivia, three of them within the region of Cusco. Its aim was, "to contribute to strengthening the resilience of local ecosystems and economies to the impacts of glacier retreat in the Tropical Andes, through the implementation of specific pilot adaptation activities that illustrate the costs and benefits of adaptation" ([www.worldbank.org/projects/P098248/adaptation-impact-rapid-glacier-retreat-tropical-andes?lang=en](http://www.worldbank.org/projects/P098248/adaptation-impact-rapid-glacier-retreat-tropical-andes?lang=en)) [accessed September 3, 2014].

### 3.2.1 The elaboration of the *Regional Strategy on Climate Change* (ERCC), Cusco Region

The elaboration of the regional strategy brought along some transformations within the regional government. As climate change was considered to be a cross-sectoral subject, the decision was made not to incorporate the topic into just one of the already existing management units – Economic Development, Social Development, Natural Resources, and Infrastructure – but instead to create a *Regional Operative Unit* (UOR) of the PACC. This decision was made in 2009, and then became the *Regional Operative Unit of Climate Change* of the regional government Cusco in 2011 (PACC, 2012: 8). Thus, even though the *Operative Unit* is chaired by the *Unit Regional Management of Natural Resources and Environmental Management* (GRRNGMA), it has been further integrated into the existing *Management Units of the regional government*. This means that each unit nominated a fixed representative, which had the advantage that in each Management Unit there was now one person working extensively on the topic of climate change. On the other hand, this set framework also poses a risk that the UOR, politically, does not have much decision-making power, because the subject of climate change is a topic outside of their subject area for the other Management Units, and therefore not at the top of their already high workload. The whole elaboration process was accompanied by the PACC Cusco,<sup>103</sup> and started with capacity building of the staff. One of the first, and main, tasks of the Operative Unit was to formulate the *Regional Strategy on Climate Change* (ERCC Cusco) (see GORE, 2012b). Talking about the experience of the elaboration process of the Regional Strategy, one interviewee explained:

The implementation of the *Programme of Adaptation to Climate Change* is a social construction where many actors have been involved and we have been learning together. We learned how to implement, how we should do climate change adaptation. Nobody taught us, we learned on the way. Well, and this was a very nice experience.<sup>xxxiv</sup> (Interview, EI2, August 6, 2013; own translation)

Thus, even though MINAM provided a guide for the elaboration of regional climate change strategies (see MINAM, 2011a), the methodological elements are not outlined in

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<sup>103</sup> The PACC was divided into two phases: The first, from February 2009 until April 2013 and the second, from May 2013 until December 2016, working in the regions of Apurímac and Cusco. Thus, the regional areas of intervention during the first phase were: "a) Regional and Local Technical Teams: Embodied in strengthening professional skills for the promotion of policies and actions of climate change adaptation (ACC), through the application of knowledge, methodologies and tools, and b) Regional and Local Public Policy: Focusing on the formulation and implementation of policies for adaptation, and expressed by the number of strategies and projects of local and regional public investment linked to the topic, formulated, approved, implemented or with committed amounts; and in the formation of permanent regional operating units with responsibilities in climate change within the regional governments of Apurímac and Cusco" (own translation; for the original version in Spanish see [www.paccperu.org.pe/primer\\_fase.php](http://www.paccperu.org.pe/primer_fase.php)) [accessed September 5, 2014].

detail (PACC, 2012: 16f). The result, so far, of this step-by-step process was, that a four-phase plan was elaborated, with an initial phase (phase 1), a phase of formulation and construction (phase 2), an approbation phase (phase 3), and finally, an implementation phase (phase 4) (GORE, 2012b: 38).<sup>104</sup> Each phase is briefly outlined in the following:

**Phase 1:** To not stay in a “group of friends,” as an interviewee described it (Interview, EI1, August 6, 2013); a *Regional Technical Group for Climate Change* was created in 2009, with the participation of about 35 public, private, regional, and local institutions to start and that later increased to more than 60 institutions (Interview, EI1, August 6, 2013).<sup>105</sup> The aim of the *Technical Group* was, “the elaboration of the necessary documents for its creation, its internal rules [...]” (GORE, 2012b: 38; own translation). In the third workshop, the participating institutions were divided into “thematic tables,” focusing on one of the eight following topics: Climate and risk management, biodiversity, institutional infrastructure, food security, water, energy, and education. For a mountainous area, Cusco traditionally has dealt with disaster risk management. Therefore, to start off, existing (scientific) information was collected and further studies were elaborated, especially for pilot or project areas. The Technical Group was then based on the regional ordinance from 2010 N° 070-2010-CR/GRC.CUSCO.

**Phase 2:** During the next phase, which was mainly carried out in 2010, further information was generated and compiled with the support of a facilitator. In this regard, parallel workshops were carried out in all thirteen provinces of Cusco. Here, local authorities; officials; community leaders; and representatives of public and private institutions and organisations participated under the call of the local government. These regional workshops were structured and facilitated by a team that was especially composed for the development process of the ERCC. Additionally, during this phase, the peasant federations (FDCC and FARTAC) were encouraged to include the topic of climate change into their thematic agenda (GORE, 2012b: 41).

We basically [...] gathered from communities their perceptions. What did they feel about the weather? We did not ask them technical questions: What is climate change, global warming? That's not working with them. The question is, what do they feel, do they believe that the climate is different? Yes, we feel more heat, we feel this and that, we feel that with the plants this is happening, with the animals. That my snowy mountain was there, now it is no longer. Well, these things. Then these periods have also been included, a systematisation was made, the technical group reviewed it, and well, we had the ordinances, the regional climate change strategy.<sup>xxxv</sup> (Interview, EI1, August 6, 2013; own translation)

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<sup>104</sup> The process of phases 1-3 is part of the first part of the ERCC, which provides everyone with the possibility of having a retroactive insight into the process.

<sup>105</sup> A list of all institutions that were part of the ERCC-process can be found at GORE (2012b: 52f).

What this quote shows, is that especially during this phase, the use of different languages posed a big challenge to the Technical Group. On the one hand, they needed to know the technical vocabulary related to climate change and, thus, also were attempting to handle the scientific terms. On the other hand, it implied that they had to be able to communicate the information comprehensively and locally in a way that was meaningful to the communities, meaning that they needed to know not only their language but also specific aspects of local worldviews, customs, and ways of social communication. Additionally, local perceptions and knowledge needed to then be reflected back into the process itself. Anticipating this important aspect, the staff of the Technical Group noted that they were automatically part of a social hierarchy shaped by a discourse on “racism without race,” describing a communication inequality between an “educated” urban and an “non-educated” rural population, which in the end probably also determined and/or influenced this process.

Afterwards, during a workshop, the first draft of the strategy was discussed with all actors from the elaboration phases. The final version was then presented to all actors, including regional and local authorities, thus closing the formulation and construction phase.<sup>106</sup>

The publication of the ERCC included a CD with a digital version of the strategy and an 170-page Annex with a detailed compilation of data and information on the human capacity and the natural, economic, and socio-institutional conditions and ancestral knowledge of the region. Additionally, the regional government also released a summarised version of 32 pages (GORE, 2012c) simultaneously that used more common language and explained the main facts, the process, and strategies in conjunction with pictures.

**Phase 3 and 4:** The Regional Council of Cusco approved the final draft in January 2012. This meant that the region of Cusco came into its implementation phase (phase 4): “When we finished the climate change strategy we said, well, we’re done, now we start to turn this into activity, into actions”<sup>xxxvi</sup> (Interview, EI1, August 6, 2013; own translation). Implementation processes, however, are complex; they not only imply having a thorough knowledge of the planning and implementation processes, but also take into consideration and include different types of knowledge and expertise. In this context, the following explanation was provided during an interview:

We now have a strategy, but what does the strategy say? The strategy tells us that we have to do, [...] the strategy basically provides us with broad outlines, and it says that today the subject of water consolidation needs to be done. But what is that? Yes, water financing. Yeah, well, the water

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<sup>106</sup> In August 2013, the final results were presented to ten of the thirteen provinces (Interview, EI1, August 6, 2013).

retention in altitudes needs to be improved, but how, in what way?<sup>xxxvii</sup> (Interview, E1, August 6, 2013; own translation).

Thus, the implementation phase is crucial, but also a big challenge, for complying with all expectations: Political, public, and scientific. A project-blog entry of EDA (*Dialogue and Learning Space*), reporting on the release of the ERCC, points out that urgent action is needed, not only to raise concerns about the subject that politicians should not only dwell in speech, but they should use money to put the strategy into action:

Now, although it is true that we already have the strategy, there must be a political will as well, that the regional government internalises and materialises the proposals included in this document, and that each actor of the civil society who is somehow related to a specific strategy proactively participates in its entire implementation. It is important that the regional government of Cusco has its ERCC, but it is much more important to bring it to implementation.<sup>xxxviii</sup> <sup>107</sup> (Own translation)

This issue appeared in various conversations and interviews, and many times as an obstacle to be considered, “political will.” For example, during an expert interview in Lima it was stated:

It needs to be strengthened and then put pressure on the authorities, on the political leaders that they also see it as a political priority. There has been progress on the management goals. There are proposals, proposals for the regulatory framework of climate change. There are proposals for the financial management. There are proposals for the same project management, programmes, but still, in many cases they have not passed beyond the proposals, to move from the proposal to the implementation, which is pending in many cases.<sup>xxxix</sup> (Interview, E2, February 12, 2014; own translation)

Further, one interviewee of the NGO sector in Cusco stated: “And as far as for the formulation of plans, everything is very nice, but from here to the execution, there is actually not much, not much, no”<sup>xl</sup> (Interview, E3, November 7, 2012; own translation). In this regard, MINAM also identified fourteen limitations of the regional climate change management in its Second National Communication. Their third point, after missing capacity and knowledge related to the issue of climate change and missing public financial resources and international cooperation, was: “Lack of political will and institutional support for investment in climate change measures” (MINAM, 2010b: 181; own translation).

One example of an approach trying to address this threat was carried out by the *Programa Conjunto*, starting in parallel to the elaboration process of the ERCC, in which they took a first step towards local action. Here, they developed a local implementation plan together with the province of Chumbivilcas (Interview, E1, August 6, 2013).

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<sup>107</sup> <http://coaliciones.net/cusco/2012/10/31/la-estrategia-regional-2012-frente-al-cambio-climatico> [generated October 31, n.y.; accessed September 4, 2014]

Before moving on to the next chapter, a brief insight into the conceptual framework of Cusco's ERCC will be given, and conclusions will be drawn from Cusco's regional climate discourse, to close the regional case.

### 3.2.2 The conceptual framework of the Regional Strategy on Climate Change (ERCC)

The conceptual framework of the ERCC addresses various approaches, such as adaptation, mitigation, and reduction of vulnerability. It also provides a broad outline of the possible impacts of climate change at all levels: Biodiversity, food security, and the economy and the environment as a whole, looking at the impacts from the perspective of the family and society (GORE, 2012b: 31f). The conceptual framework takes the topic mitigation into account, but states clearly that it is also necessary to adapt to negative impacts in order to be able to moderate the damage of climate change and climate variability. What adaptation implies is explained as follows:

Adaptation in this context, involves a process of adequacy, sustainability, and permanency in response to new and changing environmental circumstances, also, in response to experienced or expected climatic events, it involves modifying behaviour, livelihoods, infrastructure, laws, policies, and institutions, but is especially linked to the type of development that is proposed or carried out. (GORE, 2012b: 33; own translation)

Another important issue incorporated into the conceptual framework, and connected to the concept of adaptation, is vulnerability reduction. In this context, adaptation to climate variability and extreme events that are considered to be more of a short-term reaction, are seen as a prerequisite to reducing vulnerability to negative climate change impacts in the region, which are considered a long-term reaction. Hence, "this means, reducing vulnerability, increasing resilience, and enhancing adaptive capacity, which presents a training opportunity for learning how to improve the capacity to respond to future climate change" (GORE, 2012b: 33; own translation). The adaptation process is seen as a complex challenge, considering that climate change impacts can vary and, therefore, be of different levels of importance to the regions. This is because, "its effects depend on factors such as the physical vulnerability of the region, the level of socioeconomic development, the capacity of natural and human adaptation, sanitation systems, and the disaster monitoring mechanisms" (GORE, 2012b: 33; own translation). So, the strategy notes that it is very important that adaptation measures are adapted to all administrative levels, such as the local, regional, national, and international, and that the involvement of public authorities, the private sector, and citizens is absolutely necessary. In summary, the strategy points out that, "climate change is a fundamental RISK of the 21<sup>st</sup> Century that [...] depends on and affects the development, the demography and the patterns of energy consumption" (GORE, 2012b: 34; own translation).



In Cusco, poverty is, as outlined above, an important topic to be considered in regional processes, thus, “it is not only adaptation but also about measures to combat poverty”<sup>xli</sup> (Interview, EI2, August 6, 2013; own translation). This is also considered in the ERCC, where it is pointed out that one of the reasons for the need to act on adaptation to climate change is poverty reduction. Another statement in this regard is given on the web page of the PACC:

Our efforts are aimed at achieving sustainable development and, in this context, to reduce the vulnerability of rural populations to climate change, as a direct step of the fight against poverty. Our aim is to help consolidate the basics of life and reduce vulnerability within the social stratum living in poverty and extreme poverty in areas prioritised by the programme to climate change, thus, reducing migration due to environmental damages caused by climate change.<sup>108</sup>

Alignment is another important issue that is addressed by the conceptual framework. The ERCC says that adaptation measures are better implemented if they are consistent and integrated into programmes that do not directly address climate change threats or stresses (GORE, 2012b: 33). Therefore, the ERCC takes the four dimensions of the *Agreed Regional Development Plan of Cusco towards 2021* into account: 1) Adequacy and strengthening of human capacities: Sustainable human development; 2) intervention in the natural conditions: Management and conservation of natural resources; 3) adequacy and protection of capital and economic capabilities: Local and sustainable economic development; and 4) adaptation of the socio-institutional capacity: Governance and citizen participation (GORE, 2012b: 34f, 48f). Additionally, the ERCC is based on existent approaches such as human development, interculturality, sustainable development, risk management, and land and watershed management<sup>109</sup> (GORE, 2012b: 35f). Finally, the outcome of the briefly outlined process of the ERCC was 67 strategies that were prioritised accordingly:

- Strategy focusing on the protection of individuals – health, habitat, and food security – that emphasizes on capacity building and assistance for rural populations, being most vulnerable
- Strategy that responds to urgent measures to be implemented in the region
- Strategy to be implemented in areas of greatest vulnerability
- Strategy that articulates adaptation and mitigation or various dimensions (GORE, 2012b: 56; own translation)

In order to guide public investment, 15 of the 67 strategies were selected and assigned to the four outlined dimensions of the *Agreed Regional Development Plan of Cusco towards 2021* (GORE, 2012b: 57f). There were, therefore:

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<sup>108</sup> [www.paccperu.org.pe/quienes\\_somos.php](http://www.paccperu.org.pe/quienes_somos.php) [accessed September 9, 2014; own translation].

<sup>109</sup> The approach along river valleys or valley watersheds instead of political boundaries is currently common, as it is considered more fruitful as these are areas of cooperation that help to address the resource issue in its entirety and with greater possibilities (GORE, 2012b: 36). The only obstacle, in this context, is the data collection, which is usually conducted along political boundaries (Interview, EI1, August 6, 2013).

- Four strategies on human capacities with four action lines: Food security, health, habitat, and education
- Five strategies on the natural conditions with two action lines: Water and biodiversity
- Three strategies on economic capacity with two action lines: Household income and economic capacity and regional energy
- Three strategies on socio-institutional capacity with one action line: Institutional infrastructure

To summarise, the conceptual framework involves the main concepts of climate change management such as adaptation, mitigation, and reduction of vulnerability, taking local realities, such as the high vulnerability of the population to climatic impacts, and the poverty rate into account. It further aligns its concept and strategies with Cusco's recent development plan, thus trying to create synergies.

### 3.2.3 Drawing a conclusion: Achievements and what is still missing

We [region Cusco] have participated in international events, we've been at COP16 in Cancun, we've been to Rio in Brazil. Thus, we've learned a lot on the issue of climate change. And another thing, at the regional level we conducted 22 regional and bi-regional studies, research on [the] topic of climate change and we also conducted 14 local studies that were made on the issue of vulnerability to climate change, the issue of water.<sup>xliii</sup> (Interview, E12, August 6, 2013; own translation)

To summarise, it can be stated that from 2009 onwards, major climate change-related movements and progresses can be observed in the region of Cusco, mostly initiated by programmes such as the PACC and the PRAA, and, therefore, involving international and/or national support. At the national level, as well, the political framework for climate change was set, trying to design the process to be as participatory as possible. This included reaching out to the public by trying to address and involve people from multiple societal levels, and thus also seeking to mainstream climate change across sectors, with the aim of not leaving the issue as a purely environmental one (see also Baca, 2013: 36). The region of Cusco has shown high interest in getting involved in international and national processes, which can also be seen in the previous quotation and by the fact that the region of Cusco organised its own regional, climate change processes in 2012 and 2013, prior to, and in preparation for, the national InterCLIMA Conferences. Further, effort was put into capacity building of staff and integrating the climate change into university education.

With the selection of the fifteen prioritised strategies, it is clear that the focus is not on mitigation, but rather is on the population's well-being, meaning the reduction of the

vulnerability of those being most threatened by the negative impacts of climate change. Therefore, adaptation is a higher priority when considering the local level.

Reading documents such as the ERCC, it becomes clear that the language is consistent across documents, meaning that they utilise the same key- and buzzwords, technical terms, concepts, and definitions that are found in the IPCC reports, national documents, and in scientific publications (e.g. see the glossary of the ERCC Cusco: GORE, 2012b: 97ff). The generation of a common language with, in this case, locally new concepts, on the one hand, and the existence of institutional transformations, such as the creation of new organisational units in the regional government or new university degrees, on the other hand, are clear indicators that a discourse is being or has been adopted (see Chapter II).

Cusco is one of the regions that was “lucky,” as it was expressed by one interviewee (Interview, E1, August, 6, 2013; own translation), meaning that the region’s climate change related-activities and results do not reflect the country’s average, with the majority still “far behind” (Interview, E1, August, 6, 2013; own translation). In this regard, Edwards states: “Following a process of decentralisation, regional governments in Peru have responsibility for managing the environment, but climate change legislation is driven at the national level. The decentralisation process has not been smooth and the level of implementation of the National Plan of Reforestation has been very low.”<sup>110111</sup>

However, concerns were mentioned regarding the level of political will for the local implementation of Cusco’s climate change strategy. This is not a baseless fear and national, regional, and provincial or local expectations and the main stresses do not always coincide. This will be one of the aspects elaborated on in the next main chapter (IV), which outlines the case study of the province Chumbivilcas.

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<sup>110</sup> [www.trust.org/item/20130214151200-1t6m7/?source=search](http://www.trust.org/item/20130214151200-1t6m7/?source=search) [accessed Mai 08, 2017]. Edwards, G. (2013, February 14). Climate Conversations: Why Peru should host COP20. In: *AlertNet – a Thomson Reuters Foundation Service*.

<sup>111</sup> In connection to MINAM, it was noted in the *Programa Conjunto* adaptation plan for Chumbivilcas: “The Ministry of Environment, being one of the bodies responsible for promoting, implementing, and strengthening environmental issues at the local level, does not fulfil that role because it has no presence in this area policies have been generated, just at the macro-level, not taking local problems into account. It urgently requires the presence of institutions related to environmental issues so that other institutions may be involved in the development of proposals and strategies to address the effects of climate change” (Programa Conjunto, 2010: 23; own translation).

## V. Climate change is “highly local”

This core chapter – the analysis of the empirical research in Chumbivilcas – will illustrate how local circumstances and realities influence the way a global discourse such as the international climate change discourse is locally perceived and thus adapted and/or rejected, based on the previous chapter revealing the development of the climate change discourse at national and regional levels. The chapter starts with a description of the local settings, e.g. the physio-geographic and socio-demographic situation and a description of the local livelihoods and culture, the structures into which the discourse has entered and continues to enter. As a second step, it turns attention to the topic of climate change, developing an analysis of the climate change pathways, actors, and local knowledge and opinions on climate change. The last part of this chapter shows, what role local socio-cultural aspects and prevailing discourses can play and how this results in discourse entanglements. In the case of Chumbivilcas, climate change appears as a post-colonial discourse, reinforcing already established local socio-cultural and power structures.

### 1. The area of investigation: The province of Chumbivilcas

Chumbivilcas, like the other high provinces [...] is a land of extreme geographic isolation. Its capital, the old *reducción* town of Santo Tomás, is a twenty-four hour ride from Cusco or Arequipa on buses and trucks which make the trip, at best, only once a week. To reach the other district capitals of Chumbivilcas, one usually must then travel between four hours and several days, on foot or horseback from Santo Tomás. (Poole, 1994: 98)

Having been the first time to the Andes in 2002, I could still relate to what Deborah Poole wrote almost twenty years ago. During my regular travels from Cusco to Santo Tomás in 2013, I had the possibility of choosing between three different bus companies leaving usually at least once a day to (and from) the capital of Chumbivilcas to Cusco; a bus-ride that took us about six hours on average to make. I could not believe the amount of traffic we passed on our travels to and from *Santoto*, how Santo Tomás is at times fondly called, through an area with supposedly very few inhabitants. Other than the fairly new four-by-fours and some smaller and bigger buses, it was mainly big trucks leaving a big cloud of dust behind them that occupied the road, carrying huge objects of cement, long pipes, and machines, all of which are components used mainly for, or within the scope of, the growing mining industry.

The mode of travel within the province itself has also been subject to changes. Taking the three districts of the research area as an example, there was already a tarmac road built in the 1950s that connected the three district capitals of Quiñota, Llusco, and Santo Tomás that had a far-reaching impact on the population living near it. Daily,

transportation is available between Santo Tomás and Quiñota and even further away. Additionally, gravel or dirt roads have also been extended into remote areas, leaving in some cases, enough space for smaller trucks, though these are sometimes impassable during the rainy season. As the number of motorbikes has also increased, another option for better connections between the communities and urban centres has evolved. Still, to provide a full picture of today's setting, many rural settlements and communities remain remote and badly connected. Sometimes, one needs to walk for hours to reach the next frequently used street or urban settlement. This development, according to Gade (1994: 43), has left those villages which are far off the roads in even greater isolation than before, almost equal to desolation, becoming noticeable in the total absence of stores, markets, and artisans in these locations. Whereas the whole area has been spatially remote since the Spanish Conquista, the significantly improved connections of some villages and settlements have brought a greater imbalance and a growing gap between the well connected and those that are still peripheral, which are more likely to be more impoverished (Gade, 1994: 31; Postigo, 2013: 195; Programa Conjunto, 2010: 17).

Communication and societal changes, as well as changes in infrastructure, are topics that will be raised consistently within this chapter. Now we will turn to, Chumbivilcas, its physio-geographic and environmental frame and the socio-cultural roots and current setting.

### **1.1 Physio-geographic and socio-demographic conditions**

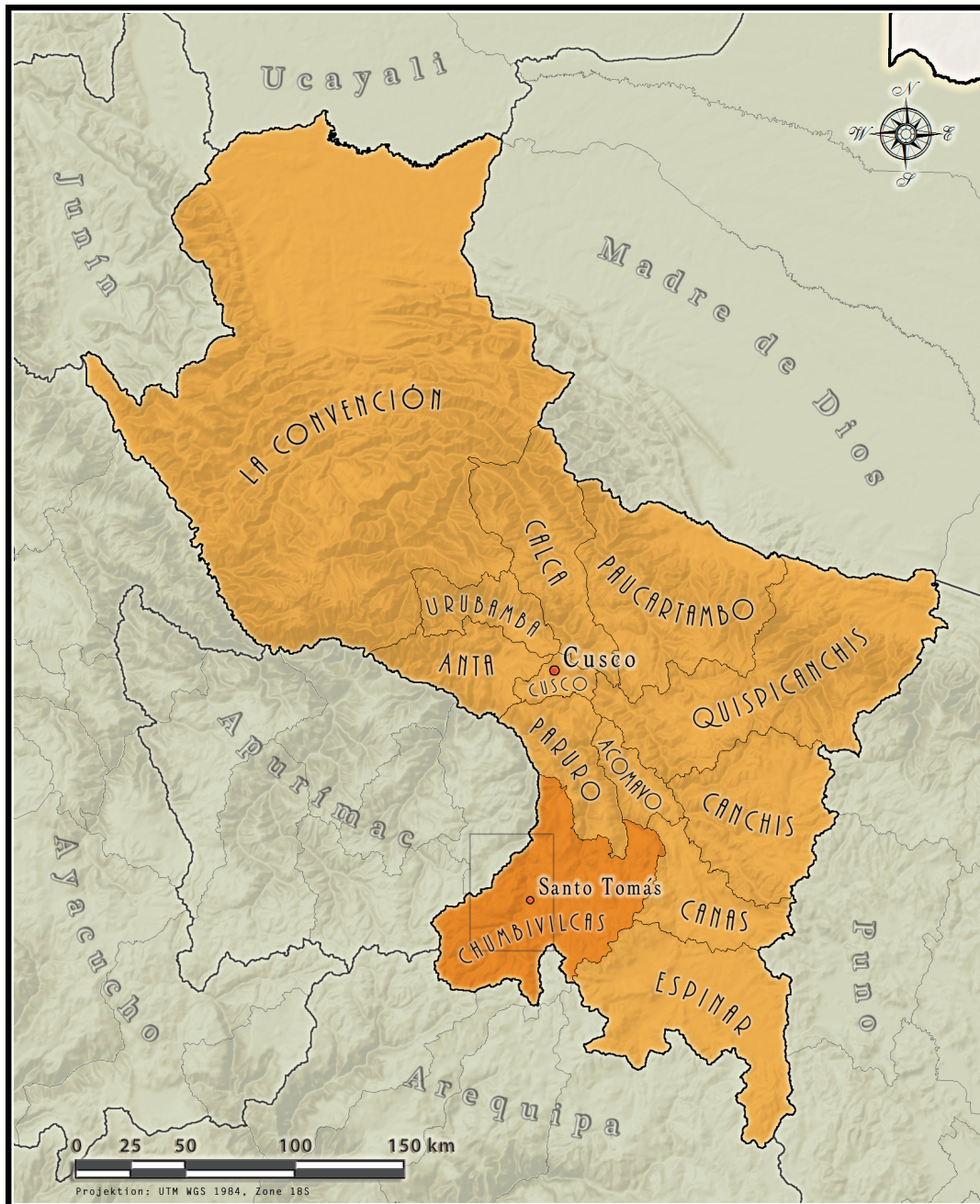
The province of Chumbivilcas (see Map 2: ) is one of thirteen provinces of the region of Cusco, which covers about 5,371 km<sup>2</sup>. The settlement of Santo Tomás, the capital of Chumbivilcas, is located 240 km southwest of the city of Cusco in the catchment area of the river Santo Tomás, an influx of the Amazon Atitudes range within the province from 2,550 meters to 5,438 meters, with its capital, Santo Tomás, located at an altitude of 3,660 meters and situated at a latitude (south) of 14°26'45" and lengths (east) of 72°04'50" (Unidad Formuladora Santo Tomás, n.d.: 19).

According to the last national census of the *National Institute of Statistics and Informatics* (INEI) in 2007 (INEI, 2008), the population of Chumbivilcas was 75,585 inhabitants (more recent estimations from 2014 say there are 82,257 inhabitants; INEI, 2014: 42), out of which 58,080 (76.84%) were living in rural areas and 17,505 (23.16%) in urban areas.<sup>112</sup> As a comparison, in 1993, 88% of the population lived in rural areas

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<sup>112</sup> In Chumbivilcas settlements with more than one hundred houses are defined as urban areas, following the definition of the official census. In addition, all district-capitals – even those not fulfilling all urban characteristics and requirements – are considered to be urban (Programa Conjunto, 2010: 16).

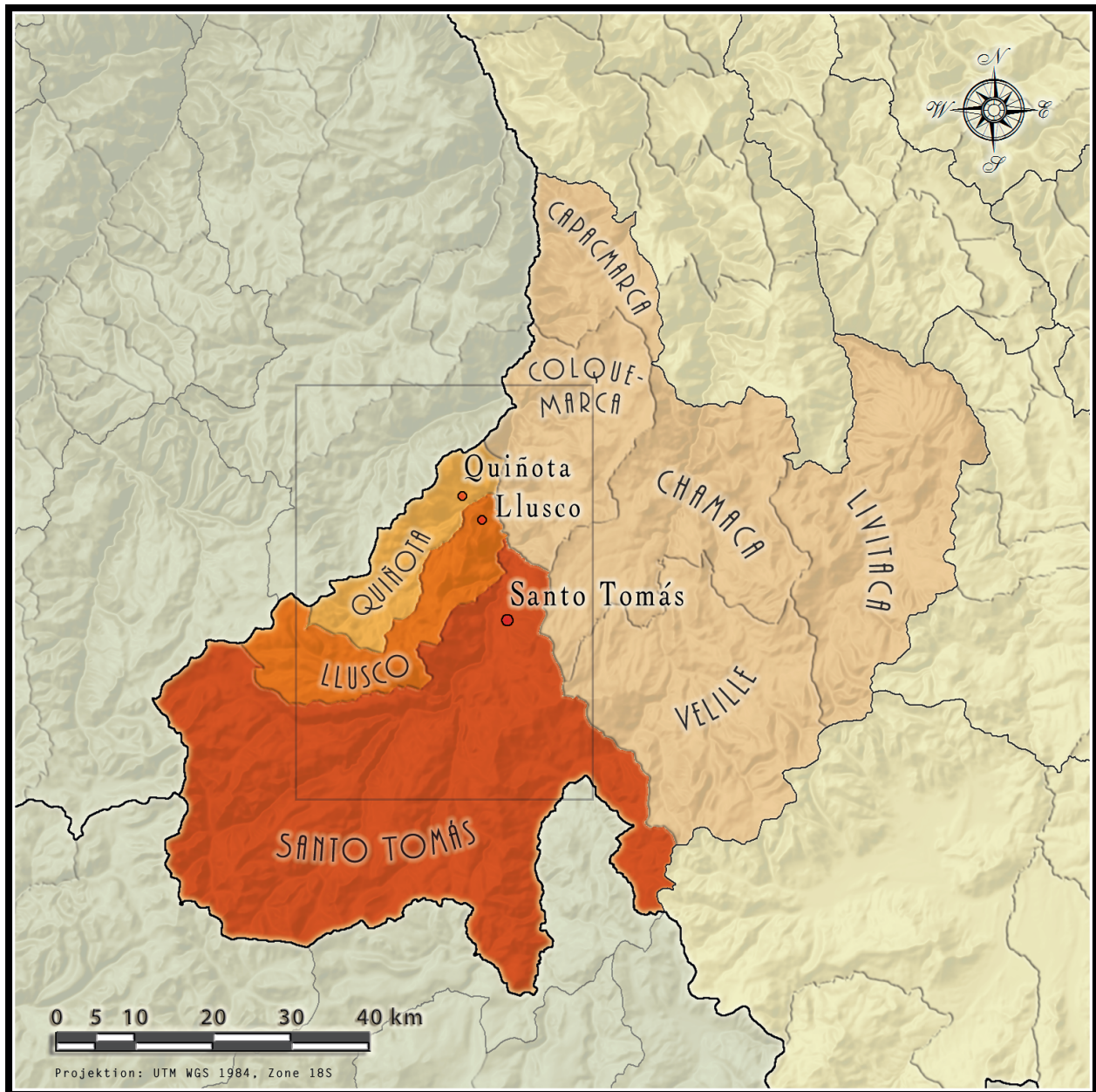
and just 12% in urban areas (c.f. Aublet & Mercandalli, 2001: 17). About 7,575 people live in the capital of Chumbivilcas, Santo Tomás (Programa Conjunto, 2010: 17). Generally, fast development and population growth can be observed in the provincial capital and in the communities closer to the capital and those close to the (paved) main streets. In Santo Tomás, the urban growth evolved quite unsystematically, leading to problems such as water and energy supply, sanitation, transportation, waste disposal, and thus various resulting in contamination problems (Programa Conjunto, 2010: 17).



**Map 2: The region of Cusco and its provinces, with the investigation area of Chumbivilcas highlighted**

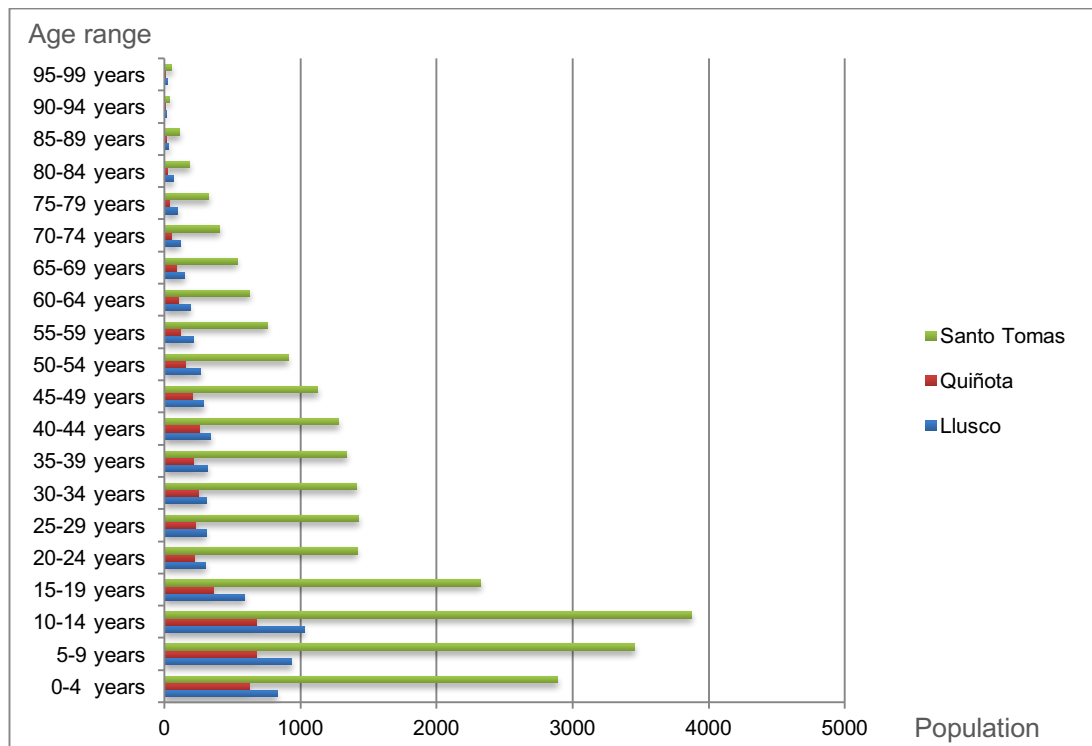
Source: Martin Trippmacher, 2015

The research area, which includes the districts of Llusco, Quiñota, and Santo Tomás (see Map 3), is situated in the southwest of the province, which borders the province of Arequipa (just Santo Tomás) and Apurímac. The population in 2007 in each district was estimated to be 24,492 in Santo Tomás (16,917 in rural settlements and 7,575 in urban settlements); 6,399 in Llusco (5,432 in rural settlements and 967 in urban settlements); and 4,317 in Quiñota (3,591 in rural settlements and 726 in urban settlements), the smallest district of Chumbivilcas (INEI & Unidad Formuladora Santo Tomás, n.d.; Programa Conjunto, 2010: 17).



**Map 3: The province of Chumbivilcas and its districts, with the three districts of the research area highlighted**

Source: Martin Trippmacher, 2015



**Figure 14: Population distributions by district**

Source: Own compilation; based on data from the INEI, CPV 2007, Unidad Formuladora, Santo Tomás (INEI & Unidad Formuladora Santo Tomás, n.d.)

The population distribution of the three districts is similar to that of the whole region of Cusco (2007; Figure 14), with the difference being that compared to the census of Cusco, the larger gap and decline between the 10-14 and 15-19 year olds is perceptibly larger, the same between the 15-19 and 20-24 year olds. Further, the numbers are mostly stay stable between 20-24, 25-29, and 30-34, before it starts steadily declining (the census of the region of Cusco shows here a constant decline). This can be explained by a higher level of migration of the younger generation in particular to go to high school or to study in the cities, and because of rural depopulation, where the younger generation in particular leave in order to earn money and find a better life in the cities or in mining areas. This depopulation can be observed more intensely in remote areas at higher altitudes (GORE, 2012a: 80). Thus, Chumbivilcas is exposed to huge impacts affecting their “capital,” as are many mountain areas, which Ariza et al. (2013: 11) divide into three main types of capital: 1) Environmental capital, 2) social capital, and 3) economic capital. The environmental capital is mainly affected by critical losses provoked by mining activities and deforestation, by soil erosion, desertification, decreasing or loss of biodiversity, and pollution. A loss of social capital can be noticed by, *inter alia*, outmigration (in the Southern Andes mainly from rural areas to cities located in the nearby mountain areas), the collapse of family structures and social



networks, and by socio-cultural disintegration. The outmigration can have diverse effects; when considering economic capital, these are mainly good ones. When the mostly young people and men leave to work in the cities or mines, they send money back to the communities, increasing incomes. This outmigration also involves negative impacts on social, as well as cultural capital; often older people and women remain in the communities and due to a lack of labourers, there is an abandonment of labour-intensive but highly preservative land-use practices taking place, which is also necessary to protect against erosion and land-slides. Furthermore, a lot of young people “fail” to make themselves a home or earn decent money in the cities, bringing further problems and challenges, some connected with a loss of socio-cultural identity.

The semi-arid, mountainous region of Chumbivilcas is characterised mainly by three different ecological zones distinguished by the Peruvian geographer Javier Pulgar Vidal: The *quechua* zone (2,300-3,500 m); the *suní* zone (3,500-4,000 m); and the *puna* zone (4,000-4,800 m) (Pulgar Vidal, 1981; original version 1938). The rather semi-tropical river valleys in the area are the result of the rivers cutting deeply – sometimes up to 1,000 meter – into the terrain and leaving profound canyons (see Picture 2). This hydrographic system, with bigger and smaller catchment basins, called (*micro*)*cuencas*, and its many affluxes is characteristic of the whole zone. Chumbivilcas is constituted of three main *cuencas*: The Santo Tomás River (157 km), the Velille River (190 km), and the Apurímac River (about 700 km), all three leading towards the Amazonian Basin. These rather low-lying zones mainly belong to the *quechua* zone. The ravines provide only scarce land for agricultural production, just leaving space at the bottom, at the slopes of the river, alluvial plains, and terraces. Generally, the terrain is under a process of high degradation.

In the *quechua* zone, people can cultivate corn, wheat, potatoes, field beans, and *tarhui* (Andean lupin), and, at lower levels, citrus fruits, peaches, and apples. The *suní* zone (3,500-4,000 m), which can be designated a transition zone, still has short, frost-free growing seasons, though these are still fraught with risk because of frequent hailstorms. This area is usually used for typically Andean cultivated plants such as tubers (special types of potatoes, *oca*, *ullucu*, or *añu*); field beans; barley; quinoa; and *cañihua*, both of the later being Andean grain crops belonging to the *goosefoot* genus. Here too, due to its topographic erosion and high degradation, good, fertile land is not frequently found. At an altitude between 3,000 m and 4,000 m, the average annual temperature varies between 7°C to 16°C (minimum: -16°C, maximum: 29°C), and the precipitation varies between 450 and 1,000 mm, out of which more than three quarters falls during the rainy season (Aublet & Mercandalli, 2001: 25). At this altitude, the following species predominate: Alder, broom, cherry tree, eucalyptus, cypress, pine, quinoa, *qishuar*

(Quechua for *buddleja incana*), *cantata* (Quechua for *cantua buxifolia*), and *cachua* (Quechua for *cyclanthera sp.*). Above 4,000 meter, comes the *puna* zone. This zone is traditionally used for extensive animal husbandry, such as pasturing sheep, cattle, llamas, and alpacas, as it was already in pre-Hispanic times. Due to regular frosts at this altitude, agricultural activities are too risky or not possible. Here, the average annual temperature is 0.7 °C (minimum: -25°C, maximum: 22°C), with a precipitation between 500-1,350 mm. Different types of grasses predominate here, such as *ichu* (Quechua for straw); *geuña* (Quechua for *polylepis incana*, a medicinal plant); *chillihua* (Quechua, a medicinal plant); cresses; and *tatora* (reed).<sup>113</sup>



**Picture 2: The river basin of the Santo Tomás River**

Source: Anja Weber-Alvarez (2013)

The Santo Tomás River<sup>114</sup> Valley, or *microcuenca* Santo Tomás, with its many affluxes, has primary importance for our associated study area, running along the districts of Santo Tomás, Llusco, Quiñota, Colquemarca, and Ccapacmarca. Southwest of Santo

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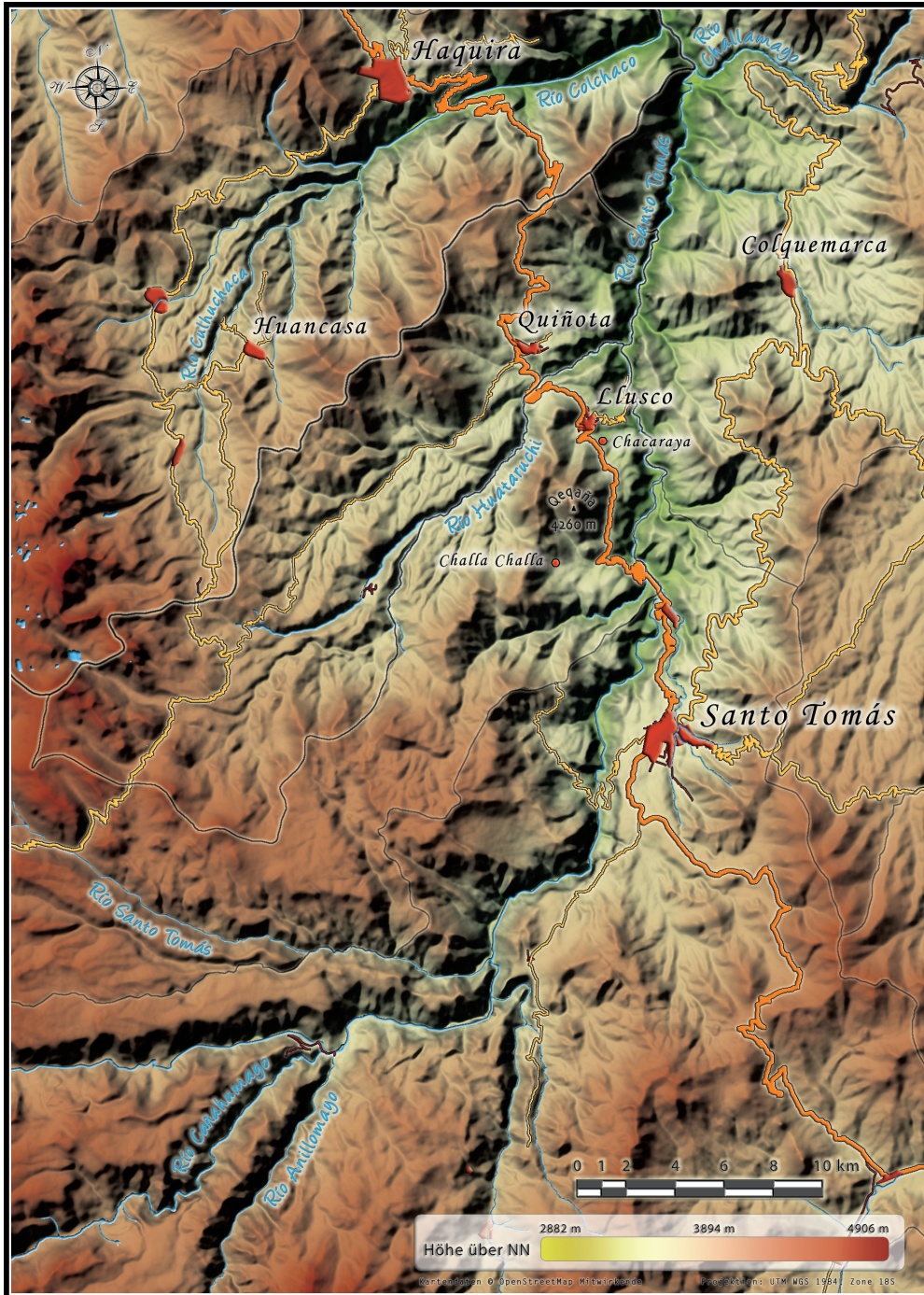
<sup>113</sup> For this section, see Aublet & Mercandalli, 2001: 14; Flores Moreno & Valdivia Corrales, 2009: 19; Gade, 1994: 33ff; Paponnet-Cantat, 1994: 200; Unidad Formuladora Santo Tomás, 2007: 21f.

<sup>114</sup> The Santo Tomás River originates from the snowy mountains southwest of the town of Santo Tomás at an altitude of 5,000-5,445 m and from the lagoon-district at its west at about 5,000 m, running down through the Ranrapata, Jaracata, Anillomayo, Huanacarama, Huarajo, and Parcomayo Rivers. The river valley occupies a total area of 4,585.70 km<sup>2</sup> and flows into the Apurímac River at an altitude of 2,258 m (Unidad Formuladora Santo Tomás, 2007: 23).

Tomás, starting in Aqaqo, the river runs at an altitude belonging to the *quechua* zone, until it descends in the district of Colquemarca, leaving the *quechua* zone (Aublet & Mercandalli, 2001: 14). Map 4 shows the wider investigation area, mainly around the axis of the towns of Santo Tomás, Llusco, and Quiñota. Atypical for the distribution of the income structure, this zone, though belonging mainly to the ecological zone *quechua*, especially along the Santo Tomás River, is mainly used for agricultural production and not for livestock.<sup>115</sup> Due to its geographic location, its socio-economic characteristics, and according to predictions of international experts, the *microcuenca* is considered to be a vulnerable area in regards to climate change and its negative impacts (Programa Conjunto, 2010: 7). This is why a joint programme of the United Nations, called *Programa Conjunto de las Naciones Unidas en Chumbivilcas* (*Joint Programme* or PC for short) was launched for the *microcuenca* Santo Tomás under the title, “Adaptive Integral Environmental Resource Management to Minimise Vulnerability to Climate Change in High Andean Microcuencas.”<sup>xliii</sup>

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<sup>115</sup> Data on the economic income distribution from 1995 illustrates that in Chumbivilcas 32.6% of income results from agricultural activities, 59.6% from livestock breeding, 4.8% from commercial activities, 1.2% from craftsman activities, and 1.6% from selling their own work-force (and 0.1% from others) (Aublet & Mercandalli, 2001: 23).



**Map 4: The wider research area**  
 Source: Martin Trippmacher, 2015

## 1.2 Agriculture and the economy in Chumbivilcas

Although, easy processable agricultural land is scarce,<sup>116</sup> Chumbivilcas, like many other Andean provinces, is a province reliant primarily on agricultural production and livestock breeding (GORE, 2012: 77f; Programa Conjunto, 2010: 17). In the region of Cusco, most of the agricultural production (86.8%) takes place in *minifundios*, areas of 3 ha or less; 35.8% of the land is in private hands, 1.9% is leased, and 60.4% is communally owned (GORE, 2012: 77). In total, agriculture and livestock, though the main activities, constitute only 13.8% of the region's GDP (GORE, 2012: 76). In 2007, Chumbivilcas was listed as the province with the second highest incidence of poverty within the region of Cusco (85.6%), according to the INEI 2007 (GORE, 2012: 80). The authors of the document linked this result to the high portion of people dependent on highly climate sensitive agricultural activities. Hence, the mainly Quechua-speaking peasant/rural communities in Chumbivilcas, like in the whole of the high Andes, can be considered "traditional risk societies," according to Flores Moreno and Valdivia Corrales (2009: 24), inasmuch as they have always had to deal with the existence of diverse local microclimates, climatic inconsistency, and a difficult to access terrain. These given circumstances shaped the special and highly adapted agricultural production system. Imbedded in the cycle of the year, and accompanied by various rituals and ("protective") practices, a complex, flexible but sustainable system was thus formed (Postigo, 2013: 195).

Whereas the administrative management is carried out in the territorial frame of the *microcuencas*, the communities have a rather, "sociocultural interpretation and control of the territory" (Flores Moreno & Valdivia Corrales, 2009: 20), which has been described by John Murra (2002: 93-139; original 1972) as, "the maximum vertical control of ecological zones,"<sup>xliv</sup> or "vertical archipelago." Murra's model, which has had a strong impact on a whole generation of researchers working within the area of *cultural ecology* (Golte, 2000: 207), describes the social organisation and control of the cultivated land on the hillsides in terms of ecological floors, *pisos ecológicos*. With his concept, Murra illustrates the economic system of the Andean population that, for him, stands in contrast to today's impersonal, market economy, i.e. the economic interactions of the model are embedded in long, kinsmanlike existing social relations in a form of reciprocity (*ayni* and *mink'a*, see Box 1) and redistribution. Golte, however, considers the typical vertical Andean cultivation system rather as a consequence of, "a need that arose in the development of the Andean agriculture" (Golte, 2000: 210), a

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<sup>116</sup> In 1972, 3.1% (16,242 ha) of the surface area in Chumbivilcas was used for agricultural production and 72.9% (381,826 ha) for animal husbandry (Aublet & Mercandalli, 2001: 20).

kind of adaptation to the given geographic and climatic circumstances and an attempt to make the most out of the scarce resources of the mountainous land (Golte, 2000: 208).

**Box 1: The traditional Andean concept of reciprocity, *ayni* and *mink'a***

*Ayni*, a Quechua term, is a traditional, pre-Colombian way to organise the work between community and family members. It is a mutual, reciprocal favour family members and friends used for labour intensive work such as fieldwork or the construction of houses. Previously, the help was requested for the needed time, which could be a day or more. No payment is involved, but during the working-day(s) food, *chicha* (a fermented maize beverage), and coca leaves are provided. Further, the helper will take home a certain amount of potatoes and maize (q.v. Aublet & Mercandalli, 2001: 45).

*Mink'a* is, similar to *ayni*, a traditional form of communal cooperation for intensive fieldwork or other labour intensive works. In contrast to *ayni*, no reciprocity is involved. Commonly, payment is provided in kind, lately, differing in each community, it involves more and more payments equitable to wage-labour (see Aublet & Mercandalli, 2001: 45f). During conversations and interviews in Chumbivilcas, people reported that nowadays *ayni* hardly exists and that cooperation is taking place increasingly in the form of (paid) *mink'a*.

The Andean system is based on a cultivation distribution of diverse parcels that are usually located at different altitudes and greater distances from each other, known in Quechua as *laima*. Each family normally has its parcels distributed at different altitudes, some close by the house, others further away, ranging from a distance of a few hours to a several day's walk away by foot. Therefore, the fields are often situated in communities other than their own. Per *laima*, several types of crops are cultivated, sometimes in mixed cultivation, following the concept of crop rotation. In the following year, the *laimes* are then cultivated with a different crop. In general, the rhythm is: One year potatoes are planted and the following year, wheat or barley are planted (see Aublet & Mercandalli, 2001: 30). After two to three years the *laima* will be left fallow, so the soil can recover. Formerly, the fallow period was eight to ten years (see Aublet & Mercandalli, 2001: 30), today it is every 4-5 years, with a tendency to shorten it more or totally skip it. The cornfields are cultivated at slightly lower altitudes, usually in terraces, *andenes*, preferably, where irrigation is possible. The cultivation takes place in an annual cycle: Sowing takes place between August (early sowing) and November, depending on the crop, at the beginning of the rainy season, which is also the beginning of the summer season, and the harvest takes place at the end of the rainy season, between April and May. Another important food source that is almost imperishable, is the dehydrated potato (see Picture 3 and Picture 12), *chuño* and *moraya*, produced at higher altitudes using the freezing nights during the coldest month of July to produce them (see Chapter V, 3.1.1).



**Picture 3: Chuños, dehydrated potatoes**

Source: Anja Weber-Alvarez (2013)

In Chumbivilcas, it is rather uncommon to produce crops for the market, agricultural production is more often carried out in the form of subsistence farming, as was noted in most interviews and conversations. Land is traditionally passed on to the children (usually to the sons) and divided among them, with the effect that the fields (*chakras*), by and by, are getting smaller, which along with a growing population, is why the land holdings are often no longer sufficient to ensure the food security of the households (Interview; B8, September 16, 2013; own translation). This has further influenced the fact that farmers are reducing the frequency of the time their fields lie fallow over the course of time. Thus, overexploitation of the soils and natural resources, as well as degradation and contamination processes, are strongly impacting agricultural and livestock production (Programa Conjunto, 2010: 17).

Another important topic for agricultural production is water: Water resources and water supply (see Picture 4). Depending on their location, many communities depend on the rain for their agricultural work, and rain-fed agriculture is still more common than irrigation. Irrigation is mainly taking place in those communities that are located directly next to a water source, which originates from the higher mountainous areas. Considering that this source might run dry in the closer future due to glacier melting, the

population moves towards an uncertain future. At the same time, the reliability of the rain has decreased. Most notable is that the bigger rivers, like the Santo Tomás River have visibly reduced in volume (see interview-citations at the beginning of sub-chapter 2, Chapter V). This is the reason why the municipality of Chumbivilcas and NGOs work on water supply extensions and on capacity building on water saving irrigation systems (Interview, AMC1, July 15, 2013).



**Picture 4: Water channel in Llusco**

Source: Anja Weber-Alvarez (2013)

A brief overview of the history of the water supply in the Peruvian Andes shows that since 1969, the year of the Agrarian Reform and the *Code 1902 de Aguas* (under the Ley N° 17752), the resource of water has become a subject of public affairs, a scare resource that has needed to become subject to regulations and protection (Aublet & Mercandalli, 2001: 109f). The new *Code 1902 de Aguas* brought with it many new norms and rules, and led to many local conflicts. According to Aublet and Mercandalli (2001: 114), these conflicts mainly arose because the process had just considered the technical dimensions of water supply, and not the social, cultural, and political dimensions. In the following years, the problems have widely been ignored by the state, which also did not fulfil its duties; watershed management plans, resources, and monitoring measures were missing (Aublet & Mercandalli, 2001: 114f). At the beginning



of the 1990s, new discussions started, bringing forward a form of privatisation of water resources, in which the communities function as legal partners, remaining hence responsible for the organisation of water distribution, sanction of norms, establishing rules, and taking care of the water system's maintenance (Aublet & Mercandalli, 2001: 188ff). This has impacts even today, and during my stay, there were disagreements about the fact that people in Santo Tomás now had to pay for their water supply because pipes for the water network had to be established and maintained, causing outrage and resistance among the population. Only a few interviewees reported that this was a good step, noting that many people would let the water run the whole day and that having to pay for it would lead to a more careful use of the resource.

To summarise, the population of the Andes reduced their vulnerability by cultivating crops adapted to the different altitudes and microclimates. The system of *laima* prevents losses of the entire crop caused by sudden drastic weather changes or plagues, on the one hand, and it allows them to tap into the full potential of the different altitudes (and possibly soil conditions) to grow a maximum variety of crops, on the other hand. Based on the maximum utilisation (=vertical) of the altitudes, of the possibilities to grow different products on the hillsides, as well as the island-like distribution of the land parcels, the system called "vertical control" or "vertical archipelago" developed.

During the interviews people expressed their concerns about declining harvests and water shortages. In addition to agriculture and livestock farming, out-migration to pursue commercial activities in the mines strongly developed, in particular in recent years (see Box 2) (Programa Conjunto, 2010: 17).

The geographic setting and climatic conditions have strongly shaped the Andean society in regards to their livelihoods, their agricultural production and livestock breeding, their worldview, their rituals, and their traditions.

Socio-cultural characteristics will be introduced step-by-step to deepen the evaluation, thereby, showing the connections between the environment and climatic settings and cultural traditions. Before focusing on Chumbivilcanian socio-cultural particularities, the socio-historical context will be presented in the following sub-chapters in order to outline the wider context of the Peruvian academic discourse on "racism without race" in the Southern Peruvian Andes, in which Chumbivilcas is embedded. This, and definitions of terms such as *indio*, *mestizo*, and indigenous will help provide a crucial background and basis for the case study and its analysis, thus, connecting local developments with on-going macro-processes.

### 1.3 Culture and traditions I: Contextualising Chumbivilcas within the socio-cultural setting of the Southern Peruvian Andes – a discourse on “racism without race”<sup>117</sup>

In Peru, for a long time it was said that ‘[...] race is not important here, here there is no racism, what we have are profound cultural differences, and based on these differences inferiors and superiors exist.’ (de la Cadena, 2004: 14f; own translation)

To depict a holistic picture of how today’s socio-cultural setting in the region of Cusco evolved historically and resulted in the current situation is very complex, and has been the topic of several (ethnographic) investigations and discussions – under the umbrella of different terms like race, class, culture, ethnicity, identities, inequalities, and exclusion – of various intellectuals from Latin America, as well as from North America and Europe (i.a. de la Cadena, 2000, 2001, 2004; García, 2008; Howard, 2007; Poole, 1994a; Valdivia Corrales, 2013; van den Berghe & Primov, 1977). As many of them were working in and with rural communities, the existing differences and inequalities within Peruvian society, a certain exclusiveness of that society became obvious, especially in regards to rural versus urban areas and indigenous/peasant versus “non-indigenous” populations, contradicting in a certain way, or at a first glance, with the “official” statement cited in the quotation above, that racism is not important in Peru. In the following, I will provide an overview on the principal points of the far-reaching discussion on “race” and culture, discrimination and social exclusion, and (indigenous) identities in Peru, being aware of the fact that it was sometimes necessary to simplify certain complex aspects.<sup>118</sup>

To approach the definition of “indigenous” or “*indígena*,” I would like to call attention to the absence of indigenous movements in Peru. While scientists like, i.a. Xavier Albó, Paul Gelles, Enrique Mayer, and Deborah Yashar have stated that there was a “return of the Indian” (see “El retorno del Indio”: Albó, 1991) in Latin America at the beginning of the 1990s – meaning a wave of social indigenous movements which came along with government efforts to develop a new form of multiculturalism<sup>119</sup> – they hold, at the same

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<sup>117</sup> In the following, I have chosen to use the term race and not ethnicity. In Latin America, the concept of race has been commonly used for a long time, also in scientific discourses (see de la Cadena, 1998a, 1998b, 2000, 2001, 2004; Poole, 1997), more in regards to racial hierarchies than biological references to skin-colour (see Chapter V, 1.3.1). Therefore, to retrace the socio-cultural processes and discourses in Peru, especially for the Southern Peruvian Andes, this term worked better than to use or introduce the concept of ethnicity, which as well exists (see van den Berghe & Primov, 1977; van den Berghe, 1974). For my own research results later on in this chapter, I will not refer to the terms race or ethnicity, but will instead use terms like *indígena*, peasants, and rural and urban population, as neither race or ethnicity were frequently used in conversations and interviews.

<sup>118</sup> For a deeper insight into the (theoretical) discussion in Peru, please see de la Cadena (2000, 2001, 2004) and García (2008).

<sup>119</sup> Multiculturalism (or pluriculturalism) is a widely debated and complex concept. According to García (2008: 18) and Albó and Galindo (2012: 12), multiculturalism can be summarised as a common context (e.g. country) with a structure of existing cultural and linguistic differences. This term is more often used by authors of the “Global North,” according to Albó and Galindo (2012: 12). A term often used in the same context, sometimes even in an exchangeable way with

time, that this did not apply in the Peruvian case (García, 2008: 20f). This contrast to its neighbouring countries confronted the World Bank with an obstacle when they were collecting money to fund and benefit indigenous people and organisations because, “[...] between Ecuador and Bolivia there was a country that had no indígenas” (Millones, 2000: 79, in García, 2008: 21; own translation). In this context, María Elena García (2008: 23ff) identified three main theories analysing the absence of indigenous movements in Peru in her book, “Desafíos de la interculturalidad: Educación, desarrollo e identidades indígenas en el Perú.”<sup>120</sup>

- 1) The first theory refers to political processes that developed during the presidency of the Peruvian, left-wing General, Juan Velasco Alvarado (1968-1975). In the course of the populist reforms and through the left-wing movement, Velasco Alvarado officially forbid the term “indio,” and instead, implemented a class system that referred to the Indian population as “peasants.” García describes this approach as not convincing because it simplified the relationship between class and ethnicity in a way such that one would exclude the other. She supports her argumentation with the example that in some regions of Peru, some of the “Indian” population had started to increasingly refer to their indigenous roots in a rhetorical way, as an empowerment-strategy for their social status (de la Cadena, 2001: 21; García, 2008: 24; see as well below). Furthermore, this approach did not consider that in other countries like Bolivia the indigenous population also experienced a renaming them peasants, without stifling their identity as “*indígena*,” according to García (see as well Albó & Galindo, 2012: 10).
- 2) A second theory or interpretation that aims to explain the absence of indigenous movements in Peru was one that sees this as stemming from the civil war that officially took place from 1980-1995.<sup>121</sup> The struggles and battles between the left-leaning militants and the government forces had a particular impact on the Andean (indigenous) communities in southern Peru. During this time, the suspicious and violent environment in the rural areas would hardly have allowed social grassroots organisations and movements to be established, according to the representatives of the theory. In contrast, García (2008: 24) points out that some of the oldest and most

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multiculturalism, is interculturalism. Interculturalism can be defined as the practice of multiculturalism. Here, a population is creating a common democratic and diverse society through the existence of different cultures and languages (García, 2008: 18). The relationships and interactions between different cultural actors are the core of interculturalism, which can be positively or negatively connoted (Albó and Galindo, 2012: 12f). Hence, multiculturalism can be a first recognition by a government of a culturally diverse population; interculturalism can be the implementation and integration of a democratic state system based on the culturally (& linguistically) diverse population and leaving it up to them, which is a very complex and difficult process.

<sup>120</sup> English edition from 2005: Making Indigenous Citizens: Identities, Development, and Multicultural Activism in Peru, Stanford University.

<sup>121</sup> During this time, life in the Southern Peruvian Andes was influenced by the violence of the “Sendero Luminoso,” known in English as the “The Shining Path” (see Chapter V, 1.4).

active organisations are working until today in the former core regions that experienced terrorism. Hence, it has been asserted that social and political organisations in this area mainly arose as an answer to this political conflict (García, 2008: 24; supported as well by communications and interviews in Chumbivilcas in 2013), which reveals a limitation of this theory.

- 3) For García (2008: 25f), both of these theories or theoretical approaches were not convincing. She suggests a third theoretical explanation for why the roots of the case in Peru are different than in other countries in terms of socio-cultural identification and identities. Here, the work of Peruvian anthropologist Marisol de la Cadena (2000, 2004) is of high importance because she questions the distinction between the categories of *indígena* and *mestizo*, and stresses the complexity of the formation of identity, according to García (2008: 26); an approach which I find very applicable to my case study in Chumbivilcas and for which I found support for during my time in the case study area. In her work, “Indigenous Mestizos: The Politics of Race and Culture in Cuzco, Peru, 1919-1991”<sup>122</sup> (2000), de la Cadena explains how race is articulated in Peruvian society and how racism has pervaded the country: From the universities that struggle for the “general populace,” to the markets, which are the populace. In her work, de la Cadena reveals that this happens because discrimination that is based on race not only, or even mainly, characterises the “white” members of the elite, but is present in all social groups and levels, even among those who are considered to be below the white elite. In Peru, this works in subtle ways that are sometimes even invisible and that are extremely effective but are not a part of official law. Through this, racism is socially legitimated, and it is assumed that it belongs to a hegemonic culture, involving those from above and those from below (de la Cadena, 2004: Blurb of the book).

Based on her field research on the discourses and practices of, *inter alia*, intellectual elites in urban Cusco, university students, and *mestizo* market women, and on recently discussed scientific literature on racism and discrimination, Marisol de la Cadena illustrates the ethnographic and historical processes that shape today’s Peruvian society. Through her study, she has made an important contribution to revealing and illustrating the sometimes very subtle racism in Peru. Even though the idea of a kind of “racism without race” emerged in the 1920s, discrimination, socio-political exclusion, and “racism” continue to be important topics that frame Peru’s present social groups, hierarchies, and personal identities, particularly in the Southern Peruvian Andes. De la

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<sup>122</sup> This book was re-published in a Spanish version in 2004 with the title: “Indígenas mestizos – raza y cultura en el Cusco.” This version includes a new prologue reflecting some responses to critiques of the English version published in 2000 and some new developments on the topic, which I refer to in the following.

Cadena reveals that the process of a “de-Indianization” did not eliminate the economic and political inequalities of racism in Peru, and that instead, it was used by a part of the population to reclaim a decolonised Andean cultural heritage, that is, to extend their identity as a *mestizo* to be able to integrate indigenous practices (de la Cadena, 2000: Blurb of the book; García, 2008: 25).

In the following, I will briefly outline the most important historical aspects de la Cadena unfolds in order to show how certain historical developments have led to today’s social hierarchy and are still determining the relationships and communications between urban and rural areas of the region of Cusco. This also impacts how, and with which connotations, climate change information is communicated and perceived. Even if this communication of climate change information is thought to be (scientifically) neutral and is meant generally to support local processes in a positive way, the climate change discourse is deeply embedded in national and social discourses that include social hierarchisation, inequalities, and socio-political exclusion.

### 1.3.1 Historical evolution of “racism without race”

Peruvian modern discourses that acquit racist practices and even legitimize them by appealing to *culture* are integral to the political process through which in Peru [...] race was culturally constructed and, significantly, culture was racially defined. (de la Cadena, 2000: 1f)

The socio-cultural environment of today’s society in Peru, Cusco, and Chumbivilcas has historical roots dating far back in time to the Spanish conquest in 1532. Here, the connection between race and culture was first marked by colonial beliefs about “purity of blood,” referring at that time to “real” Christian descendants (de la Cadena, 2000: 7f). The arrival of the Spaniards brought about profound transformations in the continent and, thus, as well, for the region of the Southern Peruvian Andes. The former “capital” of the Inca, the city of Cusco, despite still being an important centre within the Andes, lost its former status and was then subordinated to Lima, which was founded by the Spanish and, until today, remains the country’s capital. Here, one can detect a geopolitical re-hierarchisation within the society: The former Incan society, with its heart beating in the Andean city of Cusco, suddenly was being connoted with being remote and backward, geographically and socio-culturally. Lima, on the other hand, had the important access to the sea and, hence, found itself in a strategically better position than Cusco (de la Cadena, 2000: 20ff). This is how Lima became the cradle of the newly formed “modern” society, demonstrating their “racial” and economic superiority as compared to the *serranos*, the mountain dwellers, according to García (2008: 39). In addition to the importance of this geopolitical component for the construction of the present-day

Peruvian society, the arrival of the Europeans also brought biological (skin-color) and cultural components along that proved to be of high importance for social stratification. Until today, Cusco and the mountain region are considered to be an opposite pole to Lima; Lima is still considered the modern, political, and economically powerful capital, while Cusco<sup>123</sup> and even more so, its rural communities remain the stigmatised as economically and socially (“racially”) inferior to Lima (García, 2008: 39f).

The following example will explore the transformation of the words “*Indian*” and “*mestizo*” and will help to show the twists in the discussions and struggles on racial connotations and the implied composition of identity. After the arrival of the Spaniards, the native population was generally called *Indians*, without taking the proper and respective identities of the different “pueblos” (nations, races) into account, according to Albó and Galindo (2012: 9). Over time, the Indian population mixed up with the Spanish colonists and, thus, created the biological “race” of the *mestizos*, meaning simply “mixture,” a person of racially mixed ancestry or decedents of both Spanish and native parents. Both terms have been the topic of social and political negotiations, constantly transforming and determining the establishment of identities in Peru.<sup>124</sup> Today, there exist quite complex concepts of the terms “*Indian*,” “*mestizo*,” and, more recently, “*indígena*.” The word *Indian* has a rather negative connotation, and has had this for a long time. It was, and still is, used in Peru when talking about a non-educated, dirty, ignorant, and economically poor person living in rural areas, whereas *mestizos* are considered to be the ones composing the “new” society. *Mestizo* has, therefore, become more and more a term used for *Indians* migrating to the cities, being the ones with a “proper” education and an economic status, building the new elite in Cusco. In the end, however, the identity of the *mestizo* only refers to the “mixture” of two cultural traditions of individuals, but it does not identify them as members of a determined *mestizan* “pueblo” or “nation,” according to Albó and Galindo (2012: 9). In reality, the use of social and/or cultural ascriptions and auto-identifications is much more multifaceted and complex. To understand the setting of Peru’s society and their manifold external and internal identifications, I will define some additional terms related to this process:

*Indígena*, a Spanish word, which has already been mentioned a few times before, is used to describe a “native,” indigenous person and is another word for “*Indian*” but

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<sup>123</sup> Even though Cusco is the everywhere recognised national cultural cradle, the descendant of the *Tawantinsuyo* (the unity of the four regions), how the Inca-Imperium is called in Quechua.

<sup>124</sup> Even though these terms are still used in literature and within Peruvian society in one or another way, to refer to or differentiate between ethnic, racial, cultural, and linguistic aspects, to use terms like “*Indian*,” “*mestizo*,” “*indígena*,” etc., also implicates certain ambiguities and danger, and should, therefore, be used with a certain cautiousness (see García, 2008: 151f). For example, to avoid the term *indígena*, Víctor Laime Mantilla, an intellectual from Santo Tomás, Chumbivilcas, published a book in 2013 with the title, “Comunidades Originarias” and not “Comunidades Indígenas.” This was a conscious decision against using the term *indígena* (Interview; August 23, 2013). Also Albó and Galindo speak in this context of “pueblos originarios” (2012: 9) or just of “pueblos andinos” (2012: 8).

without the negative stigma; it has replaced the term *Indian* to avoid the negative connotations associated with that term, but still fulfils the desire to be able to distinguish between different identities. Being subject of a constant transformation, cultural identities and how a person determines their own identity can vary and is not firmly determined by specific or fixed socio-cultural indicators. Even within a more predetermined or established group, such as the Bolivian example of the *Naciones y Pueblos Indígenas Originarios Campesinos (Indigenous Original Peasant Nations and Pueblos)* or within families, some might identify themselves as *indígenas* and others as *mestizos* (Albó & Galindo, 2012: 9f). This means that one can identify themselves as a *mestizo* but carry out indigenous traditions. Ascribing the cultural identity of a stranger into a specific group can be based on very different criteria than when done within the social or cultural group itself (see, for an example, García, 2008: 15f), and in the end might not be acceptable to the person being referred to. In general, however, one can say that *indígenas* are rural, Quechua-speaking peasants carrying out indigenous traditions in a more or less intensive way. As will be described later in this chapter, this definition is also transforming, especially due to fast changes in the rural areas, mainly resulting from the development of infrastructure such as electricity, roads and transportation, the education system, and the emergence of mines.

In addition to the differentiations indicated by the terms described above, there are three further micro-areas which (can) determine different cultural identities: a) Regional affiliation, b) belonging to a rural versus urban settlement, and c) one's occupation and economic situation, according to Albó and Galindo (2012: 20ff). Even though they analyse the Bolivian context, similar lines can be found in the Peruvian context. The following provides some additional specifics about the research area, to provide greater context for the research and its results:

- a) Excluding smaller regional divisions, one can say that Peru's geographic division between the coast, the mountains, and the rainforest is reflected in the distinctions of its population. The coast, with the capital of Lima as its centre, is the political and economic heart of Peru; its population is considered to be, in general, more "modern" and as being more "white" (de la Cadena, 2000: 21). The mountains are mainly populated by indigenous peasants – many of them Quechua-speaking – and the population of the rainforest or lowlands is referred to as so-called natives, or in former times as *indígenas*.<sup>125</sup>

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<sup>125</sup> García (2008: 52) describes that the term *indígena* was first used for the population of the rainforest and then spread geographically towards the mountains, due to international processes such as increasing international norms recognising indigenous rights.

- b) Another cultural differentiation derives from where one lives, either in rural or urban housing; a micro-differentiation of the setting of cities/urban areas and rural areas, indicating those living in houses spread widely in rural areas and those living in central villages and urban areas (Albó & Galindo, 2012: 11). Those living in the central villages mostly consider themselves to be superior to the rural population, even when they also speak an indigenous language such as Quechua (generally, among this population a higher percentage speak Spanish), they share common celebrations, and most of them live from agricultural work, too (with a tendency towards more commercial activities).
- c) The third micro-area influencing the cultural differentiation is one's professional occupation and thus, economic situation or level. Here, social classes and stratification, and power structures come into play (Albó & Galindo, 2012: 11f). Being a peasant, being specialised in commercial activities, or being a teacher or nurse influences: 1) the way one communicates with or has contact to urban/rural areas, 2) the level of education one has (e.g. to be a teacher one needs a university degree), and 3) how intensely your life is based on participating in the economic system (or if your income is rather based on natural production).

In the following, I will use the terms indigenous when describing “native” traditions that were not carried out by the former urban “Spanish” society, and to (Andean) peasant or rural communities when referring to the Quechua-speaking communities in Chumbivilcas.

Coming back to the question of, in which way and how this “turn” towards a rather “cultural race” took place, it is important to look at the definition of the term, which emerged from a dialogue between Peruvian intellectuals discussing ideas of European thinkers at the turn of the century. The discussion emerged at a time when the hybridity of culture or race were considered, mainly by Europeans, as one of the main reasons for the failure of a sustainable and stable socio-political development in Latin America, and therewith Peru (de la Cadena, 2000: 13f). As most of the educated elite in Cusco – according to the just described definition – could by then be considered as *mestizos*, a new definition emerged. This definition came about in alignment with European discussions on (biological) race, which followed the European racial pessimism of the 1920s that questioned, “the power of biological inheritance to rule human destiny” (de la Cadena, 2000: 23) and thus, “subordinating external phenotypic markers to internal racial characteristics such as intelligence and morality” (de la Cadena, 2000: 19). This process can be considered to be a result of geopolitical changes of post-colonisation, as an anti-pole, and in competition with, the “hispanophilia” (de la Cadena, 2000: 22) of the *limeños*, the name given to citizens of the capital Lima. A group of Cusco's



“inteligencia,” known today as the *indigenistas*, attached pride to being descendants of the Inca-culture, resulting in a certain regionalism or *cuzqueñismo* (de la Cadena, 2000: 22). Here it can be seen that the *culturalist* definition of the *indigenistas* supported their status as an elite class and *mestizaje*, rather than being defined biologically, the term now came with a moral connotation that excluded or at least limited the impact of their skin colour (de la Cadena, 2000: 24f). This meant that they were no longer (biological) hybrids anymore; they now belonged to Peru’s sophisticated upper class. This was also the moment when education entered the discourse: “At the turn of the century, racial optimists believed that education could become a racial/cultural acquired attribute that could be passed down, in Lamarckian fashion, to improve the Peruvian race,” according to de la Cadena (2000: 27). The following citation from 1904 shows this approach to resolving the “racial problem” through integration, which means receiving a “proper” education and “de-Indianization,” leaving the “old” and “backward life” behind: “Whenever the Indian receives instruction in schools or becomes educated simply through contact with civilized individuals, he acquires the same moral and cultural level as the descendants of Spaniards” (González Prada, 1904: 179-180, in de la Cadena, 2000, 2001: 17).

Thus, for Peru, like for many places in Latin America, the *tendency* to discuss race was via culture, with biology subordinate to it, doubting biology’s influence or considering it equal to cultural inheritance, according to de la Cadena (2000: 4). Using education as a factor of “whitening” (de la Cadena, 2000: 322), helping the urban society of Cusco to further distinguish themselves more from the “non-educated,” rural population and thus legitimise the hierarchies and practice of exclusion did not mean that racist practices disappeared (de la Cadena, 2000: 27, 2001: 17). What appeared at this point was a more subtle discrimination, called by Gilroy (1987) and Balibar (1988) a “racism without race” or by Barker (1982) as the “new racism” (de la Cadena, 2000: 4). A statement made by a student from Cusco during an interview in 1992 supports this: “In our country, race does not rule anymore; instead, intelligence, education, and culture do”<sup>xlv</sup> (de la Cadena, 2000: 1), revealing as well, according to de la Cadena (2000: 329), how education has maintained its discriminatory potential. This was also supported by my own investigations and interviews, as shown through the examples of an interview held in Santo Tomás in 2013:

When I was back in Cusco, you know how they treat you there. The provincial [person] is going to the capital that is Cusco. They say there that the provincial doesn’t know anything. Therefore, those who know are the ones who are from there; are those who think and wonder. And then I said, how do these buddies then somehow, quote unquote, “respect” you? Then, there I entered their own logic. I went to look at the procedures of the students. So many, all students, told me: “You do not seem provincial.” Why? And this opened up other things for me. [...] And there was another problem

with the *Chumbivilcanos* [they said]: “They are savages, life is worth nothing there.” [...] And then I said to them, how can I make them understand that these are not savages? And there I began to investigate and start writing.<sup>xlvi</sup> (Interview, BH3, August 23, 2013; own translation)

And in one of the workshops in a community in Llusco a participant said:

The people today, we want to educate our children anyway, we don't want them to be peasants like us, or some want to see them trained as professionals.<sup>xlvii</sup> (Workshop 1, October 12, 2013; own translation)

To summarise, one can say that the consensus was to integrate the *Indians* by “educating” them, an education that was and is organised and controlled by the state and which should lead to their full integration. This meant, in a somewhat pointed formulation that, “since ‘the Andean tradition’ and ‘modern Peru’ are incompatible, the former has to be sacrificed, because the latter is, obviously, rationally superior” (de la Cadena, 2000: 3). Until today, the factor of education plays an important role within the debate about the socio-political hierarchy and exclusion, and identity formation (see Chapter V, 4.). In this context, I argue that the international climate change discourse is part of a post-colonial discourse, which will be the topic of sub-chapter 4 (Chapter V), focusing on and drawing first conclusions about the importance of prevailing structures in education and knowledge communication in Peru, in which the climate change discourse is also embedded. However, first comes a further look at Chumbivilcas, some of its historical particularities and then the analysis on how climate change reached the province.

#### **1.4 Culture and traditions II: Historical characteristics of Chumbivilcas**

Today throughout Cusco and much of southern Peru, the province of Chumbivilcas is romantically referred to as the *tierra brava* – the brave, untamed or wild land. The inhabitants of this mythologized landscape are, in turn, known as the *qorilazos*, or ‘golden lassos’, a term whose double linguistic roots in Quechua (*qori*) and Spanish (*lazo*) speak for the cultural contours of a province where the boundaries between ‘Indian’ and ‘*mestizo*’ have been thoroughly redrawn. As Cusco’s own ‘wild land’, Chumbivilcas fulfils a double role in the Cusqueño social imagination. On the one hand, like other frontiers, it is the dangerous fringe that defies Cusco’s civilized centre. On the other, it is the symbol of what Cusqueños like to think of as their irrepressibly romantic spirit. In accordance with this image, the province’s inhabitants are considered to be indomitable, vaguely criminal people who nevertheless have an altogether admirable penchant for fine horses, romance, and the sad, nostalgic poetry of traditional Andean *huayno* music. Living on the edge of civilization, they are considered to be independent, strong willed, erratic, and incorrigibly unruly – the very essence of Cusco’s collective spirit of *rebeldía*, or rebelliousness. (Poole, 1994: 97)

This section of Poole’s article is, content-wise, very compact. Poole describes Chumbivilcas in her portrayal as the “wild land” – which can still be sensed (as a symbol of its presence see Picture 5 and 6) and to which people directly, and many times

indirectly, referred to during interviews and conversations, often using the past tense. In her work, Poole depicts how the isolation of Chumbivilcas paved the way for a certain violent *gamonal* political culture, where for a long time *pandillas*, mounted bands, and *abigeato*, cattle theft, ruled. This was more widespread in Chumbivilcas than in its neighbouring provinces. This formed Chumbivilca's regional identity as the *qorilazo*, usually known from Mexico, still vivid and mainly visible in cultural performances such as the *corrida de torros*, the bullfight, or the *takanakuy* (Quechua: "Beat each other"), a ritual fight carried out right after Christmas and which is often referred to by non-Chumbivilcanos as a "cruel" custom that should not be carried out anymore (see Chapter V, 4.2). Thus, even though Chumbivilcas shares many aspects with other mountainous areas and provinces in the region of Cusco, including its Quechua speaking and rather rural population, its fame for the *gamonalismo* and *qorilazo* culture can be considered to be quite unique features. Therefore, a brief description of Chumbivilca's cultural features follows, including a description of the impacts of the *Shining Path* in Chumbivilcas and terminating with Poole's hypothesis of Chumbivilca's strategies for expressing and resolving conflicts. This sub-chapter then closes with some insights into what the society in Chumbivilcas is dealing with today, which is strongly influenced, in different ways, by the fast development of infrastructure.



**Picture 5 & 6: Statue of a *Chumbivilcano* in Santo Tomás**

Source: Anja Weber-Alvarez (2013)

*Gamonals* are descendants of a formerly powerful land-owning family which continued to rule for a long time – even after the Peruvian agrarian reform in 1970, when most of the land was expropriated and distributed – commonly with the help of violence (Ccama, 2003; Poole, 1994; interviews and conversations in Chumbivilcas, 2013). Poole explains that, "specific idioms and forms of power upon which party members rely

in dealing with the peasantry [...] pull on [...] [this] regional tradition of coercive local power” (Poole, 1994: 5), which is called *gamonalismo*. Thus,

*gamonalismo* must be understood as a historically specific form of power based on both, the use of physical violence and the manipulation of certain codes of racial and aesthetic distinction, gender, and authority. These “codes” are neither ethnically bounded nor class defined, but rather form part of a shared understanding of power and authority that links peasants and *mestizos* in what we might think of as a regional “culture of violence.” (Poole, 1994: 5)

In this context, an article by Christiane Paponnet-Cantat (1994) shows that the term implies much more, and that it still defines a part of today’s society in Chumbivilcas. If *gamonalismo* were only based on the dominant *hacenderos*, the great landowners, the agrarian reform decree (Law 17,716) in Peru, implemented by General Juan Velasco Alvarado in 1969, would have brought an end to it. The aim of the agrarian reform was to replace the traditional *latifundismo* through expropriation of land with cooperative production. However, as Paponnet-Cantat (1994: 200) argues, even though the rural lords lost most of their land, they found alternatives, “to re-assert their hegemony through authoritarian modes of imposition such as rustling [*abigeato*] and the educational system.” Although, cattle-rustling, the *abigeato*, has a very long tradition in Chumbivilcas and, “forms part of the regional identity associated with an ethos of anti-state rebellion and manly adventure” (Paponnet-Cantat, 1994: 212; see as well Poole, 1994: 97ff) – finding expression in the *qorilazo* – after the land reform, former landlords increasingly used rustling to make a lucrative living, solidifying Chumbivilca’s external fame as a “wild,” “dangerous,” and “primitive” province.<sup>126</sup> As the local elites, like the police and teachers,<sup>127</sup> were commonly involved in some way, this became, more and more, such a large concern for local peasants that they felt forced to request help from the regional government. Further, because of the cattle rustling, many peasants left their livestock-activities in the 1970s; in the district of Capacmarca it degraded by almost 50% (Paponnet-Cantat 1994: 211f). In this context, in one of the interviews in Santo Tomás, it was explained that the culture of the *qorilazo* was not considered to be the culture of the peasant, but of the *gamonal* (Interview, E5, October 18, 2013).

In conversations and workshops talking about the times of *abigeato* people told me that this custom stopped due to the *Sendero Luminoso* (Shining Path), especially women:

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<sup>126</sup> In this context, an interesting, non-local but Peruvian teacher who was sent with his wife in 1986 to teach in a school in Antuyo, located in a five to six hours walking distance from Santo Tomás provided information. In his written testimonial, he describes some, from his perspective, surprising moments and incidents of violence, injustice, and “negative lived values” deeply rooted in the Chumbivilcanian society (Ccama, 2003).

<sup>127</sup> School teachers that were involved in cattle rustling came mainly from the area itself. Paponnet-Cantat (1994: 214ff) demonstrates how gamonal families stepped into the educational system after the agrarian reform, based on empirical field studies conducted in Capacmarca in 1983, 1984, and 1986 (Paponnet-Cantat, 1994: 219). In this context, many of those who found work as teachers were not chosen based upon their academic qualifications: “To teach indios,’ as they said, ‘one only needs the right connection”” (Paponnet-Cantat, 1994: 215). This resulted in many cases of abuse and exploitation of community members, and with the time, conflicts.

“But now people remember the *Sendero*. You know why? Because they are the main authors that the *abigeato* got lost. Yes, they killed them rustling. So, no more *abigeato*. Thanks to the *Sendero*, no more *abigeato*, they say”<sup>xlviii</sup> (Interview, B2, October 20, 2013; own translation). Even though this was considered positive, during the period of the *Sendero* the population of Chumbivilcas was severely persecuted and executed, – also due to the nature of the *gamonal* system (Aublet & Mercandalli, 2001: 23). Starting with the declaration of the guerrilla organisation of the Communist Party of Peru, the *Sendero Luminoso*, in May 1980, a decade of armed struggles started in the Southern Peruvian Andes against the Peruvian State (Poole, 1994: 4). In this struggle, the civilian rural population was the one that was mainly impacted and hence, suffered from both the *Sendero Luminoso* and the Peruvian State: “Andean peasants and their community and political organizations have been the principal victims of both Sendero’s war and the counterinsurgency campaigns waged by the Peruvian armed forces” (Poole, 1994: 4). There was a loss of over 27,000 lives during this time, which also strongly affected the area of Chumbivilcas (Poole, 1994: 4). Even though two decades have passed, the impact of this time of fear and terror is still notable when people who lived during those times talk about what they remember. During my interviews, the *Shining Path* was not a planned topic, but regularly, the topic was mentioned in interviews and conversations. In one interview, I was told the story of how some residents of Llusco needed to travel to Cusco to ask for help from the regional government to be protected from the state military and at the same time, how they had to hide themselves to prevent becoming a target of members of the *Shining Path* (Interview, B2, October 20, 2013).<sup>128</sup>

Following these historical occurrences, Poole (1994: 272f) concludes that these violent historical examples and cultural practices in Chumbivilcas led to overlapping strategies to express and resolve conflicts and, further, to the viewpoint within the population that power is not stable but must be constantly negotiated and, thus, repeatedly won. Thus, over time, the developed strategies can be considered as, “opposite, yet coexisting, modes of conflict resolution” (Poole, 1994: 267).

They are based on concrete forms of historical experience and on popular, or collective, memory of locally specific incidents of class conflict, inter-community confrontations, and intra-group disputes. These experiences or memories informing political culture include such democratic or communalist processes of conflict resolution as the community assemblies, peasant unions, and elected municipal governments [...]. They also include, however, such inherently violent and conceptually diverse events as the land invasions, retaliatory raids and murders, *chaqwas* and *tinkuys* [or *takanakuys*], and livestock and property theft. (Poole, 1994: 167)

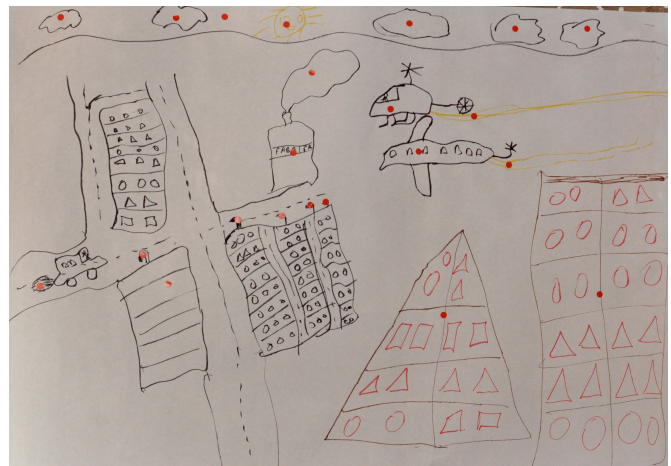
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<sup>128</sup> Socio-cultural aspects and a wider socio-historic and political embedding of Chumbivilcas is, i.a. described by Deborah Poole (1994) and some of her colleagues and scholars in the book “Unruly order: Violence, power, and cultural identity in the high provinces of southern Peru” and won’t be a topic detailed within this work.

One result of the conversations and interviews in Chumbivilcas in this regard was that, compared to the just outlined historical periods, people feel safer today:

Today, that incursion of terrorists, the *abigeo* disappeared and also today, with the road that is improving lots of things, we already see roads in these parts. We see many places. The villagers, we feel safe. There is no longer that rustling, there is no larceny.<sup>xlix</sup> (Workshop 1, Llusco, October 12, 2013; original in Quechua, own translation from Spanish)

Some of the things that preoccupy the people of Chumbivilcas today is the fast development of infrastructure such as paved roads, providing fast connections to the cities; advancing and expanding educational opportunities; rural depopulation; new work opportunities *in situ*, like the greater intensity of entering mining companies; and environmental impacts affecting their livestock, agriculture, and water supply. In addition to these preoccupations, there is also a generation gap manifesting itself, i.a. in a change of cultural traditions and the use of Quechua because, as described above, an educated person is a further “developed” person, and these people are allowed to leave the lowest level of the social hierarchy and thus maybe not be discriminated against anymore. How this will further evolve – if its characteristic cultural features will get lost, will transform, or fuse – is hard to say, and will be left open at this point. I would like to close this sub-chapter with two pictures, drawn during the two workshops that probably best create a visual of the existing dichotomy – the task was to draw “Chumbivilcas in five years” (Picture 7 and 8; see also Appendix 5). If, and which, one is a desire or a fear remains an open question.



**Picture 7 & 8: Vision of their community in five years in Llusco (Workshops 1 & 2), October 2013**

Source: Anja Weber-Alvarez (2013)

## 2. Climate Change in Chumbivilcas

“Climate is changing” is a phrase that is being heard widely in the Andes. The rain patterns have changed. It does not rain or it rains little in the months in which traditionally it used to rain with more intensity. Short droughts, frost, and hail, are now presenting themselves at formerly unseen dates and intensity. In this situation, the possibility of obtaining harvest is strongly threatened since Andean agriculture is mainly rainfed (85% of the cultivated area). It depends on climate and the possibility of turning oneself in conversation with nature. (PRATEC, 2009b: 8)

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The Climate changes slowly, for today is different, with this climate change, it changed. During the sowing time, in some years there is frost in August and September, sometimes, in other years, the rains occur [only] in December. This climate change is what we are strongly observing nowadays.<sup>i</sup> (Workshop 1, Llusco, October 12, 2013; original in Quechua, own translation from Spanish)

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Many people have not lived long [enough] to perceive these [climatic] changes because in your daily life there will always be sunny and cold days, therefore, you are used to it. But when you see different processes, or like how this river of Santo Tomás once was tremendous and now how is it? Of course, then you see that there is a problem of water quantity, no?<sup>ii</sup> (Interview, BH3, August 23, 2013; own translation)

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Or the river Conde, at this time, it dripped. I remember that we used to go fishing. Or the frogs, like this they were [showing how big they were]. But now totally dry, there is no water. This is what the people perceive. Now they see that there is a problem. This is different, now we live in the present and nothing else. So how will we survive? No one is thinking adequately. Then, there is a little bit, as I said, and I don't know if it's an advantage or disadvantage from having another vision; they look, they know that this is going to come. Other people are thinking about how to foresee these things there in Europe, about how we are going to live on. Thus, they are anticipating. In change here, this is still not being lived. [...] So, people here are not thinking much, neither in water harvesting or anything. Well, this is a cultural issue, about what is happening today at some point you must face. I mean, that's it.<sup>iii</sup> (Interview, BH3, August 23, 2013; own translation)

Climate Change is very complex and multifaceted. As can be seen in the first quotation, people build their existence on climatic cycles. When the cycle changes, food security and, thus, lives can be threatened, especially if one does not adapt to these changes. How do we know that the climate is changing though? Through observation? As explained in the second quotation, this is not so easy to do, as people do not live long enough to perceive these changes or they remember things differently over time or with age. Some observations, however, can still bring to light that things were different before, like for example, knowing that a river was torrential instead of being on the edge of drying out. Again, however, being threatened by a change and observing these changes do not always bring about activities for adaptation.

Here enters a second aspect, instead of locally developed activities to adapt to the changes, activities can be initiated and brought in externally. The answer as to why this

is the case can be very diverse. To answer this for Chumbivilcas, many further questions need to be asked: Does the climate change discourse even exist there? From where did the discourse on climate change in Chumbivilcas emerge from? Who is acting on its behalf and stands up for it? And, what information and knowledge exist and are being spread? How is this perceived and by whom? And, why are things perceived and acted on differently worldwide? How does culture come into play, and what about power, discrimination, and even racism?

Some of these questions have already been discussed in this work. In the following sub-chapters, a closer look at the case study in Chumbivilcas will be provided. In the first part, information on scientific knowledge of climate change in Chumbivilcas and the ways actors became involved with it will be retraced. In the second part, climate change related knowledge and impacts will be outlined, and then the information will be connected to the theoretical frame: The power of a discourse.

## **2.1 What does science say?**

The climate in Chumbivilcas is, as already mentioned in Chapter IV, strongly influenced by its mountainous topography and the relative altitudes, implying various microclimates. Generally, the temperature decreases and solar insolation increases as altitude increases. The low atmospheric humidity in the mountainous areas entails difficulties in retaining heat, which is the reason for the drastic changes in temperature in the sun and shade or between day and night (Unidad Formuladora Santo Tomás, n.d.: 20). Looking at the annual cycle, the climate in the research area is characterised by a hotter and shorter rainy season, taking place between October and March, with average temperatures of 21°C during the day and 6°C during the night time, and a colder and longer dry season with average temperatures between -7°C at night and 18°C during the day from April through September. Exact numbers for the annual precipitation do not exist, but it is estimated that the mean precipitation in Chumbivilcas is about 918 mm, with the lowest precipitation in Santo Tomás at 789 mm (Unidad Formuladora Santo Tomás, n.d.: 20f).

For Chumbivilcas, changing climatic conditions cannot be determined by regularly collected data, even though meteorological stations exist in Santo Tomás and Llusco.<sup>129</sup> Evaluations done by SENAMHI, the *National Meteorology and Hydrology Service of Peru*, indicated unseasonable climatic variations in 2010, an even more divergent severity between very hot days with a burning sun and very cold nights (Postigo 2013:

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<sup>129</sup> See [www.senamhi.gob.pe/main\\_mapa.php?t=dHi](http://www.senamhi.gob.pe/main_mapa.php?t=dHi) [accessed March 2, 2015].



190f; Programa Conjunto, 2010: 24). Most of today's knowledge on the presumed changing climate is derived from surveys conducted with the local population in the area of Cusco that were carried out, for instance, by *Soluciones Prácticas ITDG* (Valdivia Corrales, 2010; Valdivia Corrales et al., 2012), *PRATEC* (PRATEC, 2009b, 2011), and Julio Postigo (2013: 187ff). The latter of which compared the answers of peasant in the regions of Arequipa, Cusco, and Puno with the meteorological data of the respective regional governments. The main findings from the surveys point out that irregularities are taking place in the form of increasingly short-term droughts (*veranillos*), more and stronger episodes of torrential rains, and a delayed beginning of the rainy season, with temperatures increasing during the warmer months, and a higher occurrence of frost during the months of June and July (see as well Programa Conjunto, 2010: 24). These findings were echoed in the situation in Chumbivilcas in July 2013, when I arrived; the traditional elaboration of *chuños* could not take place because of a lack of frost during the nights and the rainy days they were experiencing. In general, and what the conversations and interviews raised, is that one cannot count on "normal" weather and climate patterns anymore.

According to predictions of international experts, the *microcuenca* of Santo Tomás is considered to be vulnerable towards (negative) climate change impacts (Programa Conjunto, 2010: 7). Thus, based on the investigations carried out in the area, it is demonstrated that for the future, a further increase of torrential rainfall events, an increase in the minimum temperature in autumn and more frost incidences during the growing season in December, frequent drought-incidences, and unexpected rainfalls in the dry-season are expected (Programa Conjunto, 2010: 9). The differences in temperatures have brought about new illnesses for the population, livestock, and agricultural products.

The mentioned climatic changes have, and will have, further impacts on the flora and agricultural production; rain fed agricultural cultivation will probably be impacted by increasing crop failures, which are additionally more threatened by increasing frost incidents. Cultivation will probably have to be adapted to changing temperatures and rain patterns. Also, the future of the water sources in this area – commonly coming from glacier fed mountain regions – will most likely see severe impacts, especially in the dry season or during phases of drought. Before having a closer look at how the Chumbivilcanian population define climate change, which impacts they have perceived, and what people do or think about what can be done, the next sub-chapter will provide an overview of the main actors and information carriers in Chumbivilcas.

## 2.2 How did the climate change discourse reach Chumbivilcas? Political processes and information pathways in the province of Chumbivilcas

More or less half way through their programme in Chumbivilcas, the *Programa Conjunto* published the following lines:

There is little interest of local authorities to cope with this new situation posed by climate change, the capacity in terms of human resources is very weak. There is much ignorance of the population and their authorities on the effects of climate change now and in the future. As we can see both, the people and their authorities, they are not giving the due importance to climate change, currently no local government has plans or projects to face this new scenario of climate change, albeit many local governments are developing several projects, with a focus on meeting the needs and not problems, they are not directly related to climate change. (Programa Conjunto, 2010: 9; own translation)

This paragraph pictures a situation of “missing knowledge” and “ignorance,” as well as a “lack of interest” by the local governments and the population regarding the topic of climate change. In his introduction to his article, “Alienation and (potential) synergies between the responses of farmers and regional authorities in the face of climate change in Peru's Southern Andes,”<sup>liii</sup> Julio Postigo (2013: 181) explains that, “rural and regional government responses to these processes [of climatic changes] do not always coincide, in some cases they seem unrelated or even contradictory.”<sup>liv</sup> He further explains that the, “preliminary results indicate a long farming tradition in response to the eco-climatic variability of the Andes, in contrast with reactive official responses towards the extreme climate events, and emerging efforts for programmatic responses to climate change”<sup>liv</sup> (Postigo, 2013: 181). Here, another explanation can be found, not of “ignorance” or “lack of interest,” but of missing synergies between local responses and knowledge, and those of regional governments, which are – as shown above – rather based on scientific knowledge. Further alternative explanations will be presented in the analysis of this work, like the prevailing worldview and time concept (see sub-chapter 4.2 of this chapter).

When I travelled for the first time to Chumbivilcas in July 2013, I knew that a UN programme, the *Programa Conjunto*, on climate change adaptation had just ended, that at least one NGO was working on the topic, and that at the provincial level, regional politics had started to develop climate change related policies and projects that were initiated through the UN *Programa Conjunto*. My first impression, when talking with people in different communities, was that people commonly did not know about the on-going activities of the government or any other institution, even though many of them had heard about the term “climate change.” Those who knew about certain activities were usually directly involved, meaning participating in political or institutional activities.

In the following, I would like to reveal, step-by-step, how, where, and why climate change became (or not) a topic of interest, and in this context, why certain developments evolved the way they did. They resulted, on the one hand and as mentioned in the first citation, in few actions by the local authorities and population, but, on the other hand, in a wide registering of the term, turning it into a buzzword used to name the culprit for climatic extremes and inconveniences or for negative impacts on things like harvest and health. The identification of why this is the case and what this has to do with the second citation about the missing synergies will be the aim of the analysis that follows.

Before coming to the analysis of the mentioned perceptions, the following sub-chapter will introduce and discuss those institutions and the political entities that are playing an intermediary role in transmitting climate change information and knowledge to Chumbivilcas, its communities, and its population. The institutions involved will be outlined, including a description of the way each of them became involved, and in which ways, with the issue of climate change. Further, other pathways “discovered” that play an important role for the communication of climate change information will be specified and explored.

### 2.2.1 The institutional landscape and communication of climate change information

Before entering the institutional landscape in Chumbivilcas, Figure 15 provides an overview on what has already been discussed and what is yet to come. It can be stated so far, that the main source of information on climate change in Peru is the UNFCCC and its organisations, connected to the national level through the Ministry of Environment (MINAM). By, *inter alia*, the enacting of new laws, the topic of climate change reached the regional, provincial, and in some cases (already) district level. The connection to international cooperation projects, such as the *Programa Conjunto* in Chumbivilcas – deriving also from UN activities – and other local NGO-activities, provide the second main pathway of climate change information. Further, education developments and the media play an important role in climate change communication.

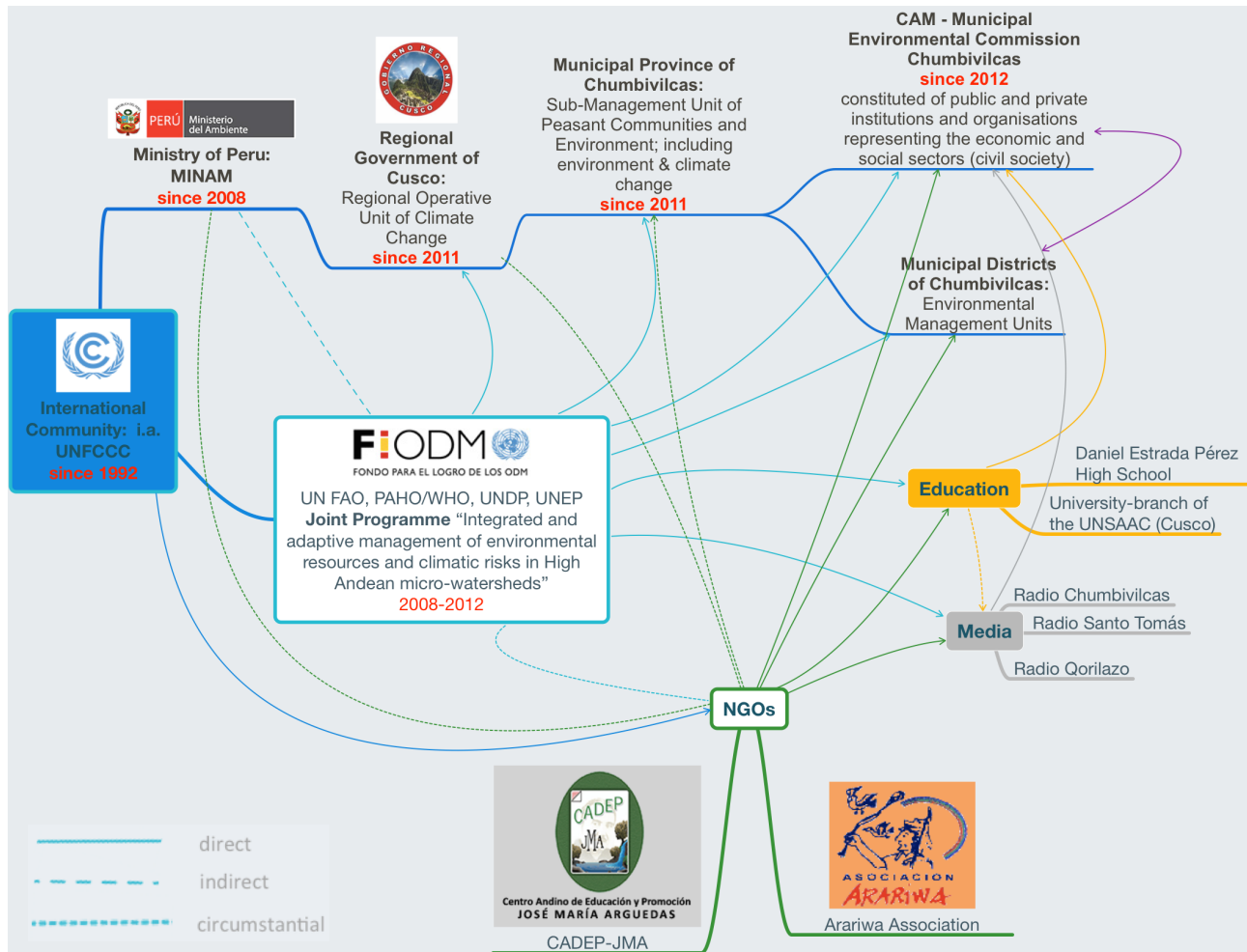


Figure 15: Actors and connections of climate change information in Chumbivilcas

Source: Own elaboration

I will now start with an outline of the institution that was primarily responsible for laying the cornerstone of the topic of climate change in Chumbivilcas: The *Programa Conjunto*. Further, the municipality level and the NGO CADEP will be outlined. The involvement of the media and education sector will be used as examples in the sub-chapter 2.2.2 on the information pathways in this chapter.

### 2.2.1.1 Programa Conjunto (2008-2012)

The *Programa Conjunto* (PC) of the United Nations, called “Integrated and Adaptive Management of Environmental Resources and Climatic Risks in High Andean Microcuencas” was established as an interagency programme by UN organisations FAO, PAHO/WHO, UNDP, and UNEP. With an amount of 3,898,559 US\$, the programme was financed by the *MDG Achievement Fund*,<sup>130</sup> for which Peru is a pilot country, and is constructed with the overall goal of responding to the *Millennium*

<sup>130</sup> www.mdgfund.org [accessed May 28, 2015].

*Development Goals*, especially to poverty reduction and environmental sustainability (Programa Conjunto, 2012: 26; [www.pnuma.org/peru/Resultados.php](http://www.pnuma.org/peru/Resultados.php); accessed May 28, 2015). The programme was initially to be carried out from January 2008 until December 2010 (PNUD, 2007: 1), but in the end was implemented between October 2008 through May 2012,<sup>131</sup> the reasons for which will be detailed later. Thus, during my first preparative visit to Peru in November 2012, I heard many interview partners in Lima and Cusco speaking of “THE” big climate change project.

One of the core problems of the sub-water basin of the Santo Tomás River is the, “shortage of water for human consumption and agricultural use, which worsen in the dry season when the volume decrease in lakes, wetlands, and water sources, resulting in a decreased river flow” (Programa Conjunto, 2012: 3; own translation). Further, as a result of the growing extraction of mineral deposits (nearly 100% of the territory of Chumbivilcas is covered by concessions; see Box 2), as “a mining centre” (UNEP, 2012: 4), Chumbivilcas has impacts on, i.a. water resources, local wildlife, and land distribution, which will probably lead to an increase in socio-environmental conflicts. Therefore, the PC identified three main emerging problems that contribute to a rising vulnerability of the population to climate change:

1. Conflicts caused by the intervention of mining companies in the area
2. Conflicts related to land control and tenure
3. Conflicts caused as a result of inequitable access and distribution of water in the local communities (UNEP, 2012: 4; see, as well Programa Conjunto, 2012: 3)

The PC had an overall goal of, “strengthening the capacity of authorities, leaders, families, and public and private institutions in their integrated and adaptive management of environmental resources to minimize vulnerabilities towards climate change in the High Andean watersheds of Cusco and Apurímac.”<sup>132</sup> Within this goal, the programme aimed to produce three main outcomes:

Outcome 1: Provincial and district governments have increased their capacities to plan, develop and implement, inform, and coordinate initiatives consistent with the sustainable management of environmental resources and associated services (with an emphasis on water, soil, and forest resources) and internalise adaptation to climate change measures in their regulatory tools and frameworks and programming.

Outcome 2: Strengthened capacity of producer associations and grassroots organisations in general to, in a participatory and concerted way, develop, access, and apply practices for

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<sup>131</sup> [www.mdgfund.org/program/integratedandadaptiveenvironmentalresourcesandclimaticriskshighandeanmicrowatershe](http://www.mdgfund.org/program/integratedandadaptiveenvironmentalresourcesandclimaticriskshighandeanmicrowatershe) [accessed May 28, 2015].

<sup>132</sup> [www.pnuma.org/peru/Objetivos.php](http://www.pnuma.org/peru/Objetivos.php) [accessed May 28, 2015].

Even though the PC worked with both regions, Cusco and Apurímac, this dissertation and the information in the following sections will just refer to the work implemented in Cusco.

sustainable management of natural resources (with an emphasis on water, soil, and forest resources) and associated services which relate to their needs and respond to changing conditions.

Outcome 3: Producer associations and local people have access to and participate in competitive and innovative models based on production systems compatible with sustainable management of natural resources and the activation of local potential and oriented towards fair and sustainable markets that favour increases of the income level and quality of life. (www.pnuma.org/peru/Resultados.php; accessed May 28, 2015; own translation)

Whereas the overall goal and Outcome 1 directly target the term climate change, Outcomes 2 and 3 focus on participatory and sustainable resource management processes, thus including local participation as required and further taking local conflicts and problems into account. As one result, the final report mentions that the PC worked in close and direct coordination with the regional government of Cusco,<sup>133</sup> with whom they promoted a proposal to incorporate measures of climate change adaptation and risk management into the regional curriculum design (Programa Conjunto, 2012: 6). “And along with the support of the *Programa Conjunto* we also did, well, let’s say, a first approximation of what would be the plan of implementation of the [regional climate change] strategy,”<sup>134</sup> explained one official of the regional government (Interview, EI1, August 6, 2013; own translation). To reach their goals, the PC’s main cooperation partners, aside from the regional governments of Cusco and Apurímac, were: 1) MINAM; 2) AMSAT<sup>134</sup> (*Association of Municipalities of the Sub-River Basin of Santo Tomás*); 3) provincial and district municipalities of the sub-river basin of Santo Tomás; and 4) community-based organisations, leaders, and traditional Andean authorities.<sup>135</sup> Programme objectives can be categorised into four main areas, as listed in the final report (Programa Conjunto, 2012: 6f), including its obtained goals (Programa Conjunto, 2012: 10ff):

#### 1) Knowledge generation and distribution:

- The generation and distribution of knowledge of adaptation to climate change measures through various studies, diagnoses, and methodological guidelines; the implementation of two GIS systems; and the installation of two satellite weather stations in Santo Tomás and Cotabambas and of a hydrologic monitoring system.

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<sup>133</sup> Considering the data on the development of the climate change topic in the regional government of Cusco in the previous chapter, we can see that the PC stepped in first, meaning before the main regional project, the PACC, and thus, the start of the elaboration of the regional strategy on climate change.

<sup>134</sup> The AMSAT, presided over by the mayor of de Santo Tomás, is an association of local municipalities unifying those districts from both regions, Cusco and Apurímac, which directly border the sub-river basin of Santo Tomás: Ccapacmarca, Challhuahuacho, Colquamarca, Haqira, Llusco, Mara, Quiñota, and Santo Tomás. On their website, they describe their mission as follows: “We are the Association of Municipalities of the Santo Tomas River – AMSAT, that generates development, efficiently managing the territory and the environment, promoting the coverage of basic services for everybody and of their quality in a concerted and participatory form” (www.mancomunidadamsat.net; own translation) [accessed May 28, 2015].

<sup>135</sup> www.pnuma.org/peru/Actores.php [accessed May 28, 2015].

- The PC further used a radio programme as the main medium to talk about the environment, (adaptation to) climate change, and the *Millennium Development Goals* in Quechua and Spanish.<sup>136</sup>

## 2.) Policy framework:

- At the regional level: The development of the *Regional Climate Change Strategy* of Cusco, the creation of the office of "Social Peace and Socio-Environmental Conflict Prevention" to strengthen the capacities of regional and local authorities in extrajudicial reconciliation, and the transformation of socio-environmental conflicts promoted by the PC (Programa Conjunto, 2012: 11)
- A *Climate Change Adaptation Plan* for the sub-river basin of Santo Tomás
- The development of a communication and advocacy strategy to face climate change
- The creation of *Municipal Environmental Commissions* (CAMs) and *Environmental Management Units* (UGAs) in each district-municipality of the AMSAT

## 3.) Management tools:

- Each district-municipality of the AMSAT should have with their own local environmental: 1) Assessment, 2) action plan, 3) agenda, 4) policies, and 5) management system. Further, each of the nine pilot communities should have community development plans, community plans for adaptation to climate change, community action plans, and management plans for natural resources, which were promoted to be implemented.

## 4.) Capacity building:

- Development of a capacity building programme in *Measurements of Climate Change Adaptation* for officials of the local (provincial and district) governments with the aim of being repeated within the different project implementations. Thus, manuals and training material that were adapted to local conditions were produced and workshops conducted (UNEP, 2012: 4).
- Establishment of 87 (Programa Conjunto, 2012: 19) *Rural Peasant Schools* (ECAs) and promotion of efficient water use practices to reduce the vulnerability of families and communities living in the intervention area of the PC. The strategies included the following topics: (Re)forestation with species friendly to water retention, water management, protection of water sources, and soil conservation etc. Further, productive strategies for families and communities

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<sup>136</sup> They are all still accessible at the UNDP-website: [www.pnuma.org/peru/Materiales\\_Publicaciones.php](http://www.pnuma.org/peru/Materiales_Publicaciones.php) [accessed June 1, 2015].

established, like raising species that are adapted to the changed climatic, such as guinea pigs and llamas; establishing tuna plantations; encouraging “viviendas saludables” (healthy homes); and creating access to drinking water and basic sanitation. These strategies and processes are on-going in the communities and are being replicated by others with the help of the local government or other organisations.

These listed activities demonstrate the multifaceted approach of the ambitious programme. I was not able to see and/or retrace all of the mentioned activities, However, I was able to see and retrace some of them and many of the listed programme activities were referred to in interviews I conducted.

When I arrived in Chumbivilcas, one of my first main goals was to obtain the studies that stemmed from the PC and which were mentioned in the final report of the PC. The aim was to see how the information, the studies, and management tools were used in Chumbivilcas. Thus, in one of my first weeks in Santo Tomás, I got into contact with the person responsible for the *Division of Rural Communities and Environmental Management* (see section 2.2.1.2 of this chapter) where the topic of climate change is handled. Here, two aspects related to the above became apparent. First, the head of the division had changed since the PC had closed, and when the new division head talked about the processes and related information, he started his sentences by saying, “I have understood that...” (Interview, AMC2, July 15, 2013; own translation). Thus, the information and processes that had just ended about a year before were already only known about second-hand.

During that time, I was also looking for information and documents and was expecting that the respective division could provide the documents the PC had left behind. I walked out with basically nothing. I was surprised, when two new officials from the touristic division offered me digital documents they found on their computer that might be interesting for me, after they had heard about the reason for my stay and the research topic. When I opened the folder, I found 162 (unsorted) documents listed with no titles, just numbers. It turned out that these were the studies, diagnoses, and methodological guidelines the PC had left behind. In this context, during an interview with a former official of the division at almost the end of my stay, I was not surprised when he stated:

There are studies of the *Programa Conjunto*, it left many studies related to the environment: Water harvesting, reservoirs, afforestation, care of snowy mountains, I don't know what..., a number of studies. These studies are kept like some archived files. No local government bother to review them.<sup>lvii</sup> (Interview, BH1, October 22, 2013; own translation)



A further challenge the programme had to face was already mentioned in November 2012 by various organisations that had been involved, mainly in the initial phase of the programme:

In fact the project had plenty of implementation problems, it was delayed a lot, they did not make it to execute the planned implementation in time, they began to mediate a lot with small NGOs.<sup>lviii</sup> (Interview, E4, November 20, 2012; own translation)

Trying to work with a new topic at various political levels and including as many actors as possible protracts the process, adding extra time that very often is not included in the project plan. Some institutions left the programme during the early stages of the implementation phase. If this delay was projected or not was not always clear, but it existed. Thus, the reasons for the programme delay are manifold, and in the final report of the *Programa Conjunto* it is stated that:

The PC began its activities in 2008/2009 in a period of important changes in the Peruvian environmental policy. The creation of the Ministry of Environment in May 2008, which took over the duties, responsibilities, and powers of CONAM (the former National Environment Council) and other related institutions, marks a milestone when it started to create one of its departments, the Vice Ministry of Strategic Development of Natural Resources, with the General Directorate of Climate Change, Desertification, and Water Resources. In this context, the initial process of implementation of the National Strategy of Climate Change, Peru (2003), the initial responsibility laid with the National Environmental Council – CONAM, was again postponed by the process of institutional planning and organisation of the recently created Ministry of Environment – MINAM. (Programa Conjunto, 2012: 2; own translation)

Not only the handling of the major national restructuring activities distracted important partners, but also the sub-national elections in 2010 affected the process of the PC through the change of government officials in the regional government in Cusco and Apurímac and within local administrations in the sub-river basin of the Santo Tomás River. This problem is explained in the final report:

These changes [of the elections] significantly affected the capacity building process initiated by the PC, mainly by institutional fragility and frequent rotation of the technical personnel in the municipalities of the AMSAT. Organisational differences, such as the lack of areas within the organisational structure, capacity constraints in human resources, and little political will to implement a management unit on sustainable development, both at the local government and in the communities, is a developmental problem that the PC has directly addressed in nine municipalities and communities in the area of intervention. (Programa Conjunto, 2012: 2; own translation)

Hence, after having started the project, they had to restart some of the activities after the elections, such as their strengthening strategies with the local governments (Programa Conjunto, 2012: 31). Additionally, as explained above, further changes of political officials after the closure of the programme most probably signifies that the new officials did not receive any capacity building from the PC. Thus, an aspect every project

implementation deals with, and is probably the most challenging for many, is sustainability, meaning that the implemented work-outputs are further used and continued and that the acceptance of responsibility for when the project leaves has been determined. In the final report of the PC, it becomes apparent that the programme had taken sustainability into consideration. Thus, a new established thematic round table on environmental issues divided the activities and responsibilities in three sections: Communities, local government, and the regional government (Programa Conjunto, 2012: 34ff).

1. Communities: Continuation of the implementation of adaptive practices such as “viviendas saludables” (healthy homes) and environmental resource management at the family and community level. The authorities and families are trained and sensitised on the issue of climate change. They have community management tools, including a community development plan and an adaptation plan.

This should be carried out via the UGAs (Environmental Management Units) providing technical assistance to communities. Further, a few NGOs were interested in supporting the continuation of the process. Thus, CADEP was mentioned to continue the strengthening of leaders and community families with the communal organisation and to manage the environmental resources in the communities of San Sebastián de Llusco, Huañacahua, and Queuñapampa.

During my stay, CADEP continued their work at the community-level, closing their climate change adaptation project and working on one with “healthy homes.” What happened after the closure of both projects in 2014 is not known, but at the district level it was already apparent that no further trainings were planned and that the subject in general was little followed up on at the district level.

2. Local Governments: The UGAs, which were formed and recognised by decree, are leading and running initiatives and concrete actions of climate change adaptation measures, such as projects on afforestation, water harvesting, capacity building, etc. Further, the CAMs, which were formed in nine local governments and are recognised by municipal decree, started their activities based on municipal environmental management instruments. Mayors and those responsible for the UGAs are sensitised and allocate resources for projects and initiatives for climate change adaptation at the municipality level. Authorities, sectors, and the general population are sensitised to the topic of climate change as a result of an awareness raising strategy of the PC.

This requires that local authorities meet the institutional arrangements to strengthen the UGAs. As for the CAMs, it requires the regional government of Cusco and local

governments to continue to provide technical assistance for strengthening the CAMs and UGAs through the governmental *Management Unit of Natural Resources*. Finally, it requires the national MINAM and MINAM-Cusco to continue their technical assistance to the CAMs. For the continuation process, this means that:

- In the provincial municipality of Chumbivilcas that the thematic round table on environmental issues continues, providing analyses and proposals to local governments and other stakeholders. This requires the active participation of state sectors in development processes, such as the Ministries of Health, Education, and Agriculture; the University; and the *Gobernatura*, as well as grassroots organisations such as the *Agrarian League* and others. They will need to incorporate the topic of environmental management and climate change into their work and be members of the CAM.
- In the district municipality of Llusco and Quiñota that through its state sectors such as the Ministries of Health and Education, the *Gobernatura*, producer organisations, peasant round tables (in Llusco), and others should participate in development processes by incorporating the topic of environmental management and climate change, as well as being members of the CAM.

Again, this is well thought through, but at the municipality-level, institutional problems had already arose in 2013, for example, within the CAM.

3. The regional government of Cusco: The regional government developed a regional strategy on climate change adaptation, adopted by regional ordinance and continues the process of strengthening the municipal authorities of the 13 provinces of Cusco (CAMs and instruments of municipal environmental management). The University of Cusco *UNSAAC-IIUR* and the NGO *Asociación Arariwa* continue with the third version of a university degree in science and climate change management and have further developed a project for the creation of a university degree in climate change and sustainable development. The regional government of Cusco created an office of *Social Peace* for the treatment and prevention of socio-environmental conflicts. The regional government and SENAMHI Cusco will continue the process of climate monitoring in the sub-basin of the Santo Tomás River, articulating it to SAT-Peru. At the regional level, I was able to retrace the stated objectives for the sustainability of the programme, which was outlined in Chapter IV, section 3.

Even though a programme evaluation was not part of the research, some of these aspects will further pop up in the following sub-chapters, demonstrating the way in which

some of the processes continued. Already, almost half a year after the closing of the programme, however, an actor formerly involved remarked:

Well, when the project ended, there is the large absence. They have worked with mayors, meaning, responding to the reactions of the moment. So, if I find a partner that I find nice, who is accepting my proposals or doesn't make me much hesitate to enter, thus I work very well with him. Who puts me a straight face or is critical with me, I do not prefer to work with. So, there are these large distortions that we have when we go to work in the field and that make most of the projects don't make the results round – let's call it success – who don't have their successful results.<sup>lix</sup> (Interview, E6, October 30, 2012; own translation)

Analysing the interview data, it is interesting that nobody mentioned the PC in any of the local level interviews. Only the two local municipality officers and a former local municipality officer mentioned the *Programa Conjunto* during their interviews. Further, the head of the *Agrarian League*, who is involved in the political municipality processes, and the former local municipality officer mentioned the *United Nations* (compared to 22 out of 36 interviewees who mentioned CADEP at least once (for further details on CADEP, see section 2.2.1.3 of this Chapter).

Having outlined this, it seems that being the pioneers and, thus, the first to promote a topic, not even established at the higher political levels, seem to be a challenging task. It appears that the time planned for the implementation of a programme, targeting a new topic and cooperating in a complex, multi-level environment, including actors with diverging interests and holding different degrees of socio-political and economic power was not sufficient. Still, however, a lot has changed, and fragments of movement are visible, which will be revealed in the next sub-chapters.

#### 2.2.1.2 Chumbivilcas “Sub-Division of Peasant Communities and Environmental Management” and the Municipal Environmental Commission (CAM) – Municipality of Chumbivilcas

We already had a lot of theory for four years with the *Programa Conjunto*, now we have to start to put it into practice and to do projects. Water is the key.<sup>lx</sup> (Technical round table meeting Santo Tomás, October 16, 2013; own translation)

Within the Municipality of Chumbivilcas, the topic of climate change is covered by the *Sub-Management Unit of Peasant Communities and Environment*, which previously belonged to the *Sub-Management Unit of Social Development*. Here, climate change is addressed within the *Environmental Management Unit*, and is thus consistent with the national and regional structures, where climate change is integrated into the subject of environment, too. Here, however, in contrast to national developments, it is still interpreted rather as a purely environmental issue and attempts at mainstreaming the issue were not really visible. As outlined in the previous sub-chapter on the PC, the

creation of the *Environmental Management Units* (UGAs) was one of the activities of the programme. Hence, the creation of an UGA was named as one current priority activity by the head of the *Sub-Management Unit of Peasant Communities and Environment* of the municipality of Chumbivilcas in July 2013, more than one year after the closure of the PC. He explained that not (yet) having implemented an UGA would restrict the possibilities of political decisions and implementation of actions (AMC2, July 15, 2013). Further, one NGO-member, who was involved in the processes of the PC from the beginning, indicated the importance of the firm integration of the topic into the political organisation chart of Chumbivilcas; for her, this was a result of the foregoing processes and public pressure:

And it's now being considered, as yesterday the fellow said, that the sub-unit of peasant communities [...] is no longer just an office but has a major hierarchy. Additionally, this will be inserted as one subject of the organisation chart of the municipality and this did not exist before and so there are things, let's say, that will be assumed as part of public commitments or popular pressure, which are being assumed by the authorities.<sup>lxix</sup> (Interview, EI3, August 21, 2013; own translation)

In general, these developments, to focus more on the environment and especially on climate change, are quite recent and were clearly emerging due to the developments and activities of MINAM, the PC, and GORE-Cusco:

Since the *Ministry of the Environment* was created, it is at least right now entering [beginning to act]! [...] The regional government, for instance, is already taking its role in the capacity building of local governments, which has not existed before. Now they are taking over because now even the *Ministry of Environment*... As it is new the subject of environment, it had been a bit neglected. Now yes, it is more or less entering, yes, more or less it is also already taking its role like the central government, both like the central and local government.<sup>lxx</sup> (Interview, AMC1, July 15, 2013; own translation)

The most important forum for environmental and climate change issues is, in this context, the *Municipal Environmental Commission* (CAM) of Chumbivilcas. It was initiated by the work of the *Programa Conjunto* and approved by municipal ordinance N° 001-2012-MPCH in 2012. The activities of the CAM are directed by the head of the *Sub-Management Unit of Peasant Communities and Environment*. He said on behalf of the CAM:

AMC2: The *Environmental Commission* was formed last year in 2012.

AW: Why did it arise? Because of the *Joint Programme* or where did it come from?

AMC2: Of what I understood, is that this [...] has been worked on by the climate change *Joint Programme* and by other institutions. They have first worked as a technical round table of territoriality and environment in a space where they discussed and debated environmental issues, but this had little effect on the government. It was like a separate group. They posed solutions, or let's say they proposed events. But who would support them? There was nobody

in between them [...] it had no implication [...] So it was more appropriate for the CAM that it was regulated by the central government through the *Ministry of Environment*. The confirmation of environmental commissions are its creation, and regional governments are doing this. Last year, it has just been created here. But now, at the provincial level, all communities have *Municipal Environmental Commission*, all municipalities.<sup>137</sup> The issue is that one [...] has united them: The presence of the extractive companies. So, the only way to counter that [...] is suddenly this *Environmental Commission*.<sup>lxiii</sup> (Interview, AMC2, July 15, 2013; own translation)

Similar to the two quotations recently cited before, of the NGO member and the other political authority from Chumbivilcas, this quotation shows that the integration of a topic within the local policy framework is one of the crucial points for its official legitimisation, and as a new, rather conflictive topic, the environment, this had to come from higher levels to be able to start to work. In this case, one highly political problem helped the topic to more quickly assemble supportive actors: The extractive activities, which is a conflictive topic in many ways.

What exactly are the CAMs though? The *Municipal Environmental Commissions* are, “instances of environmental management by the provincial and district municipalities, responsible for coordinating and arranging the municipal environmental policy” (flyer “What is the CAM?” Programa Conjunto: n.d.; own translation). This means that:

- 1.) The CAMs articulate their environmental policies together with the Regional Environmental Commissions and MINAM
- 2.) The local governments will promote the creation of the CAMs, with the support of the Regional Environmental Commissions and MINAM (Art. 49 of the SNGA [*National Environmental Management System*])
- 3.) Local, provincial, and district governments approve by municipal ordinance the creation, scope, composition, and functions of the Municipal Environmental Commission CAM (Programa Conjunto: n.d.; own translation).

On page one of the draft version of the *Regulation of the Municipal Environmental Commission of the Province of Chumbivilcas*<sup>lxiv</sup><sup>138</sup> (received by the head of division on July 2013; own translation), its specific objectives are defined. Objective 6<sup>139</sup> is to, “promote processes of adaptation to and mitigation of climate change, desertification

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<sup>137</sup> This might be the case but the topic was handed over to district officials, mainly as an additional topic to add to their already existing duties. So the people I conversed with in Llusco and Quiñota seemed to give little importance to the issue.

<sup>138</sup> This draft version should have been the main subject of a meeting in September 2013 that did not take place due to a lack of participation.

<sup>139</sup> The whole list of objectives are as follows: 1) Encourage land management; 2) promote the use of clean technologies; 3) encourage valuation and sustainable use of ecosystem services; 4) ensure proper management of solid waste, effluents, and emissions; 5) promote public awareness, education, and culture of environmental protection and conservation; 6) promote processes of adaptation to, and mitigation of, climate change, desertification, and drought; 7) direct economic activities towards responsible and sustainable development; 8) promote the conservation and sustainable use of natural resources, biodiversity, and associated knowledge; 9) promote studies and research on environmental issues; and 10) guide and encourage environmental conflicts resolutions.

and drought” (CAM, 2013a: 1) and focuses specifically on climate change, pointing in the direction of the already felt and/or feared main negative impact of climate change in Chumbivilcas: The shortage of water. In the general functions<sup>140</sup> applicable to the CAM, also described in the *Regulation of the Municipal Environmental Commission of the province of Chumbivilcas* (draft version from July 22, CAM, 2013a: 1f; own translation), climate change is not mentioned anymore.

The CAM of Chumbivilcas Province is composed of representatives from a wide range of public and private institutions and organisations representing the economic and social sectors (civil society).<sup>141</sup> In this context, it is said: “With this multi-sectoral composition, it is intended that the CAM develops a shared vision of the provincial sustainable development, comprehensively addressing the prioritised environmental problems” (CAM, 2013a: 2; own translation). The meetings of the CAM are considered valid when at least 50% of its members are present – which according to the actors listed in footnote 141 would be at least 18 participants (35 are listed). Meetings should have taken place once a month (CAM, 2013a: 4). In the middle of 2013, however, the reality seemed quite different. During my stay in Chumbivilcas, four CAM meetings should have taken place:

- During the meeting in July, three representatives were present: The head of the division and two NGO-representatives. Here, the *Local Environmental Diagnosis of the Province of Chumbivilcas* from April 2012 was updated. Further, the *Annual Operating Plan* of the CAM-Chumbivilcas 2013 was revised.

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<sup>140</sup> The general functions are as following:

1. Body of coordination and harmonisation of environmental policy at the provincial level (Chumbivilcas).
2. Body of support, advisory of the *Sub-Management Unit of Peasant Communities and Environment* of the Provincial Municipality of Chumbivilcas.
3. Propose, promote, and convene the implementation of the *Provincial Environmental Action Plan*, and the *District Environmental Agendas*.
4. Support and strengthening of the district municipalities in environmental management and encourage the creation of *Municipal Environmental Commissions*.
5. Make proposals for the implementation and evaluation of environmental management tools and the implementation of environmental policies.
6. Promote spaces of opinion and coordination for the treatment and resolution of socio-environmental conflicts.
7. Propose the creation of specialised Technical Groups.
8. Prioritise and propose guidelines for the preparation of projects, environmental programmes, and activities within the framework of the SNIP [*National Public Investment System*].
9. Propose and develop participatorily the environmental management instruments that will be approved by the *Municipal Council of the Province of Chumbivilcas*.

<sup>141</sup> The listed institutions and organisations are: The provincial municipality of Chumbivilcas (which presides), the district municipalities of each of the other seven districts, the sub-regional office of the regional government of Cusco, the provincial prosecutor/public ministry, the *Agrarian Agency*, the *Micro Network/C.S./P.S.* Health Hospital of Santo Tomás, the E.U. 305 Chumbivilcas, the association of traders/market, the media, the technological/pedagogical Institute "Divino Jesus", private companies, the university (UNSAAC), the parish, the national police of Peru, the evangelical church, NGOs of the province of Chumbivilcas, *Agrorural Chumbivilcas*, the *Peasant Organisation (Liga Agraria)*, the *Popular Housing Association* of Santo Tomás, *CADEP-JMA*, *CADEP-José María Arguedas*, educational institutions, social programmes (*Juntos*), *Plan Internacional*, *Socios Perú*, the Association *Arariwa*, *Human Rights Without Borders*, the *United Front to Defend the Interests of the Province of Chumbivilcas*, and the *Daniel Estrada Pérez* educational institution (CAM, 2013b: 3f).

- During the meeting in August, two more representatives showed up than in July and the assembled group worked on the *Environmental Action Plan 2012-2022*.
- The meeting in September was planned to be a bigger and an important meeting. Here, the regulation of the CAM should have been updated and submitted for verification to the municipality. In addition to those who participated during the last meetings, just three more people of the districts showed up, and the meeting did not take place.
- The meeting in October was already cancelled beforehand by the head of division.

Thus, aside from the provincial municipality of Chumbivilcas, two of the representatives of the district municipalities, and the *Sub-Regional Office* of the regional government of Cusco, during my stay I met, in the context of the topic of climate change, representatives from the following institutions: CADEP, *Asociación Arariwa*, the Agrarian League, the Daniel Estrada Pérez High School, the UNSAAC University, and some from the media (radio).

Reasons given for this low level of interest and slow going, discontinuous process were:

- 1.) During the time of the PC, more organisations ran projects in Chumbivilcas and some of them left with or right after the closure of the PC.  
My interpretation of this process is that the end of the PC in Chumbivilcas was accompanied by a loss of political attention and, thus, also of funding – a long existing problem of sustainability, especially in short-term and externally financed projects such as through international development cooperation.
- 2.) Some of the people involved in the processes, who have had their capacity on the topic built have left due to political changes after the last election in Chumbivilcas in 2011.
- 3.) (New) officials from other political units/divisions changed their priorities or set new ones and started to not participate anymore (e.g. the agriculture unit). This could be connected with the first point, a general loss of political attention.
- 4.) As of the middle of 2013, the CAM focused in their work on the policy framework such as the regulation, the planned activities for 2013 were falling behind and some people stepped out of the process.
- 5.) Just announcing the date of the monthly meetings and sending out invitations to the participants was not considered to be sufficient. To keep the members interested, the responsible authorities would need to regularly and reliably follow up on the invitations sent. This was the case under the former head of division, but had changed with the new head of division after the last election.



6.) There was a general lack of local official funding or finances; during my stay, the CAM did not have its own budget.

A further reason can be seen in the example provided in the following interview. I talked to the representative of one of the organisations who did not show up to the four CAM meetings. In the interview, he considered the topic of climate change to be a very important one and mentioned, without me specifically asking him to, the work of the CAM. He also explained, however, that “more significant” topics exist for them than the one of climate change, such as the environment in connection with the mining activities:

AW: What happens in these contexts, for example with the issue of climate change, are there conflicts that arise? Are there problems emerging?

BH2: Of course, yes. It is no longer like before, the climate is not normal anymore because it changes from one moment to the other. [...] I think it's a change, an almost constant phenomenon. Therefore we also touch the subject of how we will intervene against these changes.

AW: And how do you think to face it? Perhaps to adapt? Are there some measures your are already considering or are already talking about?

BH2: Yes, we have a technical round table where we talk exactly about those topics [...] in which way we have to be prepared to face these situations.

AW: And who is part of this table? [...]

BH2: Well, we have a technical round table of the CAM [...] and we always schedule a meeting [...] and specifically we touch on these issues.

AW: But are you concerned with this issue, with the climate?

BH2: Yes it is worrying, but more worrisome are the rural communities.

AW: And moreover, what kind of information is lacking and also what should you know to be able to cope with the change? Is something missing?

BH2: Yes, we are not all one hundred per cent into it to develop this whole issue, but we would like to be informed and that we are prepared. There are more important issues that can be touched.

AW: Can you give me some examples?

BH2: Well the issue of environmental contamination, little has happened in answer to the presence of the mining companies [...].<sup>lxv</sup> (Interview, BH2, October 23, 2013; own translation)

Especially some of the NGOs feel quite frustrated concerning these developments, that on-going processes with already high work-inputs suddenly stop when external institutions pull out and financial and technical expertise very often disappear with them. Still, however, when I asked about the future of the CAM and its processes, the responses remained positive, even though both CAM-members I spoke with also see the difficulties of the on-going process:

There are some good leaders that are concerned, and also that those in decision-making spaces, they always talk about the topic and that they formulate solutions or alternatives. The interesting thing would be to work for two or four more years because it is just beginning as we had laid the

foundations, but it is important to consolidate it [...] so that it will continue with this. There is the CAM, we are taking a while but somehow it will consolidate itself. Once these environmental management instruments will be handed out, their application will be mandatory.<sup>lxvi</sup> (Interview, EI3, August 21, 2013; own translation)

AW: At the political level, I think you were also for some time with the CAM, right? [...] Would that be a measure to continue to implement?

IE7: Yes, of course.<sup>lxvii</sup> (Interview, EI7, October 16, 2013; own translation)

The connections to MINAM and the regional government are considered to be limited, but are an important requirement to be able to improve the response to the topic of climate change. These missing or limited connections are, therefore, considered to be one of the main reasons that the local district levels and population have still not been reached:

Look, through our *regional government* our *Division of Natural Resources and Environment* has promoted the *Regional Environmental Commission* that should be composed of all provincial governments and the institutions with regional representativeness in Cusco. This work has been developed but is not as profitable as it should be. Therefore, this [...] is being reflected at the provincial level. There is little connection that we have with the regional government and worse with the central government. The central government has the *National Ministry of Environment* and is not present [...] What is lacking is awareness rising; people need to be aware of what we are facing. So, to do that kind of work we should be working together with them and they are not present [...] At the provincial [level ...] there are district governments that don't have this unit of environmental management; there is nothing. There are districts that still don't have any basic sanitation [...] and here in the same province of Santo Tomás [...] there is no water, the water they drink is not even treated, it's from the river.<sup>lxviii</sup> (Interview, AMC2, July 15, 2013; own translation)

This interview indicates again that more fundamental problems exist for the population in Chumbivilcas. Even though all districts should by law have an *Environmental Management Unit*, they are often still missing basic sanitation and access to treated water. Hence, the issue of climate change, in this reality, is not the top priority.

Like the introductory quotation to this sub-chapter shows, there has been a lot of input and new laws introduced during the last four years. Now the implementation, the actions and the connection to local communities are the next steps needed mentioned by the actors involved with the provincial government and the CAM-Chumbivilcas. In this situation, the most important topics such as the water-issue, socio-ecological impacts of the mining activities, and awareness rising within the population, have been defined by the different actors during the interviews.

### 2.2.1.3 The NGO CADEP-JMA

#### A) A small preface: Private institutions working on climate change in Chumbivilcas

In 2010, the *Programa Conjunto* developed an “Adaptation Plan and/or Contingency of Climate Change in the *Microcuenca* of Santo Tomás.” Here, seven private institutions were named that worked at that time in the *microcuenca* of Santo Tomás in Chumbivilcas: *Plan International*,<sup>142</sup> CADEP, the *Arariwa Association*, *Practical Action ITDG*, IAC (*Instituto de Animación Campesina Luis Vallejos Santoni*),<sup>143</sup> *Xstrata Tintaya*,<sup>144</sup> and *Marenas*. During this time, none of them had projects specifically focused on the topic of climate change and environmental projects were also rather rare (*Programa Conjunto* 2010: 23). The four organisations of CADEP – *Arariwa*, *Practical Action ITDG*, and *Plan International* – took part in the *Regional Technical Group for Climate Change* that was established in Cusco in 2009 (see Chapter IV, 3.2; GORE, 2012b). However, only CADEP is cited in the “Local Diagnostic of the province of Chumbivilcas” of the CAM in 2013 as being a member of the “Environmental Municipal Commission” (CAM 2013: 10). Additionally, *Arariwa* was present during the CAM-meetings that I attended in Santo Tomás, and the organisation was listed as being responsible for two planned activities in the annual operation plan for 2013. A representative of IAC was present in some of the village meetings in Llusco, mainly focusing on agricultural practices in their presentations. Even though *Practical Action ITDG* became involved in climate change related issues quite early, starting in 2003/2004 (Orlove, 2009b: 153), and is very active in the area of Cusco – including the micro river basin Santo Tomás, its work and publications focus on the neighbouring province of Espinar and the neighbouring region of Apurímac where the Santo Tomás River flows into the Apurímac river. Therefore, even though it would be important to discuss at the regional level, due to its geographic focus, it will not be discussed further

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<sup>142</sup> *Plan International* has worked in Peru since 1994 and, “facilitates authentic participation and empowerment of children and adolescents; and also coordinates closely with the State and Civil Society” (<https://plan-international.org/where-we-work/americas/peru/what-we-do>) [accessed May 26, 2015]. In Cusco, the programme focuses on five key areas: “[P]articipation, protection and governance, integrated early child development, learning skills for life, risk management and child protection in emergencies, sustainable livelihoods and food security” (<https://plan-international.org/where-we-work/americas/peru/where-we-work/cusco-en>) [accessed May 26, 2015].

<sup>143</sup> IAC is a NGO founded in the 1980s with its head office in Cusco.

<sup>144</sup> *Xstrata Tintaya* is a mining company working more in Espinar than in Chumbivilcas. Still, for the inauguration of the *Mining Solidarity Programme* in 2008 in Chumbivilcas they implemented their first infrastructure projects in education, agriculture, and livestock through the *Tintaya Civil Association*. These projects were realised through the regional mining fund ([www.glencoreperu.pe/ES/Publicaciones/Revistas%20Tintaya%20Antapaccay/T3.pdf](http://www.glencoreperu.pe/ES/Publicaciones/Revistas%20Tintaya%20Antapaccay/T3.pdf)) [accessed May 26, 2015]. Organisations such as CADEP-JMA, Oxfam, and CooperAcción frequently appear as advisers and advocates for the communities in negotiation processes with the mining companies to reduce the asymmetry of power between negotiators, which usually strongly favour the mining companies (<http://old.cies.org.pe/files/documents/files/anexo5-b.pdf>, 2011) [accessed May 26, 2015].

in the subsequent sub-chapters.<sup>145</sup> The *Programa Conjunto* described the work and the coordination of the locally active private institutions as follows:

The areas of work being carried out [by private institutions] aim to promote the development of this important space. However, the gained experiences are still not enough to talk about development, although many of them have been working in this field for many years; you may notice that each institution develops its own “individual” work, actions are not coordinated, even less are they agreed upon. Consequently, there are duplications of activities and a certain level of institutional jealousy. (Programa Conjunto, 2010: 24; own translation)

The following section focuses only on the work of the NGO CADEP, as it is one of the main actors that was still continuing to work on climate change issues in Chumbivilcas during my stay.

## B) CADEP

The NGO *Centro Andino de Educación y Promoción – José María Arguedas* (CADEP-JMA) was founded in 1968 as part of an organisation linked to the catholic church (first *Centro Básico de Capacitación Rural – CEBCAR*, then *Programa de Educación Básica Laboral – PEBAL JMA*). In 1984, CADEP became a NGO separated from the church, working mainly in the areas of Cusco and Apurímac (with its headquarter in Cusco City).

They were from their earliest days involved in the development of economic projects, supported women and preventive health in rural communities and defended human rights.

Through this long-time presence CADEP is accepted by the indigenous villagers as a dedicated force, highly specialized in intercultural bilingual education (Quechua–Spanish) and with much experience in the topics of sustainable exploitation of natural resources and the development of intercultural societies.<sup>146</sup>

[Thus, CADEP] is an educational institution of the civil society, generating critical thinking and supporting the indigenous Quechua speaking population to take initiatives in politics concerning the sustainable human development, influencing the processes of democratisation of the country and the Peruvian society. [It is further] contributing to the intercultural, bilingual education, to the strengthening, empowerment and the autonomy of the indigenous Quechua speaking villages. Hereby, the focus lies on women and most vulnerable, for example in the sustainable management of the environment.<sup>147</sup>

The quotations describe quite well how I perceived CADEP myself and how I experienced its work when accompanying them for some months and also from listening to people talking about the organisation. CADEP’s activities are divided into four main institutional, strategic objectives (CADEP, 2012: 32ff):

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<sup>145</sup> For further information on *Practical Action ITDG Peru*, see [www.solucionespracticas.org.pe](http://www.solucionespracticas.org.pe) [accessed May 26, 2015] and in regard to the topic climate change adaptation see Orlove (2009b: 152ff).

<sup>146</sup> [www.cadep.org.pe/en/home.html](http://www.cadep.org.pe/en/home.html) [accessed January 2, 2016].

<sup>147</sup> [www.cadep.org.pe/en/about-us.html](http://www.cadep.org.pe/en/about-us.html) [accessed January 2, 2016].

1. Affirmation of democracy, citizenship and the culture of peace
2. Promotion of intercultural education
3. Alternative community development
4. Institutional management

The topic of climate change enters into their work through objective 3. This objective, Alternative community development, entails using, “Measures to adapt to and mitigate effects of climate change” with the aim to train local players in order to:

- Face adverse climatic incidences;
- Make sustainable use of their resources;
- Generate mechanisms and tools to manage their wells and for efficient planning of territory.<sup>148</sup>

It is conspicuous that here mitigation is not used in the sense of the definition used by the UNFCCC/IPCC and the international community, which is that it means reducing emissions (see Chapter II, 2.3.1), but instead it targets the local mitigation of the negative impacts of climate change. Over the period of my stay, and with an increasing number of conversations and interviews, I gradually realised that the term mitigation – if used at all<sup>149</sup> – was commonly used in a different way than the scientific definition and how it is used at Peru’s national level as well. Thus, mitigation in this context more closely adheres to the concept of adaptation and, therefore, becomes more tangible. In this context, for example, in one interview with a local official it was said that, “To mitigate all of this that is climate change, what we are doing is protecting water sources, reforestation, and afforestation”<sup>149</sup> (Interview, AMC1, July 15, 2013; own translation). What this person wants to say is, that the desire to reduce the negative impacts (=to mitigate) of climate change on water resources leads to efforts protecting such things as water resources.<sup>150</sup> In the group interview with the university students, mitigation was defined as follows: “Mitigating, that is, you fight against all these climate changes”<sup>149</sup> (Group interview, October 13, 2013; own translation). Beyond that, the “official” concept of mitigation for CADEP is also known. The organisation carried out a project called “climatic houses,” that used solar energy instead of wood burning for heating water. This project was declared to be a mitigation project, “Since it would not generate any pollution. Because within the issue of adaptation we also do everything possible to not pollute [...]. But in the topic of the houses, it was the use of solar energy and reducing

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<sup>148</sup> [www.cadep.org.pe/en/strategic-objectives/alternative-community-development.html](http://www.cadep.org.pe/en/strategic-objectives/alternative-community-development.html) [accessed January 2, 2016].

<sup>149</sup> During interviews with the local population, the term “mitigation” was not mentioned at all by the 31 local people interviewed (adaptation was mentioned by five persons). Here I am not counting the two interviews with the local authorities and the three returned and studied “urban migrants.”

<sup>150</sup> Whether the use of mitigate in Objective 6 of the CAM (see sub-chapter 2.2.1.2) is used in the sense of this local or of the scientific definition cannot be clarified here as it is not further defined.

disease levels caused by these sudden temperature changes [that was important]”<sup>lxxi</sup> (Interview, EI3, August 21, 2013; own translation).

CADEP stepped into the topic of climate change in 2008/2009 with the project “Local Capacity Building for the Implementation of Climate Change Adaptation Measures.”<sup>lxxii</sup> The project, implemented in the Chumbivilcan districts of Llusco, Quiñota, and Santo Tomás (see Map 3) was financed by the *Welthungerhilfe* and the European Union and included a cooperation with the NGO *Asociación Arariwa* (responsible for a second province of Cusco: Paucartambo). It closed in December 2013. According to the project proposal, its main objective was, “to contribute to the reduction of poverty (MDG 1) of the rural population in the Andean areas of the region of Cusco, Peru, and to promote environmental sustainability (MDG 7)” (Welthungerhilfe, 2009: 1; own translation). Thus, the actions integrated the overall (inter)national goals of the MDGs, to contribute to poverty reduction. Further, its specific objective was to, “Promote the implementation of policies and measures to adapt to climate change in the most vulnerable areas of the Cusco Region by strengthening local capacity” (Welthungerhilfe, 2009: 5; own translation). The next section on the objectives clearly outlines the source for these objectives:

Addressing environmental and climate change problems is part of the international agreements to which Peru adheres. With this international regulatory and guiding framework, Peru is committed to develop appropriate national policies for the achievement of each of the agreements [...] (Welthungerhilfe, 2009: 5; own translation).

Referring to Figure 15, “Actors and connections of climate change information in Chumbivilcas,” this section illustrates the source and the first step of the pathway of the project: The international agreement of the UNFCCC. It further shows Peru’s consequential actions at the national level as a second step. The next section displays a further step, the national intention to reflect these actions at the regional level:

From this norm [the National Climate Change Strategy (ENCC)], it was expected that the different sectors integrated at the national government, as well as the regional governments in their respective areas, would include in their policies, plans and projects the orientations of the ENCC. To date the strategy has hardly been taken into account. (Welthungerhilfe, 2009: 5; own translation)

Thus, the project approach is highly embedded in (inter)national development, which is again a requisite for the funding of the projects. At the local level – a *fourth step* in the connections of Figure 15 – it was stated that, “climate change is not [yet] on the political agenda of local governments and individually they have limitations to manage projects in line with the true dimension of the problems of pollution, climate change and [in line with] the potentials of the area” (Welthungerhilfe, 2009: 7; own translation). This is where the project approach enters the picture. Thus, the project proposal identifies the central

problem as the, “lack of policies and measures to adapt to climate change in the most vulnerable areas of the Cusco Region due to limited local capacities” (Welthungerhilfe, 2009: 8; own translation). In this context, it is stated that its successive problems are, on the one side, “the use and abuse of inadequate natural resource management practices, caused as a consequence of low crop yields and livestock and loss of natural resources,” and, on the other hand, the “sharpening of social conflicts“ (Welthungerhilfe, 2009: 8; own translation).

Overall, for CADEP, the problem of climate change enters into the already on-going local process of a society that historically managed holistically their mountainous ecosystems with control of the ecological floors and their respective ecosystems; the structure of the river basins; and the management of territorial, human, natural, and cultural resources (CADEP, 2012: 10).

However, most of the peasant cultures that are part of the mountain ecosystems, are impoverished, excluded, supporting cultural and natural resource erosion, with the aggravating circumstance that the processes generated by the climate crisis severely affects not only the loss of their productive investments and biodiversity, but also their livelihood opportunities” (CADEP, 2012: 10; own translation).

Thus, it is not surprising that CADEP did not change much of its content or approach when the topic of climate change became a matter of discussion. The NGO had already been working for a long time on aspects such as sustainable resource management, enhancement of harvests, and diminishing social conflicts. Only now, they included the aspect of climate change as a hook when responding to (inter)national (funding) processes. This was stated openly, but not necessary with a negative connotation: “For us the issue is important, the issue is functionality! You know CADEP works with external financing, and if we don’t have an opportunity where we can present [our projects] or how we fund it, it is uncertain (Interview, EI3, August 21, 2013; own translation).”<sup>lxxiii</sup> Thus, with the “new” issue of climate change they re-aligned their work focus and, thus, included new topics and threads:

AW: What exactly right now [...], [compared to] before with the issue of environment, mining, ... and now with the climate change project: What exactly, what aspects did you include that didn't exist before in [the topic of] environment?

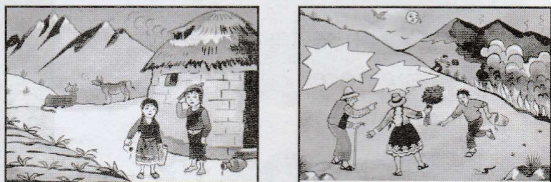
EI3: I think that it is the issue of water because there is evidence that water resources are declining and if not at least some projects are done and all that... And at least in the area of Santo Tomás, we don't even have any for consumption. If we did not have the water tank, we would not have any water [...] And they cut [it] and all that. And so is water.<sup>lxxiv</sup> (Interview, EI3, August 21, 2013; own translation)

Within their local climate change knowledge communications and their reasoning for acting locally on climate change impacts, CADEP specifically points out the international

historical aspects of climate change and justifies the need to deal with the topic and respond to climate change with the argument that it would be, “very dangerous to wait for the industrialised countries, who are responsible for the emissions of greenhouse gases, to stop polluting the atmosphere” (Benini, 2010: 11; own translation). Therefore, in CADEP’s first published booklet on climate change, “A Historical Look on Climate Change,” it says, “you have to reduce vulnerability to climate change by promoting sustainable development” (Benini, 2010: 12; own translation). Thus, according to the booklet, it is very important to learn to live with these changes. This should be both, supported by new technologies and the use of proven traditional knowledge, and it is here that the application of adaptation measures enters the picture:

Adaptation [for CADEP] consists of a series of measures that allow natural systems and human communities to increase their resistance against the adverse effects of climate change. Adaptation to climate change should not only consider how to reduce vulnerability to the negative impacts, but also how to benefit from the positive. So, if the climate changes, let’s also change, to live better!” (Benini, 2010: 12; own translation).

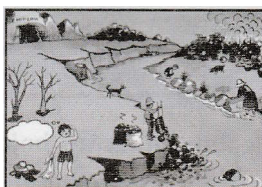
In their project information booklet N°02, “What we Know about Climate Change,” the first part of the twelve pages explains the basic scientific background of the topic. On page 8 (Lozano Pérez, n.d.), the booklet starts to connect directly to the local reality of the Andean communities by listing causes of climate change generated in and by Andean communities (see Figure 16):



Inadequate agricultural practices

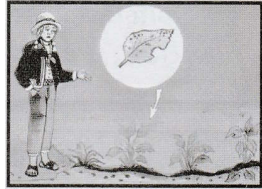


Cutting and burning of pastures and meadows & use of pesticides against crop plagues



Use of fertilizers & misuse of energy





Overgrazing & inadequate cleaning habits



Misuse of water & inadequate waste management



Fragmentation of vegetable coverage

**Figure 16: Causes of climate change generated in and by Andean communities**

Source: CADEP project information booklet N°02, "What we Know about Climate Change" (Lozano Pérez, n.d.: 9ff)

Not all of the listed topics are causes closely connected to climate change, but most of the current existing environmental problems are reflected in this enumeration. Then, the booklet goes on to provide twelve examples of adaptation (Lozano Pérez, n.d.: 9ff), which will be further outlined in sub-chapter 3.2, and then closes with further points or suggestions for how everybody can act locally to face or minimise climate change, in regards to: 1) Water, e.g. water extraction and saving; 2) work, e.g. recycling and avoiding waste of resources; 3) energy, e.g. sustainable energy and eliminating unnecessary waste of energy; and 4) transport, e.g. avoiding individual car traffic and pollution during trips (Lozano Pérez, n.d.: 12).

To summarise, CADEP focuses its work on local problems and related aspects, which one might not always directly associate with climate change. Initially, some responses of the population on adaptation, therefore, led to my astonishment (see sub-chapter 3.2), especially since the explanation chain for why the adaptation measures protect or help was rarely communicated during our interviews and conversations. How people consider adaptation measures will be a topic of sub-chapter 3.2.

CADEP's project activities are intended to support the achievement of three outcomes that focus on: 1) The regional level, 2) local governments, and 3) the local population and civil society (Welthungerhilfe, 2009: 9ff). In particular, the main targeted results of 1)

and 2) show a high degree of synergy with the *Programa Conjunto*. Additionally, the two entities also had common, shared, or complementary implementation areas and activities. The following activities were mentioned in my research conversations and interviews:<sup>151</sup>

1.) Regional level (Cusco):

- Participation in meetings with, i.a. the regional government, the project PACC, and the PC to develop the topic of climate change for the region of Cusco (e.g. part of the technical table accompanying the process to elaborate the Regional Climate Change Strategy; contribution to the formation of the Regional Council of Climate Change, led by one of the divisions of the regional government of Cusco)
- Support and participation in the regional InterClima of Cusco

2.) Local Governments (Chumbivilcas):

- Participation in meetings with local government(s) (e.g. the CAM, monthly community meetings), including those initiated by the *Regional Government* and the PC
- Support and assistance of the local government(s) with the development and implementation of climate change related policies and activities (incorporation of a focus on climate change and risk management, implementation of climate change adaptation measures like water harvesting, afforestation, modern irrigation, renewable energy, improvement of houses; activities responding to the *Regional Climate Change Strategy*)
- Distribution and visibility campaigns (e.g. information booklets on climate change: 1) “A historical look on climate change” and 2) “What we should know of climate change,” a weekly radio programme on environment and climate change)

3.) Local population and civil society (Santo Tomás, Llusco, and Quiñota):

- Distribution and visibility campaigns (altogether three inter-family and inter-communal climate change adaptation contests: “Adapting to climate change for a better living”)
- Capacity building and workshops on climate change and environmental topics in communities with the aim to promote and stimulate the incorporation of climate change adaptation measures in the community management instruments (e.g. avoid burning grasslands, improvement and construction of sprinkler irrigation systems, protection of wetlands, water harvest in reservoirs, water spring conservation, production of (fruit) tree species in community nurseries, reforestation, agroforestry, and soil conservation practices like infiltration trenches)

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<sup>151</sup> See also the project flyer: Unión Europea-Delegación Perú, Welthungerhilfe, CADEP-José María Arguedas, & Asociación Arariwa, n.d. and the project proposal: Welthungerhilfe, 2009.

and slow formation terraces (Unión Europea-Delegación Perú, Welthungerhilfe, CADEP-José María Arguedas, & Asociación Arariwa, n.d.: 6) and as family practices (e.g. sprinkler irrigation, intercropping, conservation of agricultural biodiversity, water harvest reservoirs, protection of water springs, agroforestry, minimum tillage, and slow formation terraces)

- Enhancement of knowledge and experience exchange, such as, in this context, visiting and cooperation with schools, exchange trips to other provinces, and capacity building for the formation of local “climate experts”

In its work, CADEP enters with best practice examples and new and locally applicable technologies, and promotes the use and recovery of ancestral knowledge, at the same time; the latter has not always been well received by the communities, as will be shown in section 4.2. Even though there have been, and are still, many problems and challenges, two of the CADEP-employees working in Chumbivilcas were quite confident in the future work on climate change issues in Cusco and Chumbivilcas. Within their project implementation they experienced two main challenges mostly right in the beginning: First, they had problems finding good personnel who were willing to work in and with rural communities (see 4.2 of this chapter) and, second, in some communities they had problems because of the presence of mining companies and the pressure emanating from them (see Box 2). They had to withdraw from some places and seek new communities to cooperate with, but they have achieved a lot by having created “spaces for dialogue and consensus” (Interview, EI3, August 21, 2013; own translation), according to one of the staff-members. Considering local authorities, both of those interviewed stated that even though the progress has been small, at least progress could be sensed. Although the local governments still pay too little attention to the topic, a rising interest in the topic can be affirmed. Especially in respect to the water-shortage problem, local governments and some local leaders have started to invest and provide funding for initiatives to protect water sources, on reforestation, and on measures against erosion (Interview, EI3, August 21, 2013).

AW: Would you say that there is a political will to work on these issues [of climate change]?

EI4: Yes, but you need to run after them. Then sometimes communities, when they get engaged with the budget issues, they focus more on the physical aspect, but they don't see the issue of capacity building, the human aspect. So the mayors say, "what do I earn by strengthening capacities? If that will be in the long term, I prefer to construct a paved road that is more efficient and visible." How it works at the political level is changing slowly.<sup>lxxv</sup> (Interview, EI4, August 11, 2013; own translation)

For a constructive future, it is important to continue consolidating and further institutionalising the subject of climate change, which needs to be accompanied for some years more by CADEP's work, according to the CADEP-interviewee, and to further connect it with locally important problems like food safety (Interview, EI3, August 21, 2013). Thus, the main goal for the future is to consolidate the topic by institutionalising it, which is a prerequisite for the success of a discourse: "You have to institutionalise it, you have to do it, to recognise it in such a way that any authority that enters... because next year there are already other elections and they can take on these tasks. That is to say, there are several things that can ensure the continuity [of a topic]. [...] [And] once they release these environmental management tools, they will be mandatory<sup>lxxvi</sup> (Interview, EI3, August 21, 2013; own translation).

In general, and as will be profoundly revealed in the next sub-chapter, CADEP is one of the main distributors of climate change information and knowledge when it comes to the local population of Chumbivilcas.<sup>152</sup> After just having had a closer look at the three main actors of local climate change communication in Chumbivilcas, additional actors distributing climate change information will be mentioned in the interview results below, especially the role of the education sector and the media. The question of which of these processes are understood by the local population and in which way will be analysed in section 2.2.2 below. After which, how the outlined framework of institutional climate change related processes in Chumbivilcas has led to the perception, understanding and inclusion of climate change knowledge of the population is discussed in the following sub-chapter 3.

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<sup>152</sup> During my fieldwork, I found that most people knew CADEP; 22 interview-partners mentioned CADEP at least once, and of those that did not, I know that eight know CADEP as they built their new "climatic houses" with CADEP or had just attended a workshop with them. About the other six people, I do not have any information, but it could be that some of them also know CADEP. Additionally, during conversations in Lima and Cusco, CADEP was regularly mentioned and known.

### 2.2.2 Information pathways

During the interviews, I regularly asked, if not mentioned already by the interview partners themselves, if the individual had already heard about climate change and if yes, from where. As a result, and as can be seen in Figure 17, 18 interview partners out of 36 local interviewees mentioned that they had heard about climate change on the radio. Seven specified the radio programme: Four mentioned *Radio Chumbivilcas*, three mentioned a combination of *Radio Chumbivilcas* and *Radio Santo Tomás*, and one more added *Radio Qorilazo*. In contrast, just five people mentioned television and one person mentioned the newspaper as a medium of climate change information attainment. During my visits in the villages, one could often hear the radio accompanying the work or daily routines of the people (see Picture 9). Radios are still more frequently found in rural areas than televisions, though an increase in televisions has occurred compared to about ten years ago (conversations in Chumbivilcas and own observations). Although internet access is available in some places, such as the town of Santo Tomás, nobody mentioned it as a source of climate change information.

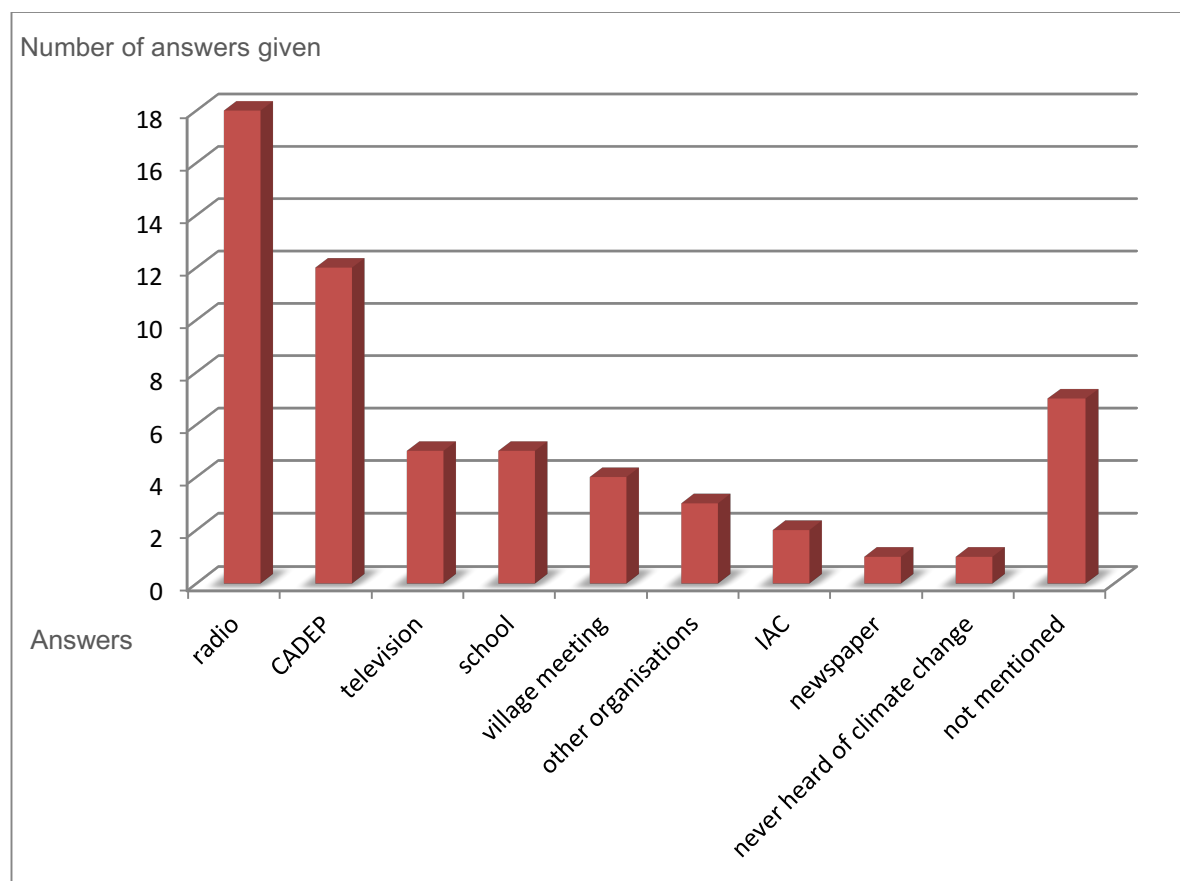


**Picture 9: Radio hanging outside of a house (left of the door) in Llusco, July 2013**

Source: Anja Weber-Alvarez (2013)

The *Programa Conjunto*'s communication strategy operated through the medium of radio. The radio broadcast, called in Quechua "Pachamamanchista Munakusun" (Protect our Mother Earth), aimed to inform the public in Chumbivilcas about climate change related issues. On the website archive of the UNEP, 15 radio programmes in Quechua are listed and available to download for the district of Santo Tomás, each of them lasting 50 minutes (see [www.pnuma.org/peru/Materiales\\_Publicaciones.php](http://www.pnuma.org/peru/Materiales_Publicaciones.php);

accessed June 1, 2015). During the time the *Programa Conjunto* was running, in 2012, one of their activities was a radio audience contest for all education institutions at the primary level that ran in five districts on the topic of "Climate Change: How we prepare for and adapt to climate change and what is our commitment with the *Pachamama*" (Almanza Zúñiga, 2012: 20). The contest aimed to creatively collect the experiences of children with the effects of climate change and to propose measures to adapt to climate change, thereby, contributing to raising the awareness of the population and authorities of the area about protecting the environment and taking measures to adapt to climate change. Thus, in their lessons learned PC noted that, "The radio is the best medium to reach rural populations where there is very limited access to information."<sup>153</sup>



**Figure 17: Climate change information pathways mentioned by interviewees**

Source: Own elaboration

<sup>153</sup> [http://wiki.mdgfund.net/Radio\\_and\\_climate\\_change\\_meet\\_in\\_the\\_Andes\\_in\\_Peru](http://wiki.mdgfund.net/Radio_and_climate_change_meet_in_the_Andes_in_Peru) [accessed June 2, 2015].

Further lessons learned about working with the medium of radio included:

- People have great expectations for climate change information and they need to know what to do to adapt to climate change
- Radio programmes need to be managed by local municipalities to ensure sustainability
- It is necessary to train rural radio broadcasters who know the reality of the area before launching the radio programmes. This gives more credibility and captures audiences

CADEP also made use of the radio as a medium of communication. In *Radio Chumbivilcas* they broadcast a one-hour programme on environmental and climate change related topics once a week. Further, in August 2013, I attended a radio programme at *Radio Chaski* called “Voz de los jóvenes” (Voice of the youth) run by a high school teacher who is also organises a *Science and Environmentalists Club* at their school. The programme was also financed by CADEP and meetings took place every Sunday. On August 18, they invited CADEP to answer some interview questions on the topic of climate change (see Picture 10 and 11).



**Picture 10 & 11: Group of high school students at Radio Chaski in Santo Tomás, August 18, 2013**

Source: Anja Weber-Alvarez (2013)

The *Science and Environmentalists Club* was founded in 2008 at the *Daniel Estrada Pérez High School*. It started with five students, and was actively involved in the activities of the *Programa Conjunto*. In 2013, the club had almost eighty volunteer pupils, though the activity level was decreasing because the two teachers who voluntarily manage the club had commenced additional studies in Cusco and Arequipa, making it difficult for them to find sufficient time for the club anymore. The club usually conducts thematic workshops and activities, leaving a part of the content to be researched by the students, and holds interactive discussions. The research is done with the help of books, information brochures, and the internet: “You can now get the scientific information a lot faster through the internet and there are also books that talk about this in detail”<sup>lxxxvii</sup> (Interview, E18, September 24, 2013; own translation), as was related to me by the teacher during an interview. Topics that have been discussed are, i.a. ecology, protection of animals in danger of extinction, soil conservation, afforestation and reforestation, burning of grasslands, environmental pollution by vehicles and

industries, adaptation to climate change, and sustainable development in the sense of, “how can we adapt and improve our system of coexistence with the nature”<sup>lxxviii</sup> (Interview, E18, September 24, 2013; own translation). These, and specific, visible problems such as water shortages and environmental pollution from discarded waste are commonly discussed by the students, and alternative solutions are developed and proposed, and communicated to the local authorities. With these activities, consciousness is rising but, “I don’t know what is happening,” said the teacher:

It [the information], let’s say doesn’t have any impact or change. So, that’s the big problem, they [the students] know it for that little moment but not more, and afterwards they just continue in the same way. Thus, they haven’t developed any environmental awareness. The detail that the society as a whole goes in one direction and education in the other, and the society is the one that absorbs these students. Albeit they don’t know why they don’t do it. One, because they don’t recycle their garbage at home, they put everything into one bag and that’s it. And there, you can see that there is no ecological consciousness. They walk down the street, they buy a cookie and throw the waste away. The information that we give has no impact. Following that, with the *Environmentalist Club* we said, for example, that we had to go out and sweep the River Conte. But for what if nobody changes. I rather think that it’s a psychological problem, it seems that we go out and in three years or four years... but now people don’t change at all. Then, this doesn’t have much impact or suddenly a few of our students do change.<sup>lxxix</sup> (Interview, E18, September 24, 2013; own translation)

Even though not totally convinced about the outcome and implementation of the transferred knowledge, this teacher is, at the same time, aware that raising awareness can take a while, even generations. An interesting aspect is, that he distinguishes between society and the education system and assigns them contrary goals and directions in regards to environmental questions.

In this context, five interview partners noted that the school is a source from which they or one of their family members had heard about climate change. For example, three of the interviewees referred to their kids having told them about climate change after returning from their classes:

T:<sup>154</sup> Teachers in schools should teach this [climate change] to the children?

B16: Yes, they are also [already] learning. [...]

T: So they are already telling being back from school?

B16: Yes.

AW: What are they telling about what they’ve learned in school?

B16: They tell me that they are communicating about climate, climate change, saying, we are told, saying, they know to tell us.

T: Everything they learned about climate change, they come and share with their parents: “We have progressed this,” “we have been told this.”<sup>lxxx</sup> (Interview, B16, August 16, 2013; original in Quechua, own translation from Spanish)

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<sup>154</sup> T=Translator (as the interview was conducted in Quechua).



In educational centres, on climate change, they are likely or sometimes are currently teaching courses on climate. I have my son in Santo Tomás, he tells us that these things, like increasing heat, will always happen. And why is there a heat increase? Because he says that the ozone layer is already being wasted slowly and this will increase and result in more heat. He always tells us about the climate or the climatic.<sup>lxxxii</sup> (Interview, B20, August 12, 2013; own translation)

During the *Programa Conjunto*, information and awareness campaigns on forest fire management, overgrazing, and proper use of water were carried out in 2011-2012, all coupled with the aim to promote adaptation and mitigation measures to climate change, especially with children and youths<sup>155</sup> (Castro, 2012). The evaluation of these activities concludes:

The theatre hand-in-hand with recreational activities for the population raises expectations that in a simple and fun way makes people interact with the effects of climate change and adaptation measures; this would not have been possible without the support of the directors of the educational institutions in the intervention areas [...]. The teenagers of these pilot theatre groups showed enthusiasm, responsibility, and commitment to the task of sensitisation. The continuity of these propulsive theatre groups will allow for a consolidating of their training in the task of awareness raising through the theatre. (Castro, 2012: 11; own translation)

The *Programa Conjunto* points out that the, “involvement of educational institutions is key to ensure people participation in awareness campaigns”<sup>156</sup> in their lessons learned about raising awareness (i.e. the holding of workshops with school teachers on potential climate change impacts) and the integration of the issue into school curriculums. Further, they state that the, “teachers are a very important group to work with. They are the ones who enhance student’s values. They can teach children about the importance of protecting the environment.”<sup>157</sup> Additionally, they connect their activity on environmental education with the success of sustainable development: “The sustainable use of natural resources and environmental education is important for development.”<sup>158</sup>

Aside from the *Programa Conjunto*, CADEP seems to be one of the major communicators on the topic of climate change. They were also highly involved in, and worked on, the topic of raising awareness in schools, even taking over some of the tasks of the awareness rising campaign of the *Programa Conjunto* (Castro 2012: 7). In this context, twelve people interviewed said that they had heard about climate change from CADEP, three from other organisations, and two specified the IAC (*Instituto de Animación Campesina Luis Vallejos Santoni*), an organisation that co-conducted the

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<sup>155</sup> This part of the programme was carried out with the help of a self-developed theatre play, “La Gotita de Agua” (=The Raindrop), the distribution of communication materials and printed educational materials, workshops in educative institutions on “Climate change and water,” radio contests, fairs, and postings in the villages.

<sup>156</sup> [http://wiki.mdgfund.net/Radio\\_and\\_climate\\_change\\_meet\\_in\\_the\\_Andes\\_in\\_Peru](http://wiki.mdgfund.net/Radio_and_climate_change_meet_in_the_Andes_in_Peru) [accessed June 2, 2015].

<sup>157</sup> [http://wiki.mdgfund.net/Radio\\_and\\_climate\\_change\\_meet\\_in\\_the\\_Andes\\_in\\_Peru](http://wiki.mdgfund.net/Radio_and_climate_change_meet_in_the_Andes_in_Peru) [accessed June 2, 2015].

<sup>158</sup> [http://wiki.mdgfund.net/Radio\\_and\\_climate\\_change\\_meet\\_in\\_the\\_Andes\\_in\\_Peru](http://wiki.mdgfund.net/Radio_and_climate_change_meet_in_the_Andes_in_Peru) [accessed June 2, 2015].

monthly village workshops with CADEP during my stay and work mainly on agricultural matters.

Last year I was in fourth [grade] and there they [CADEP] came. But on the other hand I always attend when they do these meetings, lectures, thus educational report, don't know. Also to Llusco, those from CADEP come here and I always go and listen when there is time to listen. Further, what I would like to be more interested in is about this issue. I thought to study environmental engineering.<sup>lxxxii</sup> (Interview, B7, September 21, 2013; own translation)

And further she says:

In the news I think I was listening, but I don't know if it was about pollution. There was a speech that I think lasted 124 hours or something, but I don't know if it was about environmental pollution, but I just know that CADEP more or less is working on that.<sup>lxxxiii</sup> (Interview, B7, September 21, 2013; own translation)

Another interviewee said:

Yes, somehow they are touching [the issue of climate change in schools] because also the institution [CADEP] has trained educative centres and some teachers. They are also somehow educating the children about this reality.<sup>lxxxiv</sup> (Interview, B10, July 18, 2013; own translation)

The high school teacher leading the *Science and Environmentalist Club* in Santo Tomás answered the question of whether he knows about the regional or provincial agreements and strategies on climate change adaptation, as follows:

That is what we know most, for already three years they are coming to work. I think what is most known is CADEP. They are also working on that, what we know is this. Well, we don't have much at the provincial level, but it should be in their working plan, we don't have much information on this.<sup>lxxxv</sup> (Interview, E18, September 24, 2013; own translation)

The monthly official village meetings were mentioned four times as a source of information about climate change. Though it is probable that even in those meetings, CADEP brought up the topic as they attended those meetings to inform people about upcoming events such as the workshops or environmental competitions when possible. According to some people, the local governments are not really interested in the topic, which is demonstrated in the following three examples:

T: Who comment to you about these [climatic] changes? Institutions, organisations?

SB13: CADEP [tells] us more.

AW: Someone else than CADEP?

SB13: Only they are normally coming over here.

T: Occasionally mayors, governments?

B13: No.

SB13: Not them.

AW: No?

B13: They are not interested [in the topic].<sup>lxxxvi</sup> (Interview, B13/SB13, July 20, 2013; own translation)

AW: We've said that CADEP did workshops on climate change, but did you also hear something from other people, the radio, I don't know, from the media or the government? Do they also speak of this, of climate change?

B14: No, I've only heard from CADEP, nothing more.

AW: In the assembly [village meetings] here they do not talk about that either?

B14: No, why? They are not interested, these people. At the meeting, what they talk about is the *chakra* [field], about the damage, about this, nothing more.<sup>lxxxvii</sup> (Interview, B14, October 16, 2013; own translation)

For example, to our authorities the information on environment, about climate change, little or none of it matters to them. More, to the contrary, the authorities are increasing the pollution.<sup>lxxxviii</sup> (Interview, BH2, October 23, 2013; own translation)

In one interview, the interviewee explicitly explained that she (B30) had never heard about climate change and in seven other interviews nothing was mentioned about climate change pathways, four were local municipality officers or local graduates/urban migrants and three were local interviewees.

To summarise, the interviews highlighted that most of the information on climate change noticed by the population was transferred via the radio and through organisational work, such as that of the NGO CADEP. The NGOs are the ones going to the village meetings and are thus present at the grassroots level, and as was said by one villager, "only they are normally coming over here" (Interview, B13/SB13, July 20, 2013; own translation).

Even though "school" was mentioned very often, I would supplementarily consider the educational institutions, including universities, as very important information pathways and transmitters of information. Though I did not specifically focus on interviews with students, I did carry out an interview with one student in her last year of high school, one group discussion with university students from Santo Tomás, and attended the radio broadcast of the high school group in Santo Tomás. Without the teacher addressing the topic of climate change, which was (still) not firmly integrated into the official curricula, the topic would have probably not have been touched. It is interesting to note that no one interviewed from the local population (Interview group B) mentioned the *Programa Conjunto* or any of the political actors as a source of knowledge. After having outlined the pathways of climate change information and introducing the main actors, the next sub-chapter will turn to climate change knowledge itself.

### 3. Knowledge on climate change

After an introduction to the main institutional actors in the field of climate change projects and communication in Chumbivilcas and, in this context, the analysis of the climate change information pathways, this sub-chapter is the core section of the

research analysis. It combines the statements of the interviewees and connects them with other important aspects such as socio-cultural processes and local realities. The goal is to identify the interpretations of the population in regards to climate change, its causes and impacts, and how they confront climatic problems. In addition, how the processes and activities in the context of climate change are observed and experienced by the local population is explored. This leads to the final question of whether, how, and by whom the issue of climate change is being adopted, appropriated, and/or integrated (or not), and why this is the case.

### **3.1 Remembering what was heard**

If someone who has never heard of the on-going international processes of a human-induced global climate change was asked what “climate change” means, they would probably simply answer that “climate change is a changing climate,” assuming that the words exist and are understood in their language and culture. At a first glance, this response would possibly have a small meaning, especially if not put in a specific context and/or rational. Thus, what the following analysis aims to do is to show how the population in Chumbivilcas, specifically my interview partners, define or associate with the term climate change and in which way they imbue it with meaning, that is to say, what do they fill this still empty term with? In a second step, the reason(s) behind their definition will be examined. This part will be interlinked with information communicated about global climate change and the international processes concerning global climate change.

#### **3.1.1 Climate change is...**

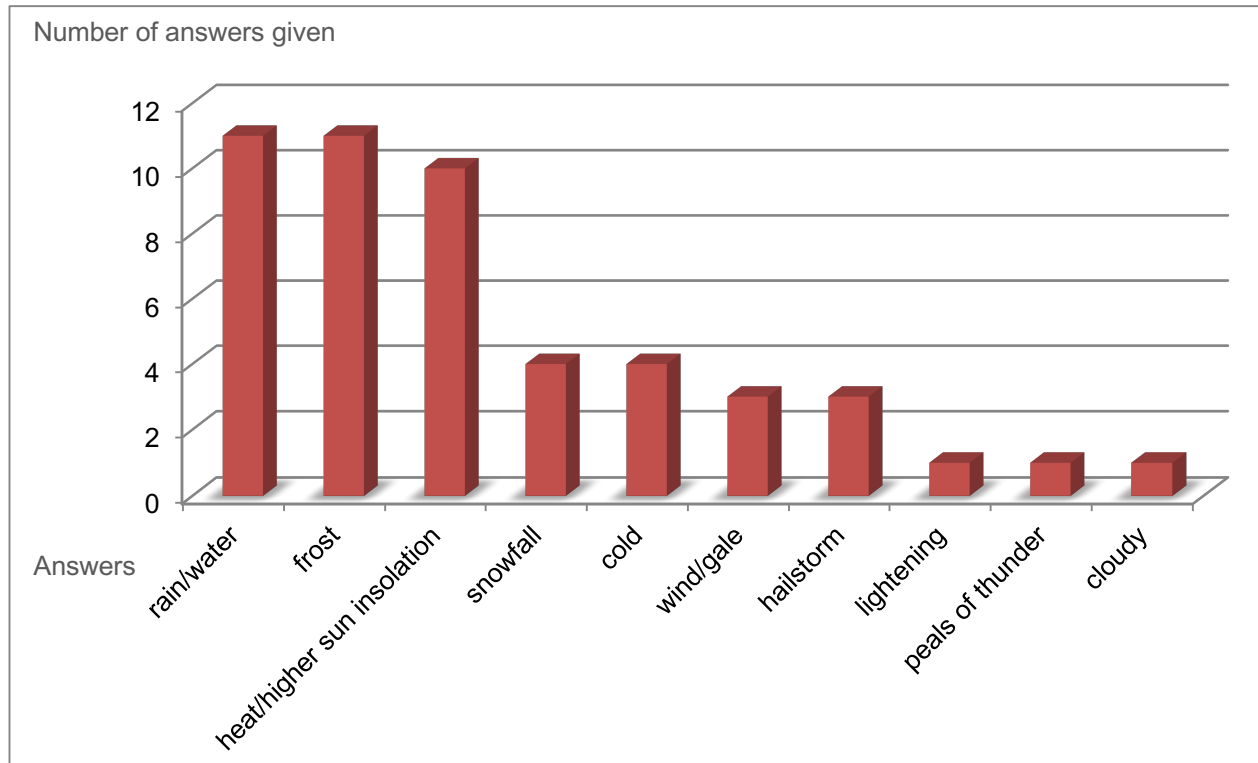
Climate change, for example for me, is when our climate is no longer in its due time, [...] such as rain, frost, for example, the snow, the hail is not in its due time like it was before. For example, there are now years where no snow falls and there are years where it strongly rains, there are years with no rain as well and now, like this year, when there is no frost.<sup>lxxxix</sup> (Interview, B10, July 18, 2013; own translation)

During the interviews, one of the initial questions I started with was the topic of climate change asking, “what is climate change?” People in Chumbivilcas linked climate change mainly with some kind of climatic change or (weather) variations, meaning – as could be seen in the initial interview sequence – that climatic incidences and conditions do not come in their regular times or are felt differently than before. Twenty-five of the 36 interviewees provided some version of this answer.<sup>159</sup> Despite this, at first glance, good

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<sup>159</sup> Seven people (out of which five were women: B16, B23, B25, B28, B31) did not give a specific answer on this question but focused on the “why,” that is, the reason for the climate change, which will be discussed later.

coherence, the changes identified were very different. Terms mentioned in this context can be seen in Figure 18 (multiple answers were possible).



**Figure 18: Specific aspects of climate change mentioned by interviewees**

Source: Own elaboration

Frost was mentioned by almost half (11) of the people interviewed, as was rain/water, followed by heat and/or higher sun insolation, meaning that the sun affects stronger (10). For the latter, three interview partners (BH1, B1, and B18) connected the heat directly with the cold and specified this aspect with extremes, saying that the nights are now colder than usual and the days are becoming hotter, which also aligns with the scientific climatic observations mentioned above. One person talked about there being a disorder (AMC2), another one said that these climatic changes would result in unpredictable, abrupt weather changes (B21):

This season has almost never seen rain, has always seen bright sunshine. I tell you, the frost this year has been somewhat unusual. All this supposedly winter has been like this. [Just] three or four nights [ago] there has been intense frost. However, it changes abruptly: Rain, snow, stronger wind in the afternoons. Then it is a disorder and it is noticeable that it is a disorder because before there was a time sequence, a sequence of stations; not anymore, because now everything is unpredictable.<sup>xc</sup> (Interview, AMC2, July 15, 2013; own translation)

AW: Then, what is climate change for you here?

B21: It's what happens in the nature, abrupt changes that are already easily noticed, anytime anything happens, whenever, a gust of wind, a frost, rain. Two nights it is raining and the next

day there is already frost, this was not like before.<sup>xci</sup> (Interview, B21, August 12, 2013; own translation)

Very hot days were very often mentioned together with the sun burning the skin, meaning that the sun insolation is felt more strongly:

Right now there is a considerable concern, everybody is worrying about climate change. For us it is already much, much sunnier, very hot. And the heat now is not as before, but directly to the skin, it can burn you, it can burn your face, thus [it is] much stronger then.<sup>xcii</sup> (Interview, B2, October 20, 2013; own translation)

Considering the changes in rain patterns, it was mainly mentioned that the rain would not come as usual at the beginning of the rainy season and it would rain more frequently during the dry season than it used to. Further, some mentioned a tendency towards stronger and shorter rain showers, with the result that the run-off of the rainwater is higher than the infiltration. One person said that there is no rain and another explained that there is no water and the water sources were drying out.<sup>160</sup>

Especially in conjunction with the first two points, on the cold and frost in Figure 18, it should be considered that all interviews were conducted between mid-July and mid-October. Therefore, the higher occurrence of these answers should be reflected and coupled with some of what was happening during this time. One example, is the set of interviews conducted during the month of July. July is supposed to be the coldest month in the research area, with very low precipitation and bright sunshine. Likewise, this is the time when people are taking their harvested potatoes to produce *chuños*, a frost and sun-dried potato used to make potatoes durable, a tradition that has been practiced since before the Incan Empire (see Picture 12).

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<sup>160</sup> Here, this was still mentioned as a definition of climate change. However, these aspects were mentioned by others, too, but in these cases as a result or as an impact of climate change. I decided to separate the answers according to how people responded to the questions. The latter would be more appropriate within an analysis of climate change impacts, but would not reflect the perception of the discourse and the specific understandings and interpretations of the local population, which is the aim of this analysis. The same also applies for “contamination” (see further below).



Picture 12: *Chuño* production in Chumbivilcas, July 2013

Source: Anja Weber-Alvarez (2013)

For this process, it is very important that there is frost for at least about five nights in a row, with an intense sun during the day. So, in July 2013 people were waiting for those nights (and days) to come. Instead it was cloudy during the day, with snowfall over night. Many people lost their total *chuño* production; others who had waited a little bit longer (than habitual), managed to produce some. In this context, this problem was mentioned several times during the interviews in July, whereas later on, in October, this topic was not mentioned by anymore:

Yeah, exactly, it's that it was not raining, rarely, but now in this season for example in the countryside most of the harvest is done, the crop is done, potatoes, from this, they make the *chuño*. Now, since there is no frost, there is no *chuño*. Sure, no one has done it and the potatoes there are thrown away and the worm is eating them. So the situation is a little different.<sup>xciii</sup> (Interview, AMC2, July 15, 2013; own translation)

Further, a woman from one of the villages answered the question, “Are you worried about this climate change?” as follows:

Yes we are concerned, for example right now I'm doing *chuño*. It's raining, it's cloudy, thus, I'm not doing *chuño*, therefore, I'm suffering there.<sup>xciv</sup> (Interview, B6, July 18, 2013; own translation)

Looking at this major climatic event, especially for the rural population, one can extrapolate that in addition to some of the answers given that mention rain and frost, the answers that mention clouds and snowfall can also be associated with the lack of frost in

July 2013 (see Figure 18). Further associations of climate change were: 1) Diseases/health (BH2, B9, and B24); 2) a change of life (B9 and B27); 3) earthquakes (B5 and B18); 4) a problem (B7 and B26); 5) a contamination (B13); and agriculture (B24) (see Figure 19). These statements can be found in the following quotations from different community members:

Of course this global warming includes a lot of heat, a lot of cold, it also influences diseases.<sup>xcv</sup> (Interview, BH2, October 23, 2013; own translation)

Climate change is also that in the rainy season it starts to rain frost. This then also affects our crops, it is no longer how it should be. It's a concern.<sup>xcvi</sup> (Interview, B24, August 10, 2013; own translation)

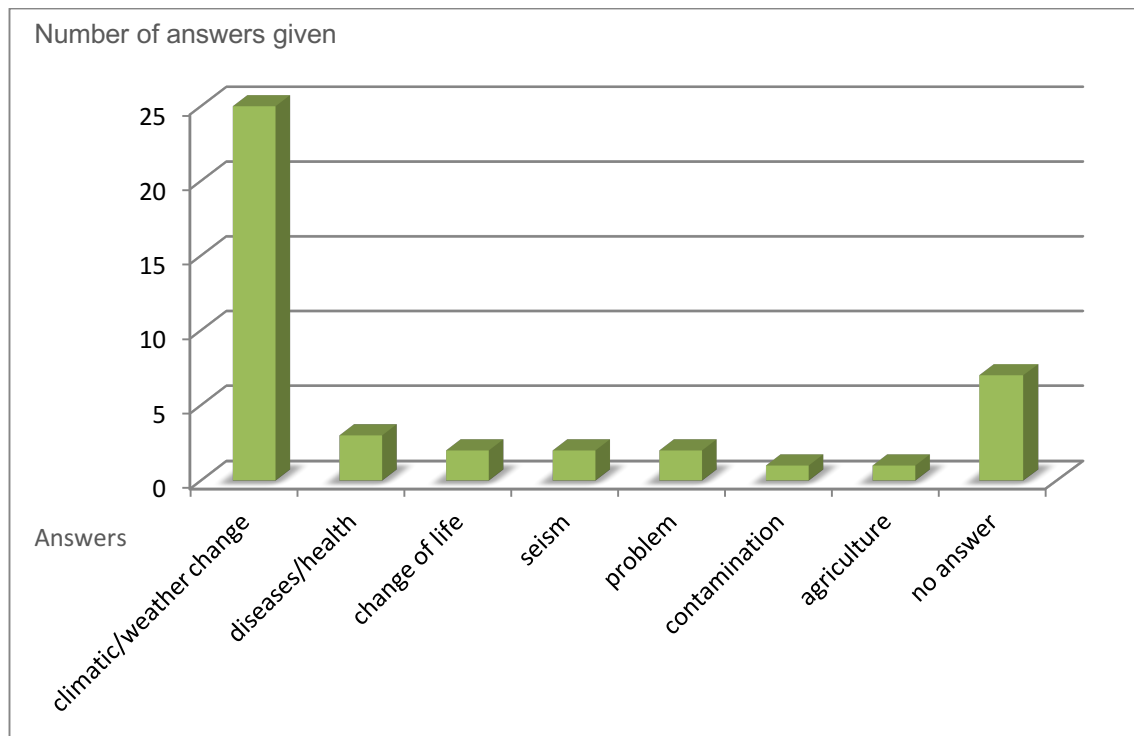
It's practically how life changes, it is practically no longer like before. Then, there we will go down [in the sense of dying or getting sick] and there we will practically get diseases and everything, it will no longer be the same.<sup>xcvii</sup> (Interview, B9, August 13, 2013; own translation)

Before, we always felt these earthquakes here. Just recently we felt [one] here and we think that all this is with climate change. What will be will be; that's what we say.<sup>xcviii</sup> (Interview, B18, July 19, 2013; own translation)

For me, climate change is a problem because we know that rural people are living with the consequences of climate change. For example, the people uphill have dead animals; forest decrease, they said, it does not grow anymore, with the contamination; the rain, too. Here, above all it affects us to make our products, to sow our products; there is no water, the rain affects us because here we continue with this habit that the planting begins in September, October, November, now that there is no water, no rain.<sup>xcix</sup> (Interview, B7, September 21, 2013; own translation)

To summarise the larger picture, 25 (out of 36 interviewees) associate with climate change climatic or weather changes or variations, and almost one third (11) connect climate change with other aspects.





**Figure 19: Associations of climate change mentioned by interviewees**

Source: Own elaboration

Even though 25 interview partners mentioned changes in climatic or weather patterns, the connection to global warming was rarely made, with the exceptions being interviews BH1, BH2, B7; the group interview; and participants in Workshop 2. What can be observed is that the interviewees answered the question of what climate change is, looking at different levels of the impact chain, that is, some clearly provided a primary reason, for example, climate change is global warming; others started at a different level, focusing on the climate change impacts they had felt or that they believed belonged to climate change impacts. One example of the whole impact chain was stated by a workshop-participant who had attended various CADEP workshops before:

I understand what climate change is [about]: What is change? How is this change? First, we would distinguish companions, is the father sun that is warming up too much, and when it is warming up we are saying that our mountains, our snow-capped mountains are melting, and when they are melting our waters are being emptied, our rivers [are being] emptied, our lakes are drying up. And about this climate change we say the temperature variability appears, let's say a lot of wind comes, much rain falls, the hail occurs, these [events] [...]. Regarding health, disease for both humans and for animals. Then there is a great and justifiable anxiety that is emerging in this area.<sup>o</sup> (Workshop 2, October 14, 2013; original in Quechua, own translation from Spanish)

Further, looking at this selection of responses, it can be stated that climate change is perceived as a change with only negative impacts, with the focus set on resources, and causes and effects are frequently mixed up or transposed. I only heard one exception

where one impact was perceived positively: That crops can grow up higher, such as the fruit plants. This happened during a conversation at one of the workshop.

Twice I heard people questioning the existence of climate change and/or aspects of climate change and its impacts. The first time was during a workshop, where one of the participants – a young man, 23 years old – who had never attended one of the workshops with CADEP or any other organisation before responded to the question of what climate change is, by asking, “Do we really have a climate change?”

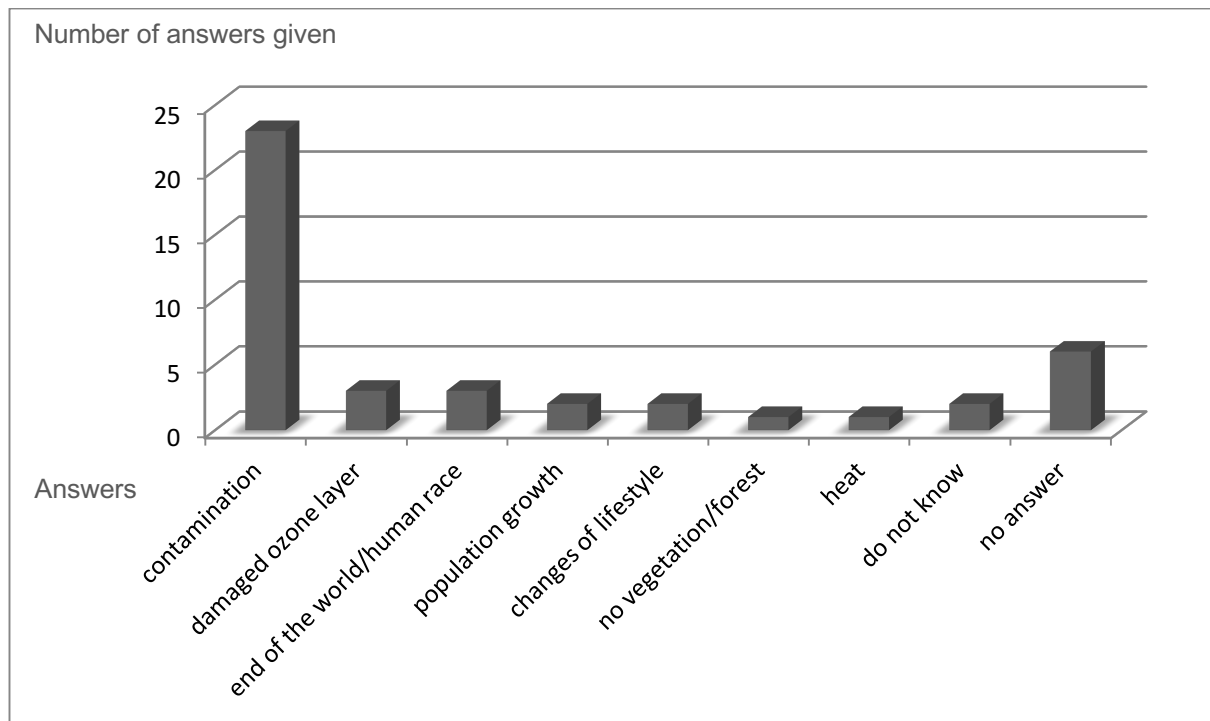
For me no, there is no climate change. Climate, climate does not change, what changes is the weather, is how I understand it.<sup>ci</sup> (Workshop 2, October 14, 2013; own translation)

The second time climate change and/or its impacts were questioned was during the group interview with the students, where one female student questioned the negative impacts people ascribe to climate change: “In my opinion, in fact, I do not see it more as climate change but as overexploitation of the people themselves; the irrational use of, let’s say, the trees, the *chu* for example”<sup>cii</sup> (Group interview, October 13, 2013; own translation). Thus, she explained that not all current problems are caused by climate change, but instead by the misuse and mismanagement of natural resources and the environment. Having summarised the local definition in Chumbivilcas of this basically “vacuous” meaning of the term climate change, the following section will focus on the reasons people have for their given definition for why climate change exists.

### 3.1.2 We have climate change because...

Why is it [the climate] changing? Well, these are the consequences and we are the causes, we have polluted by burning the bushes, by throwing garbage away, by not knowing how to recycle organics and inorganics, and for other reasons, the pollution of the rivers. It is that throughout the world there is always pollution and this is every day. It is agonising here in Peru and the same situation must exist in different countries and also in the industrialised countries, and they are also polluting to a major degree, yes.<sup>ciii</sup> (Interview, B7, September 21, 2013; own translation)

The answers to the question of, “Why do we have this climate change?” are given in Figure 20:



**Figure 20: Reasons for climate change mentioned by interviewees**

Source: Own elaboration

The causes of climate change mentioned are similarly weighted to the associations of climate change: 23 (out of 37 responses)<sup>161</sup> said that climate change exists because of contamination. Eight people connected contamination with the mines, which reflects the conflictive situation between the community members and the mining companies (see Box 2), a topic that would probably not emerge as a climate change factor in an area where extraction and mining were not present at all. Seeing mines as a cause of climate change can be seen in the following quotations from different community members:

AW: And this change, you've already explained a little, like the pollution that comes and everything, is this why we have this climate change now or is there another reason?

B19: That's why. [...] From the mines, too, primarily it can also be that it comes from the mines.

AW: What is happening with the mines here, can you explain this a little more?

B19: Sure, what is here in the community is still almost nothing. But elsewhere yes. But sometimes for example there is a wind from over there and there is the mine. This also brings pollution.

AW: Are there other effects that come from the mines to you?

B19: Yes, for both, for the water there is contamination, for the land as well. Everything that they use, mercury, quicksilver, I don't know, I do not have much knowledge...<sup>civ</sup> (Interview, B19, July 19, 2013; own translation)

<sup>161</sup> Here as well, multiple responses were possible and six interview partners did not specifically answer this question (besides one, BH3 an academic from Santo Tomás).

AW: I have heard that there are many mines, is this area of yours affected?

B6: Yes it is affected, but here not, further above it is affecting more, but here's a lot of mining, here is quite a bit of mines, that's why it comes [the pollution].<sup>cv</sup> (Interview, B6, July 18, 2013; own translation)

B14: Back when I was a child there were no mines [...] but now [they are] everywhere.

AW: And what happens with the mines, how do they change or affect the lives of the people, of you?

B14: Because [...] before it started to rain in November, to begin the sowing. But not anymore.

AW: Now, when does it start raining?

B14: [...] Sometimes it starts to rain just from December onwards. Yes, it always varies. [...] So, how will it give [any harvest]? Suppose we plant seeds in December, January, February, three months is not going to give good products.

AW: So, that came with the mine?

B14: Aha, yes, before there were no mines and it started to rain from September to March.<sup>cvi</sup> (Interview, B14, October 16, 2013; own translation)

## Box 2: Mining in Chumbivilcas

Mining is a very complex topic and is one of the most conflictive topics in Peru. It is the reason for countless clashes that have oftentimes become violent. Here, I will only provide some background on the situation and what I heard in Chumbivilcas, presenting a rather short insight into this broad topic.

According to a report from 2013 that was based on statistics published in November 2012, in the region of Cusco, Chumbivilcas is the province with the highest concessioned area, 409.605 ha (from a total area of 537,100 ha), with about 663 mining concessions awarded (Passuni Pineda & Rojas Vera Pinto, 2013: 9f). Comparing these numbers with those from 2005, this means that the concessioned area has almost doubled in seven years (244,551 ha in 2005). Looking at just the research districts, 51% of Santo Tomás (97,323 ha), 79.6% of Llusco (25,100 ha), and (more than 100%!) 102.7% of Quiñota (23,243 ha) were already concessioned in 2012.

The National State of Peru grants the concessions to the companies. To be able to start with their extraction, however, the mining companies need the permission of the communities. This decision lies with the local communities, and brings with it a high burden for them, implying a negotiation process with the companies for which they are in most cases not sufficiently prepared; a struggle of political and economic power begins, including a wide diversity of interests and expectations between the population and the company but as well within the population itself (see figures in Huamaní Olivo, Macassi Lavander et al., 2011: 22). Further, the new presence of an economically, politically, and technologically powerful company in rural and marginalised areas in the Andes results in a culture clash. These processes have already divided villages and communities. According to people in Chumbivilcas and representatives of some NGOs, the process usually starts *in situ* by the mining companies asking the villages or villagers if they can purchase their community and/or private land. Many villagers sell their land to the companies, in most cases for much too cheap and on favourable terms for the companies. The real loss only becomes obvious when it is already too late. Even though the mining companies need to comply with certain socio-environmental conditions, people made reports of devastated landscapes, and increased traffic that is covering plants and animals with the raised dust, which in turn has led to a lack of harvest or animal sicknesses. Sometimes people only became aware of the negative impacts

when the polluted rivers are filled with dying fish or water sources are suddenly drying-out. These aspects are profoundly affecting the livelihoods and survival of rural community members, of which the majority of people were not aware of in advance. Therefore, in the end, those who are living directly from natural resources, from agriculture or livestock farming, are often the most severely affected by the negative impacts of the mining activities.

The municipalities, which have the task of examining the (environmental) plans of mining companies are very often overstrained because they lack the technical or juridical knowledge, and, therefore, many mining plants are being approved even though they do not show sufficient environmental and health protections. Furthermore, it is common that material goods are promised to the communities or to specific people, such as local authorities, to accelerate the process in a favourable direction for the companies: New cars and buses, a new sports field, or money for other infrastructural needs of the community. Corruption is not uncommon. Once the contracts are signed, there is no turning back and many companies stop their investments. Another impact is that living costs are rising. This is stemming from the presence of the mining companies, mainly because of the miners that are newly residing in the area and the increased income and circulation of money they bring with them. For those who are neither involved nor earn from the presence of the mines, this turns out to be a big problem. In this context, some mining companies such as *Xstrata Tintaya* have created funds to support social development projects to fulfil their duties and/or decrease the accusations they face.<sup>162</sup>

Over the years, NGOs like *CADEP-JMA*, *Oxfam*, and *CooperAcción* have joined the negotiation process. They frequently appear as advisers, accompanying the communities to these negotiation processes with the mining companies. The aim is to reduce the asymmetry of power that usually – as described above – strongly favours the mining companies. In this regard, the NGOs inform the public in advance about what changes the mining extraction companies will bring to the community and how everything will be afterwards. They also help to negotiate better contracts, especially concerning how the area will be left after the departure of the mining companies, an important sustainability aspect that often drops from the agenda during the negotiations. That this can be a dangerous task for the NGO staff is revealed by the repeated threats and attacks against them. One NGO, for example, became aware just on time that their wheels had been loosened after a meeting on capacity building for the local community in the region of Cusco, which amounts to – especially considering the steep and winding roads in this area – an attempted assassination.

Chumbivilcas belongs to a province where a part of the population is against mining activities. I was often told that they do not want the mines to start working there because they felt it would put their socio-cultural and food security in danger, especially in the villages of Llusco. Those who are involved or in favour of the mining activities usually see in this resistance a kind of backwardness of the rural communities, or a disadvantageous refusal of modernisation processes and, thus, the possibility of stepping out of poverty and marginalisation. However, conflicts also arose in areas where most people were in favour of the presence of the mines. An example of this, is the conflict that arose in 2009/2010 in Quiñota against the Peruvian mining company ANABI, who started their activities in the area in 2007.

The analysis of Huamaní Olivo, Macassi Lavander et al. (2011: 30) reveals that the socio-environmental conflicts that derive from the presence of the mining companies are profound, structural national problems. The population feels left alone by the state and rather sees the state as supporting the mines

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<sup>162</sup> See <http://fondominerotintaya.org/es/index.php> [accessed June 13, 2015].

and leaving them alone with the resulting problems. For example, in the region of Cusco there are no facilities for the management of socio-environmental conflicts, especially in the context of mining activities.

Additionally, during the interviews this topic was widely mentioned. The following provides some passages that illuminate and illustrate existing opinions and sentiments towards this topic:

That's where the problem started because they [those from the mines] have been located in the headwaters of the basin, where the largest amount of water reserve is for the province of Chumbivilcas. We are talking about some snowy mountains, we are talking about some lakes, and we are talking about water sources, which are, as I told you, a water reserve for the province. Then, following this, there were several functional conflicts throughout the province because it was understood that all would be affected. People were killed in the conflict. Then the company halted and returned after a year. The company entered. It is the first company that was extracting in the province of Chumbivilcas at the general level. So, that's where you really saw what kind of strategy the mining companies were using to enter the communities and how, let's say, they misled even the community members, how they did make strikes so they can enter, what kind of work they proposed to the community, among other strategies, which were definitely not in line with the environment. So, the discussions with them was that they would be friendly, they were an environmentally friendly business, that they would respect all these things. But in the end, no, you could not see it. And now they are in the closing stage. The population realised very late and then after half of the exploitation was done they wanted to throw them out but they could not, no, they could not, because also in the country there are laws that protect extractive companies. So they have always protected themselves with the laws and at the same time they knew how to negotiate with communities. So it was a big problem.<sup>cvii</sup> (Interview, BH1, October 22, 2013; own translation)

AW: What effect do the mines have at the moment? [...] What impact do you see?

B10: [...] Because now we are seeing, because previously there was no such intervention of mining companies. We lived tranquil in rural communities, no one bothered us, nobody told us anything. Now, in the authority, overall the governments that come in, the national governments have largely decided to privatise, calling big businesses and now has harmed us at the national level, in Chumbivilcas, and also in this community, they have harmed us. There are mining claims that have already achieved their title, there are others who are close to achieving [their claims]. Almost most of the community is claimed and we're seeing it, it is affecting us a lot. For example, in Quiñota, we were seeing [even] more and all the hill which was a beautiful hill with its nice snow top, so beautiful, now they have totally destroyed it. Now I see a desert pampa like this. There is no plant, there is nothing. And it is affecting our River Molino, there are no trout, no more animals that used to live in the water. Then we have determined and, now more than anything, in this community we have organised ourselves. When I entered as communal president we've done a trial with the mining companies, everything. So we do not accept at all these mining companies because we don't live from either the gold or of the silver, we live off of our products. What we want is that there is always good production and that's what we asked for, and the mines give us no profit at all. [...] In addition they pollute everything so that there would be a big problem. [...] There we would enter a great divide: Those who want money would divide us, those who don't want, there would be a divisiveness among us, we would have a conflict. This is what we do not want. We want to live like we are, living in harmony, with tranquillity. Well, that's what we want in our community.<sup>cviii</sup> (Interview, B10, July 18, 2013; own translation)

B4: Currently we don't want them to come [the mine companies], we would not like them to come.

AW: I heard of these problems...

B4: Yes, yes, they are totally in Quiñota, they will receive money, notes, but those who remain, the children with time, it will be a failure. This money in the end will run out, right. So, those who remain, those creatures will be unsuccessful. That's why we would like them not to come.<sup>cxix</sup> (Interview, B4, July 13,

2013; own translation)

B5: Here we don't let them. There are mines but we don't let them work.

AW: Why do you think it is best that the mine doesn't come in?

B5: We don't want the mines to come in because it pollutes.

AW: What kind of pollution would they provoke?

B5: For animals and the air. Thus, pollution they create with the detonations they make in the mines, for the children, for everybody, the agriculture itself.<sup>cx</sup> (Interview, B5, July 18, 2013; own translation)

AW: And here in the area, do you think the mining has impacts [...]?

B9: Here there is not so much mining, there is more next to Apurímac District of Quiñota, there they rather are and further uphill. And this is also contaminating water sources. There is only one river back there and that is contaminating the crops as well.

AW: And if mining were coming, what would happen [...]?

B9: It's that we would be more affected, we cannot do our agriculture anymore, it would spoil us from this side, also the livestock will be spoiled from this side because of the pollution.<sup>cx</sup> (Interview, B9, August 10, 2013; own translation)

AW: And you think that it would be good that the mines stay or should they go?

B14: No, they should withdraw.

AW: And the state supports you with that or the local government, well, does something against the mines or...?

B14: No, the state supports the mines. Yeah, well the mines are paying. [...] Then the state supports the companies, the large companies. But [...] [to] us nothing.<sup>cxii</sup> (Interview, B14, August 10, 2013; own translation)

AW: There is no mining in this area, isn't it?

B24A: Yes, we have, here above the river. And as it is well covered with trees we don't detect it, what we see down here. Then companies come to say we want to cut, explode, take samples. So, we still do not allow it because above all we live with the agriculture.

AW: Have you heard how mining works in other areas?

B24A: Yes, we also hear it on the radio. Sometimes we ourselves also go to the site and see what they are doing, for example in Chilloro which is Velille and Livitaca, we were there. And they entered Velille, they've already made an agreement right now for exploitation. But the problem is that there are no more animals, for example the animals, I don't know, they grab diseases through the air. I don't know, it contaminates them and they are dying, so faltering. There it is, the mining does not suit. Sometimes it worries, here in the part above, also the districts Llusco, Collpacasa, Lambenillo, the river that comes, which we see here in this part of the gorge, influences the part above, then I guess that the mines will always pollute and it will also affect us. This is what we are concerned about, too.<sup>cxiii</sup> (Interview, B24, August 13, 2013; own translation)

And some counter-opinions are explored in the following:

AW: Do you think that they are good [the mines] for the region, or is it bad?

B6: Here the mine doesn't enter, the community [...] doesn't want the mine, they totally don't want to. But on the other hand, to work in the mine there exist money, amount, but food won't be then. For example, I once was a miner, then I worked, I worked, we had money, so we bought land here too, so we bought it. With this we also improve.<sup>cxiv</sup> (Interview, B6, July 18, 2013; own translation)

AW: Here the mines are not so much a topic in this area itself?

B26: Well as we know, mining is a very necessary evil for the, well, that the community has as a field of action, a negotiation, so that they have more money, etc. But there are people who do not want it, but it is impossible that it won't be, because the state itself is looking forward to them giving them income, so

that it can survive and give something to the people.

AW: And at the time when the mines enter, what is considered, what would be important to do to address the effects of mining?

B26: It would be nice, that's why I tell you, that the local government should take things more seriously, but some aspects are not taken seriously. Well, it seems like a fool because it coexists, because the mines give them money for their campaign. Well, it [the mine] helps it [the government] and then, a part in its pocket, and it's already ensuring its future. But it [the mining] is leaving the village, a polluted town.

AW: The connection to the regional government, with the national, is also missing, right?

B26: But it doesn't take things seriously, not yet. Well, sometimes in times of transition, the Peruvian government has more addressed themselves, not the people, so that's why we are behind.<sup>cxv</sup> (Interview, B26, August 12, 2013; own translation)<sup>163</sup>

Further responses about the reason that climate change exists were missing vegetation and trees (B5), heat (B9), population growth (BH1 and B16<sup>164</sup>), and changes in lifestyle (BH1 and B31). Three respondents answered that the reason could be because we are approaching the end of the world or the end of the human race (B9, B15, and B31), the same number said that we have climate change because of a damaged ozone layer (B8, B18, and B20), which was also related to the topic of contamination, which was mentioned by five other people, but rather in connection with climate change impacts (B7, B10, B24, B28, and B29). Two answered that they do not know why climate change occurs (B14 and B25, both women).

AW: Why do we have this climate change?

B31: Because of the changes, those that are called factories emitting smoke, oil, diesel might have affected a little, all this might have affected a little. But always, there had to be changes, every eight thousand years or nine thousand years the changes are going to be produced and we will extinguish our race.

AW: So every eight thousand years, this is natural to happen?

B31: Yes, for example, it is said we before our race perished, that race, came a race – rather difficult to pronounce their name "nemanden" – they could not stand the climate changes and died immediately, we remain instead of them.<sup>cxvi</sup> (Interview, B31, September 27, 2013; own translation)

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<sup>163</sup> For further information on and examples from the region of Cusco, including the ANABI case in Quiñota, Chumbivilcas, see, i.a. the analysis of Huamaní Olivo, Macassi Lavander et al., 2011, <http://old.cies.org.pe/files/documents/files/anexo5-b.pdf> [accessed May 26, 2015], and CBC, 2010: 26ff.

<sup>164</sup> T: Why would this climate change happen to our people? From your appreciation, suddenly you know why for example there is much sun insolation, it is no longer raining in its due time? Why they would these [events] happen? / ¿Por qué estaría pasando este cambio climático en nuestro pueblo? ¿Desde tu apreciación de repente sabes el por qué por ejemplo hay mucha insolación, ya no está lloviendo en su tiempo? ¿Por qué estarían pasando estos [hechos]?

B16: When they do not [make] much, not anymore..., the people [population] is growing, and at the same time the mines are entering, perhaps it's them. There's already much is insolation, there are many mines in many places. / Nishuta mana naqtinku manaña nay..., runataq mirayushan, kaq minakuna haykuyamushan anchaykunapischa, nishutaya ruphayamushan, enterolarupi minaq kayushan. / Cuando no [hacen] demasiado, ya no..., la gente [población] está creciendo, igual están entrando las mineras, quizás son estas. Ya mucho está insolando, está habiendo minas en muchos lugares. (Interview, B16, August 16, 2013; original in Quechua, own translation from Spanish)



This interview raises an interesting point, some people are connecting the reason for changing climate with the end of the world or of the human race. This “end of the world myth” topic will be discussed later when looking at the aspect of worldviews and the double-edged topic of traditional “versus” modern. Instead, the “ozone layer myth” as a reason for climate change will be looked at in a bit more depth in the following:

AW: Do you know why climate change occurs? Have you heard why the climate changes?

B28: This is transmitted by the factories, burning garbage, burning grasslands, the ozone layer is damaged.<sup>cxvii</sup> (Interview, B28, August 13, 2013; own translation)

AW: And why do you think there is this change, why is there this sudden change?

B18: I think there is a lot of pollution or a lot might be because of the factories or the smoke. Up there is the ozone layer; this one might burn and it no longer protects from the sun and then this all [together] should be it.<sup>cxviii</sup> (Interview, B18, July 19, 2013; own translation)

AW: And why do you think we do have this climate change, why are these changes in the weather?

B8: Climate change, according to what tells us the radio and the scientists, the ozone layer is by and by breaking, so they say and that's why.

AW: And why does this happen? And why did it break?

B8: From this, from the smoke, from what we burn, grassland, some things. Every day we burn. From this it is spoiled and with the factories as well. Now we use vehicles like toys, their smoke also causes pollution then.<sup>cxix</sup> (Interview, B8, September 24, 2013; own translation)

AW: This climate change, why do we have this climate change?

B24A: What is affecting us, which is climate change, we all produce. For example, here, in the mountains, even not yet so much, but always, for example, in the cities, the large factories in other countries, worldwide this is what's causing this. Because what informs us, about what we inform us is that the ozone layer is already damaged. All this is producing it, also with the garbage, with what we throw away, batteries, with what we burn suddenly the forests. With all this we are polluting, too.<sup>cxx</sup> (Interview, B24A, August 13, 2013; own translation)

AW: And with the mines, how about them? I heard that the mines don't come in here? Or how is it in this area? You decided that they would not enter?

B7: Yes, but here in this area I believe that the mines pollute with something that is called cyanide because there are no other machines that pollute at a greater percentage, but here they directly pollute the water of the Molino River with the use of cyanide; they use it, and with this they are contaminating with a high percentage. [...] And this river, this water is at the borderline of Llusco and Quiñota. This is what they have seen. People went to interviews and saw the consequences and saw the fishes with these little things that swell, aaaa, I don't know its name, but these they saw and they are talking in the news and they could not, and I don't know how we will manage that.

AW: Then they sicken the fish?

B7: The mines must contaminate directly our stratosphere, or the ozone layer, because they throw the cyanide in greater quantity which is carbon monoxide.<sup>cxxi</sup> (Interview, B7, September 21, 2013; own translation)

Maybe this change for me is coming from environmental pollution, for example, it can be from the big factories or from, for example, some of those motors. Well, other things can affect our ozone

layer, which always regulates our temperature, the heat from the sun. Maybe because over time we have invented so much, we do damage, we cannot stand the sun, perhaps the sun is getting stronger. This may be it for me.<sup>cxvii</sup> (Interview, B10, September 18, 2013; own translation)

AW: And do you know why we have this climate change? Why is it?

B29: I don't know, that's what they say: There are many cars that are transiting, then we burn straw on the hills. They are saying [that] with this, the layer of the sun is all worn off. Here we are burning plastics, throwing away this waste, throwing away garbage. They are saying that it's because of these things.<sup>cxviii</sup> (Interview, B29, August 15, 2013; original in Quechua, own translation from Spanish)

While both the thinning ozone layer and global climate change are consequences of a form of increased pollution, they are considered to have different causes scientifically, with maybe some very small interconnections. The destruction of the ozone layer is caused by gases like chlorofluorocarbons (CFCs), which were commonly used as coolants. Climate change, on the other hand, is caused by increasing greenhouse gas emissions, such as carbon dioxide. In the Andes, and not only in Chumbivilcas, it is common that people equate the thinning ozone layer with climate change. While the topic of the ozone layer has already been discussed for some time, especially in the wake of warnings about skin cancer heard on the radio, climate change is, as has just been described, a relatively new issue, and appears sometimes to still be too abstract for many people. Therefore, it might not be far-fetched to link these climatic events and their introduced effects. During the above mentioned radio programme, "Voice of the Youth" at *Radio Chaski*, a pupil asked one of the CADEP staff members who had been working only briefly in the project on climate change adaptation about the conjunction of the ozone layer and climate change, providing a chance to clear up this misinformation scientifically:

Pupil: Do you also believe that the issue of climate change is also because of the breakthrough of the ozone layer?

OM: Well, the ozone layer that means that because of the pollution every time our ozone layer is opening and every time the solar rays are stronger, this is also one of the activities we can as well say that it is because of the climate change or global warming.<sup>cxix</sup> (Radio Chaski, August 18, 2013; own translation)

This answer shows how widespread information on linking the ozone layer with climate change is. In this regard, a couple of days after I attended the radio programme at *Radio Chaski*, I asked the head of the climate change adaptation project in Chumbivilcas how important it is for the organisation to really scientifically correctly communicate climate change information and how they think about the necessity for the population to know the whole picture of the processes. I told them about what I had experienced during the radio programme and found in my work with different community members, noting that

this connection between climate change and the ozone layer was often drawn during interviews, and mainly by CADEP-participants (seven of the eight people who had connected climate change with the thinning ozone layer had participated in CADEP workshops).

I'm one of the defenders that people have the right to educate themselves in everything and in the terms that exist, such as greenhouse gases, but if you explain what it is about dealing with the help of graphics, pictures, or anything else so that they practically understand. I don't agree that artificial information is given just to satisfy some things. I think that we have to inform ourselves about the things the way they are; they are the result of this. We have produced material that manifests, we have titled it "a historical memory of climate change" and what was the background of it [...]. If you only speak about the local or regional contexts it would seem that the problem is only here, and that the problem is global, the consequences are targeted. Then they have to know that as there are countries that pollute and also resist signing treaties, agreements, and also conventions and that there are also people who are concerned about trying to solve the problem like these scientists doing investigations. Thus, we have used several strategies to communicate.<sup>cxxv</sup> (Interview, EI3, August 21, 2013; own translation)

The experience during the radio session and that a connection between the ozone layer and climate change was often drawn during interviews by respondents who had connections to the organisation, evoked a certain despair in the respondent:

AW: And what do you think when I go and the people mix things up when I ask them about it [that the ozone layer is broken and that is why we have these problems with the climate change]?

EI3: The truth, it seems strange to me that they say that it is because of the ozone layer and other things because [...] [he/she; CADEP colleague] knows exactly why we have the issue of climate change. [...] Yes, it seems weird what you said about the ozone layer because the issue of climate change is very clear.<sup>cxxvi</sup> (Interview, EI3, August 21, 2013; own translation)

The aspect of communication will be discussed further in sub-chapter 4.2 below. Before passing on to measures of climate change protection and adaptation to climate change *in situ*, I would like to outline one further aspect that additionally emerged during one of the workshops in Llusco. Here, one answer on the question of, "Why do we have a climate change?" was: "Because we don't adequately use our grandfathers' knowledge"<sup>cxxvii</sup> (Workshop 2, October 14, 2013; own translation). Even though customs and traditions were not mentioned specifically in the question, they were still frequently addressed and discussed in interviews. Thus, the question of how culture, cultural practices, and traditions enter into the conversation is an important aspect, considering the local discourse entanglement. Thus, the role of local worldviews will be the subject of the last section of chapter 4.2, but it will also be addressed in sub-chapter 3.2 below, in the context of adaptation measures.

### 3.2 Adaptation – but how?

These types of Andean rural communities have low adaptive capacity due to low levels of economic resources, 51% live in poverty; limited capacity; and the limited presence of educational institutions and cooperation. These populations are concentrated in areas of high geological risk (80%). (Programa Conjunto, 2010: 17; own translation)

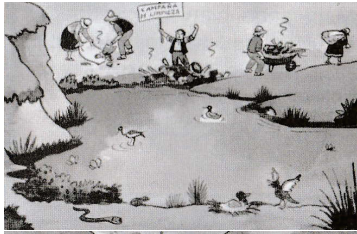
Postigo (2013: 187) says that even though Andean peasants have an ancient tradition of adaptation to climate variability and mountain conditions, the intensity and speed of the current climate change, coupled with the low capacity to implement some production strategies (e.g. crop diversification, terraces) due to socioeconomic conditions of poverty and exclusion, could overcome their adaptive capacity and the resilience of their production systems. As was revealed above, all of my interview partners had heard about climate change and most of them had an explanation for it, or at least their own idea of possible reasons for this change, and were able to mention impacts they feel. A further point of discussion was the question of, what they can do or what they are already doing to respond to the – mostly negatively felt – influences or expected impacts, such as how they adapt to the changing situation and thus to the new circumstances. This will be the topic of analysis in this sub-chapter. As a first step, the communication of adaptation measures by CADEP will be briefly outlined, using an example, and as a second step, the interview responses of the population on this aspect will be analysed. As a last step, some valuations of what has really been done so far will be presented. The last two aspects will be especially important in order for us to then identify which aspects were taken over and/or whether they are being appropriated, integrated, or adopted by the population.

In CADEP's project information booklet N°02, "What we Know about Climate Change," (Lozano Pérez, n.d.) twelve adaptation measures for the Andean communities are listed under the title, "What can be done to adapt to climate change in Andean communities?" on page 9-11 (see Figure 21):



Strengthening local knowledge, through recovering ancestral practices to be able to adapt yourself to climate change.

Being trained in measures to adapt to climate change, changing unhealthy habits and customs.



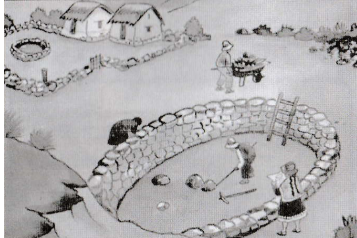
Protecting water sources, through carefully cleaning springs, rivers, lakes, [and] lagoons, to preserve and accumulate water.



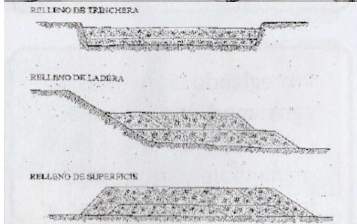
Conserve water in the rainy season by building natural ponds, infiltration trenches, and other methods to help retain water.



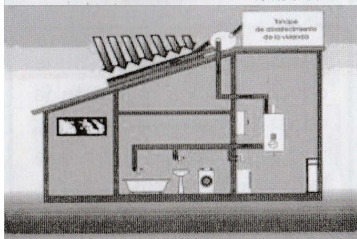
Adapting resistant crops to climate change, practicing agroforestry and other techniques to create microclimates in the parcels.



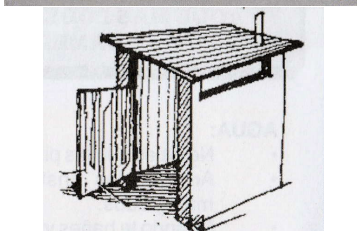
Adapting livestock through pasture rotation. Resting of meadows, sheds, planting fodder, which are impacting climate change.



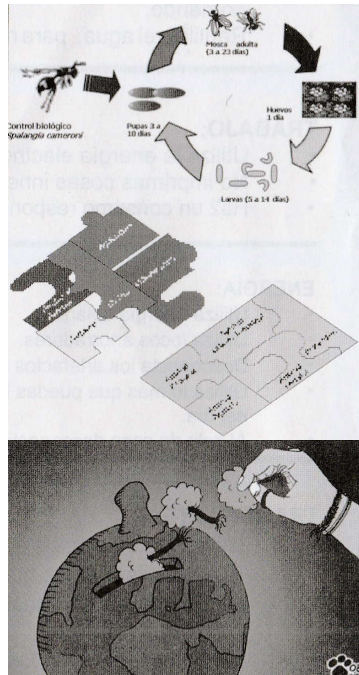
Managing solid waste well in family and community micro landfills; storing, collecting, and disposing in an organised way.



Using alternative energy such as solar energy for family activities, in order to take advantage of clean, safe energies and saving energy.



Adapting hygiene habits and sanitation that are proper to avoid frequent, and because of climate change present, diseases.



Using clean technologies for the control and management of crop pests and diseases resulting from changes in climate (integrated pest management).

Using the ecological economic zoning of the community to establish land use planning according to the land's potential.

Realising afforestation and reforestation in areas suitable for forestry to improve the living conditions of the population and install agroforestry systems.

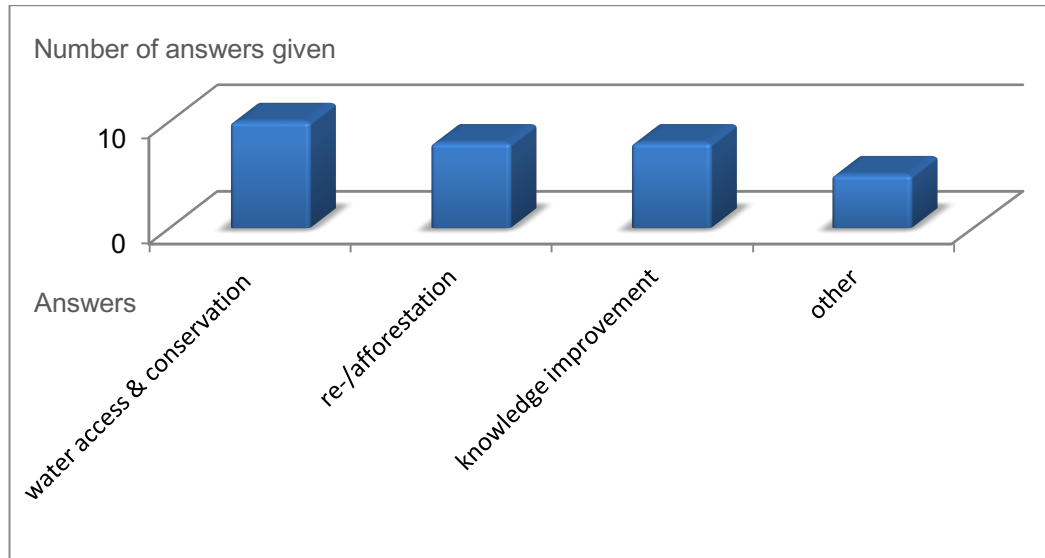
**Figure 21: What can be done to adapt to climate change in Andean communities? according to CADEP**

Source: CADEP project information booklet N°02, "What we Know about Climate Change" (Lozano Pérez, n.d.: 9ff)

As will be shown in the following section, most of these techniques turned up during the interviews as possible adaptation measures, some of them were noted to be already being implemented. Before looking deeper into this aspect, however, two further things should be pointed out in advance: It is interesting that the first adaptive measure CADEP listed is the recovery of ancestral practices, a topic of major relevance to the organisation, which is valued differently by the population and which is an issue that draws the society between the tradition and modernity. Another aspect that I would like to briefly point out here is in the second picture: "Being trained in measures to adapt to climate change, changing unhealthy habits and customs." What is striking here is the wagging forefinger of the person speaking as they explain to the population what (not) to do and how to do things (better). I frequently experienced this means of communication in the community and found it strange because it reminded me of how people sometimes teach or address small children, only that in this case the communication was aimed at adults.

During the interviews in Chumbivilcas, I commonly asked respondents if they had ideas about how to confront or adapt to the (expected) climatic changes and what actions they were already taking in this regard. The following summarises their responses (B1-B31), which in many cases relate to wishes for third party support. In total, 28 of 31 provided

responses. Figure 22 reflects the summarised answers on the planned or needed adaptation measures (multiple answers possible; in total 31 answers):



**Figure 22: Measures or actions to adapt to, or protect from, climate change impacts mentioned by the interviewees**

Source: Own elaboration

Most measures mentioned were connected to water access and conservation (10), a very important topic for both agricultural work and livestock rearing, as well for household usage. This topic can be further divided into four sub-categories: 1) Implementing forms of water harvesting, listed four times (B9, B18, B28, and B31); 2) building water reservoirs or dams, mentioned three times (B4, B7, and B31); 3) capacity building on (sprinkler) irrigation, listed four times (B4, B17, B20, and B24); and 4) building canals or pipes and (sprinkler) irrigation systems, also stated four times (B7, B12, B20, and B24).

Re- or afforestation was mentioned eight times, mainly in connection with soil erosion, protection of the fields (from hailstorms and frost), and water sources. Further, planting trees is seen as related to greater water availability. In this context, people often spoke about taking the eucalyptus trees out and replacing them with other/native trees. Eucalyptus is an externally introduced species with the advantage of growing fast and, therefore, providing the highly needed wood for construction purposes and for firewood. At the same time these trees have the disadvantage of requiring a lot of water and, thus, drying out water sources, allowing nothing else to grow in the area. In this context, another desired adaptation measure was mentioned: Tree nurseries. Tree nurseries have already been installed in some villages and communities. In general, afforestation projects could be sustainably implemented – as firewood is constantly needed. At the

same time, more and more fruit trees are being planted in this area, too, due to the rising temperatures in higher altitudes, providing a further source of income.

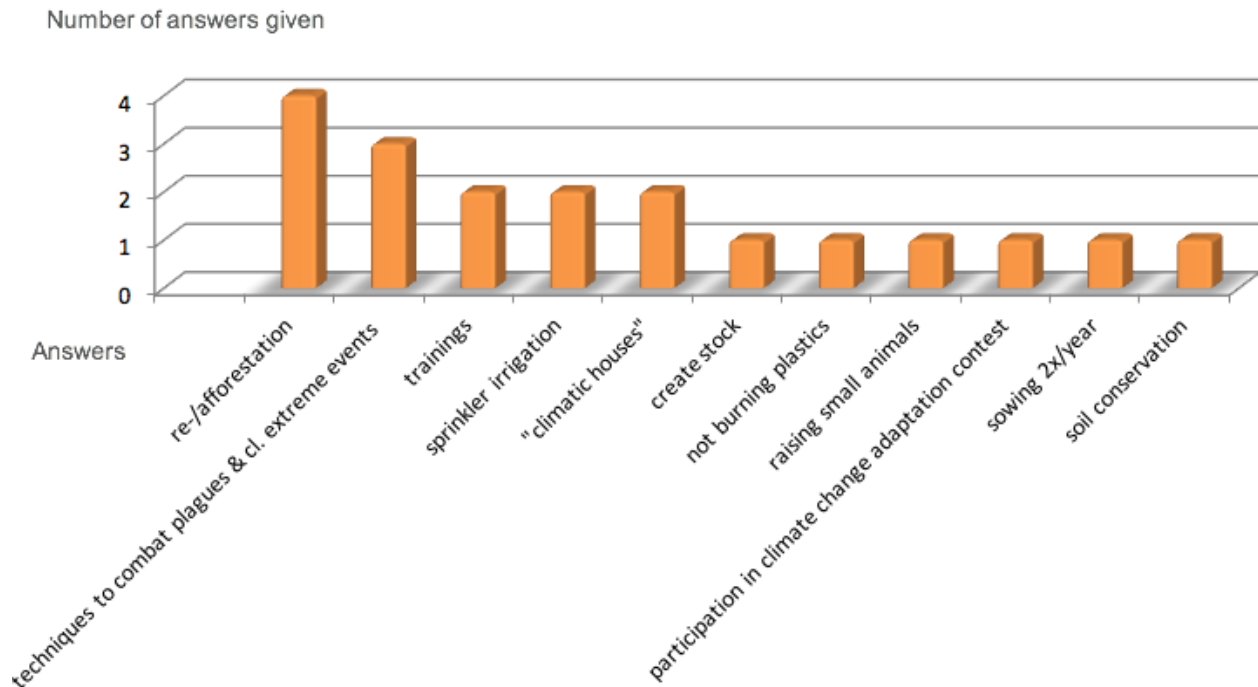
Within this afforestation there could be aqueducts or dams to store water after the rain. If you would have the ability to store water during the rainy season and if we could store it there or also install irrigation canals... Because now the hill is totally abandoned, to make it nicer, a more pleasant atmosphere, also with the afforestation we would get it. Since we know that forestry, environmental conservation is a determining factor for the people's health, then for this I would consider this project. Also with the afforestation we would be preserving and would counteract the climate change. There is also another [factor], soil erosion, against which we also counteract."<sup>cxviii</sup>  
(Interview, B7, September 21, 2013; own translation)

One further form of adaptation measure mentioned in interviewees was improving knowledge, mentioned eight times. The respondents meant by this, an improvement of abilities through new knowledge about crops, agricultural methods, and technologies transmitted by university studies or capacity building measures. One person explained that external multimedia information on how other countries are affected would help them to learn to adapt in a better way (B24). Those who referred to university studies, had high expectations that scientific knowledge would help to improve things and help protect them from the negative impacts of climate change. Further, it was said that there should be at least one university-trained professional in each community (B26).

Well, right now what we're planning for us is, suppose I have five children, and all four have to be professional, they are professionals, and one has to be a professional agronomist, but remains as hereditary [heir] in the house, plus working in the field, already modernised with other irrigation or furrow planting align. Well, as this is not common, but he can raise more chickens, more improved cows. Why? Because he is an agronomist and knows everything, so it already changes more and more. Suddenly it won't be corn any longer, but he can plant beans, can plant, what is it called, more *tarwi* or more quinoa, *kaniwa*, it is delicious to eat, not this maize. Then he, for the future will have to always to stay home. And the others? Yes, they will work outside. Yes, and they will have children. Like this it will be done.<sup>cxix</sup> (Interview, B2, October 20, 2013; own translation)

Five other respondents referred to "climatic houses" (B18) (see this Chapter: 2.2.1.3), to build shelter for animals exposed to extreme weather events (B3), and to construct terraces on slopes for agriculture, which reduces erosion and collects the water better, leading therefore to a higher degree of infiltration (B10). One person explained that no measures were necessary (B6) and another said that they don't know what to do and how to do it (B1). The question of, which measures are already being carried out, is explored in Figure 23:





**Figure 23: Measures implemented or actions taken to adapt to or protect from climate change impacts mentioned by interviewees**

Source: Own elaboration

The responses were much more widespread regarding what actions they were taking or had taken to address climate change when compared to responses about planned or needed adaptation measures, and only eleven people provided an answer (out of 19 people interviewed).

Reforestation with pines, we have made fencing, netting, keep it fenced at the other side of the community, and have planted pine seedlings, native plants, and all these things. And we have also made a fence for our water source because it was like a pampa, nothing more. We've done pretty well to surround our water sources so that nobody bothers them, neither the animals nor anything, to conserve the water source that we have.<sup>cxix</sup> (Interview, B10, July 17, 2013; own translation)

On the climate change adaptation contests that CADEP carried out in the area (see 2.2.1.3 The NGO CADEP-JMA of this chapter) mentioned above, one interviewee said:

So, just by that I have also gained [with the contest from CADEP] irrigation [accessories], houses and all. [...] Yes, these houses we have gained through our [participation] in the contests, so it is. There were nearly nine [people with whom] we had gathered. There, they had, for the first, the second, the third, through the fifth, and sixth place. That's where we won. So these things have changed; we have quite changed with that. And we started talking and we moved on because of this climate change, we have really changed. We now go to other places for internships [knowledge exchange] and see how they live. And seeing these things we also opted to do them. [...] We also went to see the "climatic houses" in Espinar. Then we went to this. They now live in those "climatic houses." This is what we saw. So we said that we will build us [the same houses]. That is why we

are participating and building here, also that [type] of water harvesting, terraces, I also realised [forestry] with plants, building the terraces so that the water will not go, so that there won't be erosion. With making the terrace we made plantations, yes. We also carried out soil conservation. These [things] we did mostly on the so-called climate change.<sup>cxxx</sup> (Interview, B22, September 21, 2013; original in Quechua, own translation from Spanish)

Here, adaptation measures were clearly initiated by CADEP ("climatic houses," knowledge exchange, irrigation accessories, afforestation, and cultivation methods). Looking at the listed activities that CADEP has worked on and implemented with the local population and civil society (see section 2.2.1.3 The NGO CADEP-JMA of this chapter). These were mentioned by those who participated in interviews, however, the planned and desired adaptation measures reflect the action points of CADEP more than the named measures of what was already being done, which does include more individual measures. Thus, it can be said that NGOs like CADEP, and also other institutions, have a high influence on the acceptance of knowledge, like this example on disease control shows:

AW: Are you thinking of some measures how you can solve the problems?

[...]

B8: To prepare water in yellow bucket and put in the evenings with a yellow plastic at night and there butterflies clash and crashing, they fall into the water. It is a trap. We are now making these techniques.

AW: And who taught you that or who told you, or did you thought about it yourself?

B8: No, no, they enabled us, these engineers of CADEP and others, from this we are learning.<sup>cxxxii</sup> (Interview, B8, September 9, 2013; own translation)

Not all types of knowledge are accepted in the same way. As mentioned previously, CADEP's intent is to encourage long tested measures, traditions, and customs to remain or even be recovered. Here many interview responses to the question of whether traditional or ancestral knowledge is (still being) used, demonstrated that this is considered as rather "old-fashioned:"

B27: We are no longer accustomed [to do these customs and rituals]. Yes, before our grandparents they did it, before [...] My grandparents did *t'inkana*,<sup>165</sup> danced, sang, *Pachamama*, like this. [...] I don't know how it was done, with their coca, with their drink, with their *t'inkana*, all. With his poncho he did it, he had everything. This is what they did.

AW: But your father has done it. But you not anymore?

B27: Yes, we don't do it anymore.<sup>cxxxiii</sup> (Interview, B27, September 26, 2013; own translation)

B2: So far, the old people are still used to doing it. But the new generation has forgotten; it doesn't exist any longer. So, for example, they planted potatoes in the hills and in the hills first, one day they went on horses carrying chicha, coca, grease of alpaca, and carnation flowers and they made a special payment with wine. They brought wine, and with this they *t'inkaban* [did

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<sup>165</sup> *T'inkana* (Quechua) = religious ceremony of offering to the gods, especially the *Apús* and the *Pachamama*.

the ritual of the *t'inkana*], they did the payment to the *Pachamama*. [...] Then, they did well and people were thick, fat, thick. They were big. Yes, that's how they used to do it. But now, this doesn't exist any longer.<sup>cxxxiv</sup> (Interview, B2, October 20, 2013; own translation)

Further explanations were that these traditions belonged to a custom and, therefore, they were not carrying out "these traditions" anymore:

AW: Do you also perform rituals, something like this, traditions that support the crop?

B26: Well, in my area, I would be a liar. Almost everybody is religious and this has displaced the custom, and we give very little importance to the tradition.

AW: And what religion are you belonging to?

B26: Well, we are Christians. [...] But there is always a group that believes. [...] They are superstitious, [...], but yes there are a few. It existed, it existed, mostly the old people, our grandparents have maintained this tradition, they have maintained.<sup>cxxxv</sup> (Interview, B26, August 12, 2013; own translation)

AW: And ultimately with the harvest, the sowing, do you do some rituals as payment to the earth, are you taking care of the *Pachamama*, or does this not exist?

B28: No, I don't believe in this thing. I just believe in God, nothing more.

AW: In God?

B28: Yes. I don't believe in the hills [*Apús*], not in the *Pachamama*. I believe in God, nothing more.<sup>cxxxvi</sup> (Interview, B28, August 8, 2013; own translation)

What I also noticed in many of the interviews and conversations I had was that many mentioned the need for help from "third parties" to be able to achieve good development. Thus, 15 people mentioned the use of or need for external support, very often directly naming CADEP or, secondly, the local government:

Somehow we also need support to guide us, as well. [...] We are already seeing that enough water is entering the river, but we do not know how to keep that water; this is lacking. Then some institutions are coming, some are already planting vegetables and pastures for cattle, which are also changing gradually. We just need the road to reach up here and then we will think about something else.<sup>cxxxvii</sup> (Interview, B4, July 13, 2013; own translation)

The knowledge that is taught is mainly considered to bring about a better life, and what they currently know is considered to be of little importance.

We don't think, that's why we are a little backward.<sup>cxxxviii</sup> (Interview, B4, July 13, 2013; own translation)

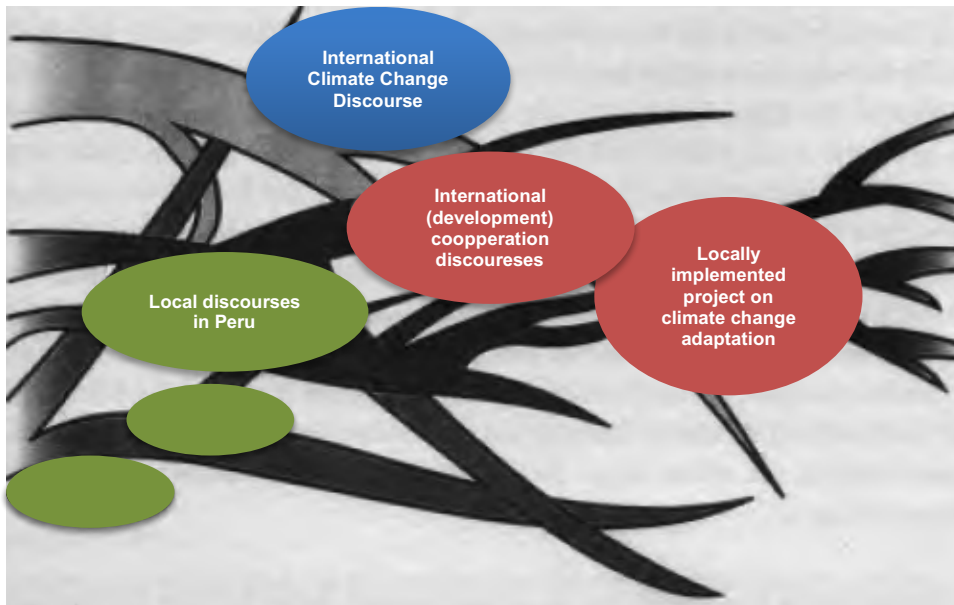
So how will we survive? No one is thinking ideally. Then, there a little, as I said and I don't know if it's an advantage or disadvantage, the fact to have another point of view. They observe, they know this is going to come. Other people are thinking and foresee these things. Back in Europe this is happening, thinking of how will we live later on. Then they are anticipating. In return, here, this is still not happening, that moment will be lived and it will be acted on [when it comes], [and decided] if being done or not done. [...] So people here are not thinking much, neither in water harvesting, or anything else. This is a cultural question, of what you are doing today, [but] at some point you have to face it.<sup>cxxxix</sup> (Interview, BH3, August 23, 2013; own translation)

Only with external and/or scientific support and knowledge can change, and thus adaptation, be possible; a role that institutions such as CADEP are taking on:

Yes, we have changed with this institution CADEP, having this climate [change]. Even our homes have become nicer. We paint them, we enter the contests, those [products] we are elaborating in a natural way, with these we have changed. Now we [are] not like before. Yes, with them, we changed.<sup>cxl</sup> (Interview, B22, September 21, 2013; original in Quechua, own translation from Spanish)

Why this external and/or scientific knowledge is favoured or more trusted than local or traditional knowledge will be discussed in the upcoming sub-chapter, Chapter IV, 4. Additionally, I will also discuss how building an integrated environmental knowledge could mean breaking the power hierarchy between these types of knowledge, the "traditional" local and the scientific technical (Postigo, 2013: 189). I will also explore that this shift would mean breaking the post-colonial discourse structures of "racism without a race" and how this impacts the validity of knowledge.

#### 4. Discourse entanglements – climate change as a post-colonial discourse



**Figure 24: Discourse entanglements: The international climate change discourse, local discourses, international (development) cooperation discourses, and locally implemented projects**

Source: Modified figure based on Jäger (2012: 81)

Taking the graphic from the beginning of the work and adapting it to the Chumbivilcan context (see Figure 24), I am able to depict how the international climate change discourse interweaves with discourses through locally implemented climate change projects with local discourses, like i.a. the "post-colonial discourse," which is framing the socio-cultural hierarchisation of the Southern Peruvian Andes today (see Chapter V,

1.3). The questions that arise are, how and where does the international climate change discourse enter or entangle with local discourses in Chumbivilcas, and does the international climate change discourse change and/or reinforce local (discursive) structures?

What can be seen in Chapter V, 1.3 is that inequalities between rural Andean communities and urban centres today are rooted in Peru's history of racism and socio-political exclusion, going back to the times of the Spanish colonisation, from where it developed further until it became a discourse on "racism without race." So, the following sub-chapters will, summarise these lines of thought about "racism without race" and take a brief but close look at the national-local nexus, further including some international impacts on the Peruvian and local context. Here, I will connect Peruvian historical features, like the evolution of the education system, the neoliberal development concept, and the role of the "newfound multiculturalism," and there over, the role of NGO involvement with the post-colonial discourse on "racism without race." Through this I will demonstrate why and where the climate change discourse has entered and entangled with this and other local discourses, thus reinforcing and becoming itself part of the climate change discourse. Then, I will turn to the role of local worldviews and knowledge-systems, and how knowledge gains validity in Chumbivilcas.

This chapter will additionally deepen the understanding of the framework of the post-colonial, socio-cultural structure of the Peruvian "racism without a race." In the end, the embedding of a discourse such as the international climate change discourse into a local setting strongly determines how a discourse, deriving from the international, trickling down to the national and then the regional level, is communicated and perceived, and hence embedded, transformed, and/or declined by the local population.

#### **4.1 Climate change as a post-colonial discourse: The role of education, the power of knowledge systems and multiculturalism**

Racism is linked to the functioning of a state, which is obliged to use race, elimination of race, or the purification of the race to exercise its sovereign power. (Foucault 1992: 268, in de la Cadena 2004: 11; own translation)

Following up on sub-chapter 1.3.1, Chapter V, on racism without a race, race, and thus, racism is constituted by the following three components: Geo-politics, biology, and culture. These are mainly articulated by relationships, identities, and social situations, which, in the end, are forming a more powerful, privileged person (de la Cadena, 2000: 13). The weight of each category can vary and transform depending on the place, the time, and the context (see de la Cadena, 2000, 2004; van den Berghe & Primov, 1977:

4). This is why the “de-indianisation” does not consist of just “assimilating” and “integrating” for Marisol de la Cadena (2000: 6). The process of being an *Indian* and being, or becoming, a *mestizo* is much more complex, determining individuals’ identities, which are not the result of a “natural evolution” but are negotiated and emerge from social interactions. In this case, the process emerged through, “the conflict-laden, implicit or explicit dialogue between the dominant nation-builders and grassroots intellectuals who have shaped images of the nation since the late nineteenth century,” according to de la Cadena (2000: 321). Even though the “de-Indianisation” allowed sophisticated *serranos* (montane people) to admittedly improve their social status to the same level of those living at the coast, it came with another possibility: To stay a person with indigenous roots and culture without the stigmatisation of social inferiority inherent in the post-colonial *Indianness*. Thus, to “stop being Indian” did not mean “shedding indigenous culture,” according to de la Cadena (2001: 22). This also provides some hints towards an explanation of the missing indigenous movements in Peru, as *mestizean* indigenous activism was not considered an ethnic activism (García, 2008: 26).

But this new understanding, which provides the indigenous population migrating to the cities with more leeway to re-create and re-define their “new” identity, entails an even greater inferiority and marginalisation of the rural population. This, therefore, again leaves space for racism and discrimination (de la Cadena, 2000: 6f) and leads to the current situation in which the case study and the transfer of the climate change discourse is embedded. At this point, some thoughts of Marisol de la Cadena and some other academics concerning the role of the (neoliberal) state in the (re)production and establishment of discriminatory or socio-cultural exclusive practices will be explored. To show how deeply the aforementioned *culturalist* vision and, therefore, the embedding of this non-racial discourse of discrimination is rooted in Peruvian and Latin American thinking, de la Cadena points to an example of the famous Peruvian writer Mario Vargas Llosa:

Indian peasants live in such a primitive way that communication is practically impossible. It is only when they move to the cities that they have the opportunity to mingle with the other Peru. The price they must pay for integration is high – renunciations of their culture, their language, their beliefs, their traditions, and customs, and the adoption of the culture of their ancient masters. After one generation, they become mestizos. They are no longer Indians. (Vargas Llosa 1990, in de la Cadena, 2001: 23, 2004: 1).

What de la Cadena reveals with the depiction of Mario Vargas Llosa’s words is that *culturalist* thinking, which comprises a rather subtle means of discrimination and exclusion, is not just limited to a few racists, but is common and generally a part of

intellectual reasoning. As de la Cadena (2000) and García (2008) point out, these characteristics are further reflected in state activities, implemented through laws and national education. One example in this context, is the *National Programme on Intercultural Bilingual Education* implemented in Peru at the beginning of the 1970s. According to the promoters of intercultural politics the *National Programme* was needed to understand and incorporate the communities into a new multicultural Peru (García, 2008: 27). The aim of the programme was to build capacity, educate, and raise awareness of members of the Quechua communities and to enable them to represent their interests in the future. In this context, it was much more surprising when, as a response to the *National Programme*, resistance emerged from the Quechua speaking families.<sup>166</sup> According to García, what at first glance might be a surprising reaction was provoked by the fact that often these strategies do not seek to educate but to dictate new political terms "deriving from the Ministry" (García, 2008: 27). Further, she states that compliance to new reforms cannot be obtained by means of a new consciousness, but through an already obsolete coercion. For her, intercultural activists, both inside and outside of the government, are sending the same message: The state has provided these programmes and if they do not participate they won't have access to these resources that are being generously offered to the people, as noted by García (2008: 27). Hence, the countermovement of Quechua families against the programme on intercultural, bilingual education can be interpreted as a backlash to the imposed external politics. The roots of this backlash are grounded in the history of conflicts and resistance in the Southern Peruvian Andes outlined above, including recent ones like the rise of the *Shining Path*, national military units, and international development powers, which are generally more benign (García, 2008: 29).

Taking a glance at Chumbivilcas, the role of education is a crucial point. Many teachers told me that the content of what they have to teach is so controlled that locally defined needs, realities, and interests do not have any space. One of the NGO-members working in the education sector in Chumbivilcas stated that, in her opinion, the school was the one that now develops the culture, and a cultural aggression emerges from it. The result is that the education sector is separating the human from the nature and without a connection that formerly existed between the two (conversation from July 18, 2013).<sup>167</sup> In this context, a participant in one of the workshops explained:

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<sup>166</sup> For details of the political processes and developments of the educational reform and its impacts on the Andean population and their reaction, see García, 2008; Howard, 2007; Coliaux, 2013.

<sup>167</sup> In the province of Chumbivilcas, primary schools were first installed in the 1950s/1960s. The first high school was created in Santo Tomás at the end of the 1970s, and those kids who wanted to study started to walk to school in Santo Tomás to attend high school (Workshop 2, October 14, 2013).

At school we asked: How many potato varieties do you know? “I don’t know,” they would tell us. Is this good? How are they not going to know potato varieties? Shouldn’t they know? Is he not a farmer boy? “We were told that we don’t have to know about these things.” It is not like this!<sup>cxli</sup> (Workshop 2, October 14, 2013; original in Quechua, own translation from Spanish).

What is important to know determines the national education programme. The students seem to have “understood” that if they “do not participate,” they won’t have access to support resources from the state and society. What their ancestors and parents knew/know has lost “validity” in this knowledge system.

In this context, García (2008: 28) raises the role of NGOs, which she ascribes the role of the “executors” of national politics. The first NGOs in Peru appeared in the 1960s, with the first real boom starting at the end of the 1970s<sup>168</sup> (Avila Molero, 2000: 429). During this time, the vision and work of the NGOs changed deeply: Whereas in the 1970s through the beginning of the 1980s, the interventions of the NGOs were rather politically motivated and were seen to be anti-government, this changed radically in the 1990s, when NGOs started to follow the general governmental changes towards a market economy and started to identify themselves more with economics than with politics (Avila Molero, 2000: 432). Efficiency, quality control, evaluation of costs and benefits – just to name a few of the new important terms – were, i.a. a response to the (modifying) conditions of the financial donors in order to secure a regular funding. Further, international processes on human (including indigenous) rights and some changes in relation to the state, which started to put more interest into regionalisation and collaboration with local governments in the 1980s, a process of decentralisation, and a newly emerging possibility to access governmental financial resources through national programmes in the 1990s, brought the NGOs and the national state closer (Avila Molero, 2000: 433). In this context, García (2008: 28) poses the question of, if the social movements, including the activities of the NGOs, are directed by state politics, what does the term mean and how should we refer to the resistance to this “movement” by the people in whose name it is developed? Considering the Peruvian setting, García (2008: 28) argues that through capacity building of young *indígenas* – in alignment with the argumentation of de la Cadena outlined above – NGOs would not support the indigenous and, thus, social movements, but that they instead would just strengthen the social status of indigenous intellectuals by complying to their specific aims and visions. This ambivalence about NGO activities is not just a Peruvian matter, in many cases local activists working to defend a certain (minority/indigenous) group from global or national interference or assaults, are very often outsiders and not members of the group

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<sup>168</sup> In 1988 Padrón calculated that there were 218 NGOs and in 1996 Sánchez León counted 900 NGOs (Avila Molero, 2000: 429), indicating a second boom.



itself (García, 2008: 29). This kind of paradox indicates that the intention to support or help indigenous groups and the articulation of a different (collective) identity does not lead to an expected recognition of otherness and, therefore, provide more autonomy, but rather involves them in the (inter)national system, and thus interweaves or encloses them even more into it. Thus, a collective identity would make them more equal than leaving them their independence because as nationalised peasants – and ostensibly de-Indianised – they have linked themselves with the state through leaders and populist politics, according to García (2008: 30). The way to become an indigenous citizen, however, is a dialectical game. For her, this aspect synthesises the (colonial) recognition of ethnic difference and of the (populist) politics of national inclusion, but without the hierarchies that both involve. Further, she explains that indigenous citizenship is not something that states award to subjects, but the means and autonomy to build it themselves are claimed by the indigenous people. In Chumbivilcas, I could clearly identify some of these ambivalent aspects that NGOs are confronted with daily in their work, and further observe that they are also, as García points out above, subject to the prevailing “national” social system, with its underlying discriminatory structure that they find themselves trapped in, in their daily routines as well as in their encounters with the population. This can be mainly illustrated by asking what knowledge is valid, and observing the means of knowledge communication, meaning identifying how this knowledge is articulated and how it is perceived, which will be developed in sub-chapter 4.2 below. Before that, however, I would like to come back to García’s (2008: 19) thoughts on the educational system, NGOs, and social and indigenous movements. The latter, for her, have also gone hand-in-hand with international processes on indigenous rights, which supported many indigenous leaders their struggles. For example, reaching back to 1957 and the *Indigenous and Tribal Populations Convention* 107 of the UN-ILO, to Convention 169 of the ILO on collective indigenous rights in 1989, to the declarations of the United Nations of the 8<sup>th</sup> of August as *International Day of the World's Indigenous Peoples* in 1994, and to the first and second *International Decade of the World's Indigenous People* (1995-2004 and 2005-2014). During this process, indigenous groups by and by became political actors. Aside from the mutual influences of global and national or local processes, national reforms in Peru started to merge liberal and multicultural projects together more and more. This process has been discussed in different ways; while some described these new political models as a politically legal and radically new citizenship-concept, others pointed out that the politically open spaces of this new neoliberal multiculturalism would be dangerous, because it would limit the radical potential of social movements. Therefore, for García (2008: 19f), these global discourses, including the (inter)national agendas, are weapons in a double sense: On

the one hand, for the social movements and, on the other hand, for government projects.

The rise of the newfound multiculturalism at the beginning of the twenty-first century in many Latin American countries was generally explained to be the outcome of three powerful forces of changes, with Hale (2006: 219) adding a fourth aspect, which puts the other three in a different limelight: “Grassroots and national mobilization from below, with ample support from ‘global’ allies; neoliberal economic reforms, which eliminated corporate constraints on indigenous politics while accentuating inequality and economic distress; and finally, democratization, which widened spaces of protest, and necessitated substantive responses from above.” The fourth added explanation outlines that the concession in favour of cultural equality, in terms of “a carefully designed package of cultural rights” (Hale, 2006: 219), would not threaten the principal traits of the capital economy, but actually reinforce them. The concerns of Hale and other critics indicate that multicultural neoliberalism would involve (cultural) diversity as a strategy for the expansion of their own system – global capitalism – without really making any efforts to change the structures that were, and are, determining the racial hierarchies and economic inequalities, according to de la Cadena and Starn (2010: 17). Furthermore, the neoliberal state, according to Foucault, as cited at the beginning of this sub-chapter, would favour this form of exclusion and discrimination because it would let social relations pass through the economy. To be able to improve the life of the population, the economy is thus considered to be the one source for the needed scientific knowledge (de la Cadena, 2004: 15). Hence, this gained belief in multiculturalism and cultural equality also brought along new dilemmas and restrictions (de la Cadena and Starn, 2010: 17). Hale argues that the concept of a neoliberal multiculturalism would soon replace its, “counterpart ideology of the previous era” (Hale, 2006: 219) in his investigation of *ladinos* and Maya in Guatemala, meaning in this case a *mestizo* or *ladino* nationalism. Thus, the, “problem of racial ambivalence and the paradox of cultural equality have been global from the start” (Hale, 2006: 218).

In this context enters the topic of communicating climate change knowledge that is using the existing structures, such as social hierarchies and exclusion, inequalities and discrimination. And even though intended in some cases, e.g. in the work of many NGOs, this is not allowing any real intercultural dialogue, which does not exist in Peru, according to one of my interview partners (Interview, E5, October 18, 2013). This determines the validity of knowledge systems in which the climate change discourse enters from the beginning, also taking the local structures for granted: “This question of non-dialogue or rather of discrimination finally makes it so the dominant society doesn’t achieve to see the other, they don’t achieve [...], including in the NGOs [...], it is so

anchored this perception<sup>cxliii</sup> (Interview, E5, October 18, 2013; own translation). The following sub-chapter will, therefore, further explore the knowledge systems and the validity of knowledge within the climate change discourse in Chumbivilcas, and answer the question of, how this relates to social hierarchies and exclusion.

## **4.2 Worldviews, knowledge systems, and the validity of knowledge in Chumbivilcas**

Right at the beginning of my stay in Cusco, I had the chance to meet one of the founders of CADEP in a strategy workshop (Cusco, July 05, 2013). He started the workshop by talking about how in Peru they would just work with concepts deriving from a “Western” worldview and reality, which then would not be (sufficiently) adapted to local realities, and further that one could rarely find locally developed concepts or a rejection of “Western” concepts. Additionally, project frameworks, content, and topics are commonly dictated by (inter)national rules and focuses that in the end will dictate implementation and the indicators that will be set to prove success. How this is reflected in the NGO work in Chumbivilcas is demonstrated in the following content-intensive quotation:

What I've seen for twenty-five years or more, it is that [...] you have a failure of what we call projects. The projects are three years. [...] In three years there are processes that you can hardly start. I see, for example, these experiences: People say, “now, let's make this” [...], generally, in most cases, the initiative of the proposal, for example, adaptation to climate change, it's not coming from the population. It's not the people who are saying, “ah, I see climate change,” then, in a proactive way, consciously saying, “then we must do this. I'm going to try this [...].” No! In general, the project comes, “ah, let's do awareness rising, we will explain to the people what's happening with the climate change.” And we already assume that you must explain. Not that they can understand from their own experience. [...] Sometimes [...] it's like a cartoon, people come up with great explanations of what climate change is, [but] you have to start from the experience of the people. You can't build up the things on a report by the IPCC.

Well, then I think that very often the initiative of what needs to be done, for example, an improved kitchen and housing, usually comes from outside. Of course, neither it's completely false. It's obvious that there are living conditions of families that are unhealthy [...]. We see that mixing animals, living under your bed or living in the same kitchen, can affect health. But obviously, if you tell him/her, “you are a filthy because you are cooking on the ground,” [...] I mean, this can't be. You have to build that up, and this takes time. And that is just what projects don't have, is time. [...] The [...] facilitator of the institution [...] has to go running to reach the goal, “we have to make as many courses, we have to do so many things.” [...] Those are things that are a little worse in the work with cooperation of the state, because the state is in many times worse [...]. Here, people come, “you have to pa pa pa pa.” [...] It's like an order, and really, the common peasant population is a little used to it. Then comes the engineer, the officer comes and [...] then, you have to do forestation, [...]

“So, if he/she tells us to do forestation, let's do forestation.” And often, two years later, there are no longer any plants remaining. [...]

There are experiences where people work in different ways, they are working for example with farmer-to-farmer training where people get to know another area, how other families do it. [...] And it's, let's say, creating an own ability of people to reflect on their situation, to find the solution. But this is a road, boah ... As I say, [...] I return here after a long time, for a long time I haven't come to Santo Tomás. [...] I remember [...] irrigation projects [...]. It was clearly [...] our idea. Of course, we were full of good will. [...] But in reality, the farmers, the communities were not ready; they did not see it as important. So, you also can't force things. And yes, indeed, many things are forced [...].

I think that's a very strong topic also in climate change adaptation [...]. Everyone puts in climate change. It's [now] productive development in conditions of climate change, food security in condition of climate change, ... Twenty years ago, it was food security with a gender perspective. They come a bit in fashion. [...] But the fact that they become fashionable means that things are not done right. [...]. I'm a little pessimistic, but well, [...] there are also things that have been done well ...<sup>cxliii</sup>  
(Interview, E5, October 18, 2013; own translation)

This quotation describes how projects commonly come into being, in a rather top-down way and/or as an external idea or initiative, though mainly driven by goodwill and the intention to help. Further, the interviewee's response shows how complex and interwoven the whole process of local development projects and their implementation is, and how the topics are influenced by external “fashions” and often not to the benefit of the target population. I do not want to criticise the (good) intentions of NGOs and I am sure that many processes have also had positive impacts; instead, I would rather like to highlight that the validity of knowledge is determined by one knowledge system, which evaluates its actions and outcomes from the angle of its own worldview. To demonstrate this aspect and how this impacts, on the one hand, on the way organisations work and communicate and, on the other hand, on the project results, I will, in a first step, turn towards the Andean worldview.

In the Southern Peruvian Andes, climate is originally defined by, and embedded into, daily routines and worldviews. In general, local perceptions are always determined by the existing socio-cultural worldviews that also include the concept of time, space, environment, and current everyday events and problems. Therefore, one of the basics to be considered is that the traditional concept of time and space in rural communities in the Southern Peruvian Andes derives from a holistic and circular notion. This implicates, on the one hand, that climate itself is not considered as a detached phenomenon because environment and human activities are in constant reciprocal action. Thus, a changing climate and its impacts on, for example agriculture, are an important topic for the population, but are always seen as integrated into other environmental aspects, such as access to water, which is one of the most important topics in the study area. On

the other hand, to process a strongly future-orientated concept such as climate change predictions, originating from a rather occidental, linear time-conception is challenging as it stands in conflict with the traditional, circular temporal thinking of the locality that is dominated by living in the present, in a world where time does not lose itself but comes along, and where everything comes back at its due time, exemplified by the agricultural cycle. Thus, even though the people are used to extreme weather events and fast, drastic weather changes, they are used to the rotation of their annual cycle.

The question of time conceptions was that in the countryside people, let's say, don't divide time. The only thing is what happens before, what it is being experienced today, what will come later, but rather it is being lived in the present, not [so much] what is in the past and what will be in the future. Then, there is a small difference with other ways of understanding time and space and further how rural people live in the present.<sup>cxliv</sup> (Interview, BH3, August 23, 2013; own translation)

This is a totally different fundamental understanding and calls for different approaches. As outlined above, critiques have been raised concerning local development projects, which are trying to implement foreign concepts, knowledges, or methods that are not in line with local socio-cultural characteristics; very often it remains unclear which socio-cultural impacts they bring with them. Therefore, considering local worldviews and including local knowledge are two main aspects that many NGOs are including in their work objectives, as does CADEP. In this context, the CADEP project manager working on climate change adaptation in Chumbivilcas explained:

Yes, there is a horizontal relationship with the population because we have learned to respect their customs and traditions and everything, and that for us they are citizens with full rights and duties and that it is not an ordinary citizen or a citizen of a secondary category. For us, they are a person with rights who has their own customs, language, forms of organisation and coexistence, and who have to be respected and incorporated into our work.<sup>cxlv</sup> (Interview, EI3, August 21, 2013; own translation)

Further, they said: "One of the things that we are looking at in the project is the recovery of traditional knowledge and knowledge technologies"<sup>cxlvi</sup> (Interview, EI3, August 21, 2013; own translation). The implementation of this aim, however, turns out to be complex and difficult, as has been revealed in the citations in sub-chapter 3.2 of this chapter, that demonstrate that traditional or ancestral knowledge is often considered "old-fashioned" or as something superstitious, thus revealing its subjection to the dominant knowledge system. To implement actions successfully, one needs local participation and the local population to be convinced of the idea, which, as has been shown, is a highly political process (c.f., Weisser et al. 2014). Furthermore, when discussing the communication of climate change knowledge, the consideration of discourse entanglements is fundamental. In the Peruvian Andean context, this means considering a long-lasting discourse of "rural" versus "urban," which is again connected

to “tradition and indigenous” versus “modern” and here, following Long Martello and Jasanoff (2004), of a “local not generally recognised knowledge” versus a “scientific real valid knowledge.” As outlined above, this inequality has its roots in colonial times and being aware of this specific Peruvian discourse helps us to understand the ways the climate change discourse is being perceived, accepted, or disapproved. The pure fact that those who are communicating climate change knowledge are mainly “educated” people from the cities has widespread implications, as can be seen in the following quotation from a Chumbivilcano who completed his studies in the city and is now back in his home community:

All local knowledge is devalued, it are not recognised as such. However, we know that such knowledge in other spaces is valid. We must understand it more from a logic of a dependency of thought. I don't know if [in Europe] it happens the same way, but here, everything that is done on the other side is better than what you do. There is no recognition of oneself, and therefore, why should we teach the knowledge in the community if it is not scientific?<sup>cxlvii</sup> (Interview, BH3, August 23, 2013; own translation)

This topic was summarised well by somebody who had worked for a longer time in Chumbivilcas:

Well, I think that this thing of discrimination is so strong in our country that we can also say racism. In the end, because in reality, what the farmer/community member know is not worth anything, and it's only worth something if a technician, an engineer confirms it. If the engineer says [so], “oh yes,” says the farmer, it counts, there he begins to value, but it is not worth anything on its own.<sup>cxlviii</sup> (Interview, E5, October 18, 2013; own translation)

Another implication of this imbalance can be seen:

When, for example, our engineers are leaving to the communities to teach them how to grow potatoes or any other product [...] then they will give advice. Here are the major clashes with the people in rural areas: [The engineers] communicate in a way that what they say does not serve [the community members]. They just hear you [but] in the background they say that what [the engineers] are saying has nothing to do with what [the community members] know. Like I said, there is a clash but it does not stick out so that it is noticeable, but in the background it exists. [...] The wisdom of the “original” people is not recognised as such. It is an empirical knowledge and may, therefore, serve for something, but they are not the decision-makers. Here are serious problems, especially with the professionals and all.<sup>cxlix</sup> (Interview, BH3, August 23, 2013; own translation)

A NGO member referred to the problem of disparity between “urban” and “rural” encounters in their project implementation:

They started with this project, two or three agronomists, engineers. First, they hired a biologist. The biologist came, made a tour in the area, did not like the area, and quit immediately, in less than one month. Then the other team made its baseline, identified communities, all alike. There was no, let's say, horizontal relationship we seek between the population and the institution. At least the coordinator was experienced a little more in the governmental sector, but his relationship was [more

like] engineer to community members. So that was not the relationship we establish here in the area. Then just a little, I don't know, for six months they had not organised. Then it also changed. I came in, then the other two also left. We entered, selected the others, and like this, four or five times.<sup>ci</sup> (Interview, EI3, August 21, 2013; own translation)

Moreover, the interviewee reflected on the difficulties they had with some of the comportment of former co-workers coming from cities to work in rural areas: "So you can't go to the community and say I'm the engineer and you have to respect me [...], I'm not your mate or something. And that's why people were leaving, those are principles of [the organisation]"<sup>cli</sup> (Interview, EI3, August 21, 2013; own translation).

What can be seen here, are primarily three main aspects: 1) The disparity between the rural and urban (formally educated) population; 2) in many cases the unequal communication structure; and 3) the missing recognition of local needs, knowledge, views, and culture or at least the mismatch of what is communicated with local circumstances. These quotations clearly show the importance of the prevailing regional and national discourses, in which the climate change discourse and knowledge communication automatically enters, and which should be taken into account. Hence, intended or not, the discourse enters into existing socio-political and, thus, power structures.

At this point, it is helpful to return to Nadasdy's (1999) point of argumentation in Chapter II, 3.1, which, in its essence, is pointing out that it is the attempt to fit different existing local knowledges worldwide into international knowledge systems, like the international climate change system that is supporting the preservation of the already existing structures in the end. Thus, taking local knowledge or even climate change as a technical problem or "data" can lead to implementation problems and, thus, frustration as the following quotation from an organisation staff members illustrates: "So what's missing? Your will, [your will to] organise, right? If you don't do these [actions] this will continue to happen more, there won't be anything to eat, there won't be anything to take to visit our homes, right? Then you are aware, but you are not acting"<sup>clii</sup> (Workshop 2, October 14, 2013; original in Quechua, own translation from Spanish). This is just one example of "complaints" from, i.a. NGO staff about the lack of will and action from local authorities and community members. Here, the fact that the community members are "not acting" is interpreted as a result of a missing will. However, looking at the briefly explained time concept might reveal that there could be other reasons for people to not be acting, such as, maybe they are just not used to the idea of preparing themselves for future change, as the annual cycle has taught them that everything will come back in its due time. This drastic societal difference was also mentioned by a young man who came back to Santo Tomás after having studied in the city: "Look, here, there is not this

cycle anymore, the cycle that they ran, and definitely no longer the vision of the future, because you do not think that there can be changes later on, but [that] it is momentary”<sup>cliii</sup> (Interview, BH1, October 22, 2013; own translation).

Even though NGOs like CADEP aim to bring together local and scientific knowledge and, thus, integrate local worldviews and practices into the process, in many cases things are not “working.” Some reasons for this have already been mentioned, but another important factor influencing the local perception of the communication process one could look at is the idea of taking local knowledge as a piece of “data” to be collected – which seems to be a preselected and judged selection of knowledge and cultural practices determining what is viewed as valuable enough to be selected.

Here, I would like to take the example of transitions within local traditions and a certain rupture between generations to illustrate this aspect. During an interview, a college teacher explained:

It’s that here is a problem, the issues before with the generation nowadays. There is a disconnect with nature, and the generation of our parents, they live with nature, they internalise their service to the *Pachamama*, first before drinking wine, first [pouring] the rice water to the ground, for example, you can not throw hot potatoes when you boil the hot water, you can not throw them because you’re mistreating them. That is, it is tremendous, to ourselves they surprise, for example, when we talk to the kids, in this moment they say: My mom does it; but they no longer do it. Here, the religion is also another problem, many say why should we believe in that, it is a sin, which causes effects and originate that break. So, for example, Adventists, [if you] say we are believing in the mountain, we give our payment to the land, but that is a sin, it is serving another god, and the mentality of the children is already changing, the beliefs little by little, and that belief with the environment which was so rich is breaking. The other [aspect] is the media of communication, [it is] about everything but has nothing to do with the environment, there are no ecological issues, more it is selling products. That is another problem.<sup>cliv</sup> (Interview, E18, September 24, 2013; own translation)

Further, he said:

That’s a sad problem, as the young people go elsewhere and the parents continue and there it dies. That is a big problem, and we try to rescue this with the *Environmentalist Club* [...]. Inclusive, the other year, we thought to do, for example, payment to the land with the kids but didn’t do it, but it is missing. The problem also is that the teachers [of] the other areas take it as a mockery this aspect, this is the detail. It’s strong here, it’s strong.<sup>cliv</sup> (Interview, E18, September 24, 2013; own translation)

In Peru, major changes and developments are happening, such as increased school attendance; growing infrastructure, such as roads, electricity, and telecommunication networks; the arrival of more paid work opportunities from mining companies; and the emergence of different religious beliefs. These changes and developments have also brought about the abandonment of some traditional customs, which can imply further impacts beyond “just” the cessation of conducting the ritual. This can be illustrated



through the example of traditional fumigation: This is a ritual that is used against a suddenly approaching frost in times between sowing and harvest, its fume redirecting the frost and withit physically protecting against it. This ritual is not carried out anymore by some of those who are “turning their back” on old traditions. In recent years it has been stated that there has been a higher occurrence of frost-impacted crop failure, many times described as an impact of climate change. Not using fumigation can also have further impacts, as the frost is not being deflected anymore, which along with the importance of the ritual itself as a ritual, is a side effect of the ritual. Keeping this in mind, organisations working on climate change adaptation appeal to a preservation or resumption of traditional practices, resulting in statements like, “those traditions must not be allowed to be lost.” In this context, NGOs have only the best intentions in mind, especially when the ritual is additionally “scientifically” proven that it really “works:” “Well, studies and everything that is done, let’s say, more academically, recognises that this knowledge which is ancestral is valid”<sup>clvi</sup> (Interview, EI3, August 21, 2013; own translation). Does this mean, that traditional knowledge should only be recovered when it is scientifically proven? And what should be done in the end with the (recovered) local knowledge, especially if people do not practice it (anymore)? These are questions that will remain open in this work, but are important to ask.

Here, a counter-example from outside the climate change topic but about a traditional practice, clearly demonstrates that a moral and, thus, a socio-political decision underlies the support and recovery of certain traditions, while rejecting others. During an interview, the topic turned towards a traditional regional practice, the *takanakuy*<sup>169</sup> (see Chapter V, 1.4), a ritual fight in Chumbivilcas which, amongst other rituals, brought about the reputation of the area as the “savage” (Gade 1994: 31) or “wild land” (Poole 1994: 97). During the interview, the interviewee explained, referring to conversations he has had with NGO members frequently coming from Cusco or Arequipa that are against this traditional practice:

For example, we had enough discrepancies with [...] [XY] here. I understand them, but I've lived it. [...] But I didn't interpret it in the meaning of machismo, but, depending on the context, the people here always fight and if you don't do anything, nobody will back you up. [...] So, I understand this more in this logic than in the other logic that normally happens. [...] Of course, those are the forms of social consciousness; what is considered good here can be bad there. It depends heavily on the

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<sup>169</sup> The traditional practice of *takanakuy* is carried out in the Province of Chumbivilcas on 25 December with the aim to fight and withit to end conflicts. In case of a existant conflict, one enters the coliseum and calls the name of the adversary. Accepting the fight, which is carried out with punches and kicks and with hands being wrapped in cloth, means to put an end to the conflict and to reconcile. The fight terminates when one of the combatants is knocked down and after the two adversaries shook hands or gave each other a hug. In case the loser does not agree with the outcome of the fight, he/she can banter for another fight. During this day, visitors of the ritual dress up and music is being played.

context. But that's what I understood of different realities and that makes me understand another way.<sup>clvii</sup> (Interview, BH3, August 23, 2013; own translation)

Further, to present a different point of view on this tradition that is so highly criticised, in particular because of its temporal coincidence with Christmas, Víctor Laime, a Chumbivilcano who investigated this topic, explained in an interview for *BBC Mundo*:

Many criticise that we cling to blows on December 25, but **I know nothing more wild and selfish than to dine well and give gifts while others, next to your home, have nothing to eat.** In addition, we celebrated the **Takanakuy** rather than Christmas, which is a Western, capitalist custom, that does not represent us.<sup>170</sup>

These two examples depict that many people don't seem to want to "go back" to some of the old traditions, even if they serve an additional underlying purpose. This second example is, compared to the first one, rather negatively valued and does not involve any scientific proof for its support. Of course, not everybody in the communities is in favour of the *takanakuy*, but it is a ritual that one part of the population wants to hold on to. Maybe, instead of speaking of the one practice as "holy" and devaluing the other, one could ask the question of, what is behind the rejection of the one and the encouragement of the other for the local population?

To summarise, decisions about what kind of local or traditional knowledge is to be collected in order to serve as "data" is valorised and decided in places other than the local community itself, meaning that it has to fit the wider, in this case international, knowledge system that is shaped by, and is thus the result of, former socio-political struggles and negotiations from which NGOs are also unable to free themselves from.

In spite of this communication just outlined, climate change is heard about everywhere in the research area, showing that the information is being adapted in one or another and is not being completely rejected. "And yes, there is progress because when you are going to communities they already speak to you of climate change and all that"<sup>clviii</sup> (Interview, EI3, August 21, 2013; own translation), as was noted by one NGO member. Further, it was stated: "There are several initiatives that enables us to say that there is a concern and an internalisation of the issue of climate change, and not just because of CADEP"<sup>clix</sup> (Interview, EI3, August 21, 2013; own translation). Additionally, a 22-old student from Quiñota said:

Everybody knows about climate change. Hence, if the people are, for example, in their fields and harvest maize and harvest only a little, they say: "Because of climate change I don't even have

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<sup>170</sup> [www.bbc.com/mundo/noticias/2015/12/151225\\_takanakuy\\_peru\\_tradicion\\_golpes\\_navidad\\_bm](http://www.bbc.com/mundo/noticias/2015/12/151225_takanakuy_peru_tradicion_golpes_navidad_bm) [own translation; accessed December 28, 2015]. For some impressions see: [www.bbc.com/mundo/video\\_fotos/2015/12/151225\\_las\\_peleas\\_de\\_takanakuy\\_peru\\_cusco\\_bm](http://www.bbc.com/mundo/video_fotos/2015/12/151225_las_peleas_de_takanakuy_peru_cusco_bm) [accessed March 21, 2016].

maize, because of climate change.” Today, everything is because of climate change.<sup>clx</sup> (Group interview, October 13, 2013; own translation)

In terms of the communication of knowledge, prevailing social discourses are of high importance. In this case, the discourse is particularly accepted because it comes from the “knowledgable cities,” from those who studied, which means from the “owner” of knowledge, science. Concurrently, for the rural population this means that once again “the others” are the ones who know and they themselves are, as usual, the “unknowing,” and people expect support in their role as the “unknowing ones:”

People are used to you helping them, that [...] they will help. If there is a NGO, it is to help. If there is a project of the state, it has to give. So, this change in the relationship between the majority of society and the indigenous peasant society and the different cultures that exist in the country is the key. [...] If it is not resolved, we will never be able to come together as a country. [...]

Well, it isn't bad either that the population has grown, that there are more services, that there is more transportation; that's good, that's good. But is not that [...] thing of self-assessment, autonomous, identity of the culture; not because the project says it, not because a programme says it, a NGO, but because people live it!<sup>clxi</sup> (Interview, E5, October 18, 2013; own translation)

In this regard, the climate change discourse deepens already existing inequalities and power constellations. Additionally, accepting this information does not necessarily mean that this information is of use for the population *in situ*. On the other hand, the discourse is adapted by the population, as can be seen by the last quotations. It is, therefore, being used to explain crop-failures, sicknesses, and plagues, for example, which could also have other explanations. The international climate change discourse actors should be aware of this information perception and adaptation, as in the end, climate change knowledge could end up not just supporting climate change adaptation, it could also prevent people from seeing the diversity of explanations or reason for problems in different places. Thus, it should be asked, if the aim of the communicated knowledge has been “achieved.”

## VI. Conclusion

Based upon the findings from my research, a number of conclusions can be drawn about how the international climate change discourse has trickled down to Peru's national level, how it impacted the region of Cusco, and how it is perceived and further entangled with local discourses in Chumbivilcas.

The research shows that not only physical climate change is having an impact, but that the global climate change discourse itself is powerful and influences societies all over the world. In this context, climate change knowledge has become common global knowledge with almost universal authority. Accordingly, the study revealed that the international climate change discourse was fully taken on and assimilated into the national politics of Peru, has had strong impacts on the region of Cusco and its environmental policy, and has additionally influenced the activities of the provincial municipality in Chumbivilcas. The topic was further transmitted to the population of Chumbivilcas, mainly through (inter)national development cooperation actors. Here, the incoming information on climate change that draws from the international arena to the local levels is being processed, adapted, and transformed in a cultural and social relevant manner.

The global climate change discourse is embedded in other discourses, existent assumptions, and global structures. While the intentions of the discourse is predominantly to support and solve a global problem and its impacts at the local level, it has been shown that international (development) cooperation is rather sustaining or even reinforcing existing power structures and inequalities, leaving certain actors and places, considered to be the most vulnerable, in disadvantageous or weaker positions. In this framework, a close cooperation between all actors and within all socio-cultural and knowledge systems is needed, which is a complex balancing task. Thus, there is a need to recognise and accept non-Western views and local knowledge systems, local community experiences and understandings of climate change as being equal alongside the currently dominant one(s) that are derived from negotiation processes at the national and international level.

It has been demonstrated that the involvement of the international development cooperation community in the climate change discourse was an important linchpin for the expansion of this discourse. Thus, development cooperation is a crucial transmitter of climate change information, especially for communities in the peripheries of the Global South, and is thus the main transmitter of the global climate change discourse itself. Empirical examples from Peru show the adaptation of the climate change discourse by development cooperation actors and how this can lead to the reification of

existing power structures. This underlines the responsibility of development cooperation actors. Here, a successful coordination of development and climate change adaptation measures is highly needed. Furthermore, the transmitters or mediators communicating and translating knowledge back and forth not only need to speak the various languages, but also need to understand both “cultures:” The one *in situ* and the science based one. This implies the need to consider national and local discourses; existing power structures; and prevailing worldviews in which perceptions of time, environment, and climate are embedded. In the case study, the discourse has been integrated into a process of general transformation, hence modernisation. Dualisms, such as city vs. countryside; indigenous vs. non-indigenous; traditional vs. modern lifestyles; and education and knowledge vs. traditional rural knowledge and the lack of formal education, and in this context discrimination – the discourse on “racism without race” – play a major role.

Since the international climate change discourse is individually and culturally specifically interpreted and embedded into existing local knowledge systems, its influential power must not be underestimated and, therefore, specific socio-cultural particularities should be taken into consideration. Local knowledge, perceptions, and adaptations must be recognised and given more influence. Based on the results of this case study, I have demonstrated that the international climate change discourse is even re-enforcing the prevailing inequalities/hierarchies. Here, the discourse is taken over by the “educated,” urban population, resulting in the stabilisation of their privileged positions and the already existing social relations; though mostly not with a conscious intention to do so. At the same time, it has been shown that the existing power relations and social hierarchies are not just re-enforced by the “privileged subjects” of the society, but also by the ones that are “discriminated” against or excluded, and who aspire to leave their underprivileged social position. Thus, in this thesis, I have demonstrated that the distinction between scientific and local knowledge remains an obstacle, not only concerning the transmitted information and content, but also between the actors involved. Hence, experts, and very often also the local population that does not have an academic education, are stuck within existent schemata, leaving the experts in their role of superiority. Thus, there are rather attempts to fit local knowledge into the international discourse and not the local socio-cultural circumstances.

This insight into a specific case study shows the importance of how, and in what sense, the climate change discourse is locally perceived in Chumbivilcas, what impacts it has had, and what role local socio-cultural aspects and prevailing discourses can play. Further research on additional localities around the world would help to continuously integrate situated knowledge and positions into the international climate change

discourse and to communicate important knowledge on equal terms and in a culturally relevant way that is adapted to the situation and needs of the localities. This would surely enrich and deepen the on-going discussions on how to confront climate change challenges and how to increase local knowledge, and the resultant implications for national, regional, and global decision-making processes. In this context, the global climate change discourse should take a chance and create a new balance in an effective, equal, and integrating way, not only between humans and nature but also between the Global North and the Global South, and nation states and their local communities.

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## Appendix

### Appendix 1: List of interviews conducted (2012-2014)<sup>171</sup>

	Interview Code	Date	District / Organisation / Job Title	Gender	Age	CADEP-connection	Duration
1	<b>E6</b>	30.10.2012	AECID, Lima	M, F <sup>172</sup>	/	/	01:02:52
2	<b>E9</b>	02.11.2012	GIZ, Chiclayo	M	/	/	01:42:48
3	<b>E8</b>	07.11.2012	Soluciones Prácticas, Cusco	M	/	/	00:28:40
4	<b>E7</b>	19.11.2012	CONDESAN, Lima	M	/	/	00:46:05
5	<b>E3</b>	20.11.2012	IGP, Lima	F	/	/	00:56:26
6	<b>E4</b>	20.11.2012	Soluciones Práctica, Lima	M	/	/	01:07:27
7	<b>B1</b>	11.07.2013	Quiñota	F	44	No	00:17:41
8	<b>B17</b>	11.07.2013	Quiñota	M	44	Yes	00:10:35
9	<b>B3</b>	13.07.2013	Llusco	F	26	Yes	00:26:59
10	<b>B4</b>	13.07.2013	Llusco	M	53	Yes	00:39:44
11	<b>AMC2</b>	15.07.2013	Municipality, Santo Tomás	M	28	No	00:49:58
12	<b>AMC1</b>	15.07.2013	Municipaity, Santo Tomás	M	28	No	00:28:18
13	<b>E15</b>	17.07.2013	Teacher, Quiñota	F	37	/	00:09:35
14	<b>B5</b>	18.07.2013	Llusco	M	28	Yes	00:26:49
15	<b>B6</b>	18.07.2013	Llusco	M	37	Yes	00:20:18
16	<b>B10</b>	18.07.2013	Llusco	M	38	Yes	00:34:13

<sup>171</sup> Interview information on the local population are listed in "orange," the "black" coloured information are for experts.

<sup>172</sup> During some interviews more than just one person were present, in this case this is indicated within the column gender.

17	<b>B11</b>	19.07.2013	Quiñota	M	39	Yes	00:14:09
18	<b>B18</b>	19.07.2013	Quiñota	F	44	Yes	00:23:27
19	<b>B19</b>	19.07.2013	Quiñota	M	22	No	00:22:52
20	<b>B12</b>	19.07.2013	Quiñota	M	41	No	00:19:16
21	<b>B13</b>	20.07.2013	Llusco	M	78 (42)	No	01:15:00
22	<b>E16</b>	31.07.2013	Arariwa, Cusco	1xF 4xM	/	/	00:49:45
23	<b>E12</b>	06.08.2013	PACC, Cusco	M	Ca. 50	/	00:53:47
24	<b>E11</b>	06.08.2013	GORE, Cusco	M	Ca. 55	/	00:35:52
25	<b>B9</b>	10.08.2013	Llusco	M	52	Yes	00:28:53
26	<b>B15</b>	10.08.2013	Llusco	M	65	Yes	00:38:49
27	<b>E14</b>	11.08.2013	CADEP, Cusco	F	40	/	00:45:03
28	<b>B20</b>	12.08.2013	Santo Tomás	M	39	Yes	00:37:14
29	<b>B30</b>	12.08.2013	Santo Tomás	F	37	No	00:12:04
30	<b>B26</b>	12.08.2013	Santo Tomás	M	56	Yes	00:21:45
31	<b>B21</b>	12.08.2013	Santo Tomás	M	40	Yes	00:21:01
32	<b>B24a &amp; b</b>	13.08.2013	Santo Tomás	M	31 / 25	Yes	00:32:08
33	<b>B25</b>	13.08.2013	Santo Tomás	F	23	No	00:16:23
34	<b>B28</b>	13.08.2013	Santo Tomás	F	36	Yes	00:13:08
35	<b>B29</b>	15.08.2013	Llusco	M	54	No	00:38:56
36	<b>B23a &amp; b</b>	15.08.2013	Llusco	M	55 / 29	No	00:26:49
37	<b>B16</b>	16.08.2013	Quiñota	F	29	No	00:21:02
38	<b>Radio Chaski,</b>	18.08.2013	Santo Tomás	3xF	/	/	00:57:51

	<b>High School students</b>			2xM			
39	<b>EI3</b>	21.08.2013	CADEP, Cusco	F	48	/	01:00:39
40	<b>BH3</b>	23.08.2013	Santo Tomás	M	40er	No	01:16:34
41	<b>Radio Chumbivilcas, programme CADEP</b>	24.08.2013	Santo Tomás	1xF 2xM	/	/	00:54:57
42	<b>B8</b>	16.09.2013	Llusco	M	56	Yes	00:39:10
43	<b>B7</b>	21.09.2013	Llusco	F	17	Yes	00:34:59
44	<b>B22</b>	21.09.2013	Llusco	F	48	Yes	00:47:59
45	<b>EI8</b>	24.09.2013	Teacher, Santo Tomás	M	35	/	00:43:33
46	<b>B27</b>	26.09.2013	Santo Tomás	F	40er	No	00:36:59
47	<b>B31</b>	27.09.2013	Santo Tomás	M	55	No	00:33:48
48	<b>Workshop 1</b>	12.10.2013	Workshop, Llusco	/	/	/	/
49	<b>Group discussion, University students</b>	13.10.2013	Chumbivilcas	3xF 2xM	22-25	/	01:44:07
50	<b>Workshop 2</b>	14.10.2013	Workshop, Llusco	/	/	/	/
51	<b>B14</b>	16.10.2013	Llusco	F	36	Yes	00:40:35
52	<b>EI7</b>	16.10.2013	University Lecturer, Santo Tomás	F	41	/	00:48:38
53	<b>E5</b>	18.10.2013	Cusco (Europa)	M	/	/	01:03:00
54	<b>B2</b>	20.10.2013	Llusco	F	56	Yes	01:55:00
55	<b>BH1</b>	22.10.2013	CADEP, Santo Tomás	M	27	Yes	01:04:44
56	<b>BH2</b>	23.10.2013	Agricultural league, Llusco, Chumbivilcas	M	32	No	00:44:42
57	<b>E2</b>	12.02.2014	PNUD, Lima	M	/	/	00:52:31
58	<b>E1</b>	14.02.2014	Libélula, Lima	F	/	/	00:38:20

## Appendix 2: Community interview guide

**Cover sheet**  
**Interview Guide**  
Original in Spanish

Place of interview		Date	
Recorded (yes/no)		Duration	
Name		Village & community	
Sex (f/m)		Age	
Education (preschool, primary, secondary) or other degree (studies, ...)		Public tasks	
Notes			

To be completed after the interview:

- Behaviour of the interview partner: Good / indifferent / a little uncomfortable
- Understanding of the content of the questions: High / medium / low

## Interview guide: Local population

(Original in Spanish)

### 1. Life of the person:

Were you born here in the community? If not, where? Did you grow up here in the community?

Your parents, where did they grow up?

What have you done (work) after you finished school?

### 2. Perception and Change:

*The cycle of nature and rural life:*

What legends or saying exist about the origins of this village?

What do you grow? Where are your fields? How do you decide what you are growing in your fields? Do you change your products in the fields from time to time (*laime*)? If so, when? Why?

Are you selling or exchanging (*trueque*) your products? What are you selling? What are you exchanging? With whom do you exchange? Whom are you selling to? Where? When?

What time of year do you: 1) Sow, 2) harvest, and 3) work your fields? What is the amount of crop you harvest with irrigation? What about without?

What rites do you carry out accompanying your annual field work (e.g. "*pago a la tierra*" = "offering to the earth")? Why and how do you carry them out?

Do your dreams sometimes show you something? Which gods/*Apús* support you? Which ones are a risk/dangerous?

Which celebrations/festivals are celebrated throughout the year?

What are you paying attention to when starting to sow? How can you tell if the following year will be a good or bad year for your harvest? How do you orient yourself (e.g. mountains, rivers, stars, glaciers, etc.)?

Are there *arariwas*<sup>173</sup> in your community? What kind of tasks do the *arariwa* do when it comes to climatic problems? In your opinion, do the rituals and predictions of the *arariwas* match with what then happens?

If there is a bad year, meaning, when the harvest fails, what are you doing to not expose your family to nutritional risks?

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<sup>173</sup> A "Supervisor" of the sowing selected by the community for a year.

*Changes in nature:*

Do you think that there have been changes in the nature or *Pachamana* (=mother earth)? What changes are occurring in comparison to the past (e.g. ecological, social, economic, spiritual – such as customs and religion, e.g. changes with the water, the rain, frosts, seasons, plants and animals, glaciers, etc.)?

Why do you think this has changed?

Do these changes affect the nature (plants, animals, agriculture) / the *Pachamama* / the social life? How have these changes affected your life (family, spirituality, customs, religion, social life, nutrition, economy)?

Do you think that people were better nourished in the past or today?

Do you think that people were happier today or before?

*Mines:*

What is your opinion about the mines, are they good or bad? Why?

What do the local authorities think about it?

Should something be done about the mines?

Do you think that there are problems or complications with regard to the environment or the natural resources due to the mines? What happens, for example, with the water, with the ground?

*Climate and climate change:*

What comes to mind when you hear the term climate change? (Tell me in 5 words what comes to your mind when you think of climate and climate change)

Have you heard about climate change?

**If so**, what did you hear? When? And where? What did they say?

What do you think about what has been said?

What has changed for you with your gained knowledge about climate change?

Do you think that there is a climate change?

If yes, what is climate change? What do you think will happen?

Why does the climate change? (e.g. because of spiritual/religious reasons, as a result of modern life, for environmental reasons, because of the mines, no idea)

What is it that you don't understand about climate change?

**If not**, why do you think that there is no climate change?

Have you already experienced any changes?

If so, which changes? Is it positive or negative for you? How does it affect your life? How does it affect your work? How does it affect plants/animals?

Are there new challenges that have occurred for the first time with these changes?



If so, what could be done to mitigate the negative effects?

Are you concerned about climate change? Why?

Do you know what local authorities or other organisations work on climate change?

Do you feel well informed? If not, what information are you missing, what else would you like to know?

Do you know what your regional and what the national government are working on in terms of the topic of climate change?

Have you ever heard of the international climate negotiations?

What did you hear?

*Medias of communication:*

Concerning climate change, what kind of information does the local media in Chumbivilcas transmit?

Which newspapers do you know that (most) report on climate change?

Do they tell something on the radio about climate change? What is reported? What do you think about what they report?

## Appendix 3: Local government interview guide

### Interview guide: Local government (Original in Spanish)

#### 1. Life of the person:

Where do you come from?

What have you done (work) after you finished school?

#### 2. Perception of climate change:

What comes to mind when you hear the term climate change? (Tell me in 5 words what comes to your mind when you think of climate and climate change)

Have you heard about climate change?

*If so*, what did you hear? When? And where? What did they say?

What do you think about what has been said?

What has changed for you with your gained knowledge about climate change?

Do you think that there is a climate change?

If yes, what is climate change? What do you think will happen?

Why does the climate change? (e.g. because of spiritual/religious reasons, as a result of modern life, for environmental reasons, because of the mines, no idea)

What is it that you don't understand about climate change?

*If not*, why do you think that there is no climate change?

Have you already experienced any changes?

If so, which changes? Is it positive or negative for you? How does it affect your life? How does it affect your work? How does it affect plants/animals?

Are there new challenges that have occurred for the first time with these changes?

If so, what could be done to mitigate the negative effects?

Are you concerned about climate change? Why?

#### 3. Institutions and climate information channels:

Which institutions (governmental or non-governmental organisations) exist in Chumbivilcas and which ones work on climate change?

What do you do, as a local government - what kind of projects or measures – in the area of climate change?

Who do you work with, which target groups do you orient your work towards?

Do you also explain the context of climate change? If so, how do you explain it?

Do you know what the regional government/the national government do in the area of climate change?

Do you feel well informed? If not, what information is missing, what else would you like to know?

Have you heard of the International Climate Negotiations? If so, what did you hear?

*Medias of communication:*

Concerning climate change, what kind of information does the local media in Chumbivilcas transmit?

Which newspapers do you know that (most) report on climate change?

Do they tell something on the radio about climate change? What is reported? What do you think about what they report?

Do you think there are any gaps in the communication of climate information? Which population groups or actors are not addressed?

*Schools:*

Do you know if there are any climate (change) related programmes in schools?

If yes, what is taught about climate change? In which grade? In which language (Spanish or Quechua)?

Is there any information about climate change in the textbooks? In which grade?

Do you know what young people say about climate change?

*Mines:*

What is your opinion about the mines, are they good or bad? Why?

What should be done about the mines?

Do you think that there are problems or complications with regard to the environment or the natural resources due to the mines? What happens, for example, with the water, with the ground?

## Appendix 4: Organisations interview guide

### Interview guide: Organisations (Original in Spanish)

#### 1. Introduction:

What comes to mind when you hear the term climate change? (Tell me in 5 words what comes to your mind when you think of climate and climate change)

#### 2. Political processes related to the topic of climate change in Peru and Cusco:

In your opinion, what are the current processes in the area of climate change in Peru? (→ Political processes)

What are the focal areas and priorities Peru is working with in respect to climate change?

Can you tell me which national documents exist on climate change?

Do you know how far the existing national strategies and projects have been implemented?

What would you say are the strengths and weaknesses of these strategies and documents?

Which actors are working on the topic of climate change? (e.g. information transfer, international climate negotiations, development cooperation, education, ...)

How is Peru involved in the international climate negotiations of the United Nations?

What is the position of Peru in the negotiations?

What activities does Peru follow-up on?

To what extent is Peru positioned in alliances within the Latin American countries?

To what extent do the international climate negotiations influence Peru?

#### *Project(s) of the organisation:*

How did the climate project XY evolve?

What adaptation measures are being implemented?

How are adaptation measures implemented?

To which population groups/actors are the measures directed towards?

How do you communicate and explain climate change? How do you involve "the local" and local traditions?

What are the next steps in your project?

#### *Regional level:*

In your opinion, what are the current processes in the area of climate change in Cusco?

(→ Political processes)

What are the focal areas and priorities Cusco is working on in respect to climate change?

What are the regional priorities for the existing projects in Cusco?

Can you tell me which regional documents exist on climate change?

Do you know how far the existing regional strategies and projects have been implemented?

What would you say are the strengths and weaknesses of these strategies and documents?

Which actors are working on the topic of climate change? (regional actors and NGOs) (e.g. information transfer, international climate negotiations, development cooperation, education, ...)

### **3. Perception of climate change:**

Do you already experience any changes?

If so, which changes? Is it positive or negative for you? How does this affect your life?

How does this affect your work? How does it affect plants/animals?

Are there new challenges that have occurred for the first time with these changes?

What are the current bio-regional differences in vulnerability to climate change in the region of Cusco?

What main problems or limitations exist for communities with respect to a changing climate?

If so, what could be done to be able to mitigate the negative effects?

Are you concerned about climate change? Why?

To what extent are the mines an issue in your work in the province?

### **4. Communication**

How is climate change information mainly communicated in Peru and in Cusco (in rural and urban areas)?

Where does the information come from? What sources are used? (for example, radio, press, school, projects, ...) Which population group(s) are targeted by the climate change information?

Do you think there are any gaps in the communication of climate information? Which population groups or actors are not addressed? Concerning climate change, what kind of information is primarily communicated through the media?

Are there any climate (change) related programmes in schools?

## **5. Closing**

Do you see any issues that you consider important for the discussion that are currently not being discussed within the process or the discourse on climate change?

With whom else should I talk to about this topic?

## Appendix 5: Thematic workshop concept

### Concept for the thematic workshops in the villages

(Original in Spanish)

Village 1: Saturday, 12<sup>th</sup> of October 2013

Village 2: Monday, 14<sup>th</sup> of October 2013

Objective: Acquisition of information about the transformations and changes in the village and the existing knowledge on climate change via...

- A) History (timeline): The former village and its transformations until today: Environmental and climate change, social and cultural change, political and economic in conjunction with the environment (e.g. times of famine or further extreme climatic events which has had an influence on the lives of the population, existence of churches, different projects of organisations and government, reforms, ...).
- B) An annual calendar: 1) Agriculture, 2) weather and climate, and 3) customs and festivals (especially those which help to determine weather and climate).
- C) Images/drawings, the village: 1) In the past, 2) today, and 3) in the future.
- D) Group discussion: Reflections on the village and its transformations and their causes, as well as prevailing knowledge about climate change.

Product to remain in the village: A booklet with the results of the workshop (history, annual calendar, climate, ...) and pictures

### Agenda

#### 1. Introduction to the topic

#### 2. Group discussion

Questions:

Why did your ancestors/parents probably chosen this place to live? What has made this place so enjoyable to live in? How is it today? What has changed? Why?

Were the times to live here better before or today? Why? What has changed?

What is climate change? What do you know about climate change? What are the effects of climate change? Where have you heard of climate change? When was the first time that you heard of climate change? From whom? What do you think about what you have heard? Why do we have climate change? What has changed for you with your gained information and knowledge about climate change? What is still incomprehensible about climate change?

Do you already experience any changes? Does climate change exist? If so, what impact does it have (positive and negative)? Had you already felt a climate change before you had heard of the phenomenon of climate change?

What will happen because of climate change with the *Pachamama* / the water / the *Apús* (= mountain gods) / traditions?

What knowledge (about the nature, plants, animals, etc.; tradition; customs ...) should continue to exist or should be resumed in order to respond to the negative impacts of climate change?

How do you intend to continue with the topics of the environment and climate change when the project of CADEP does not exist anymore?

**3. Work in small groups:** 3 groups (see below for each group)

– *Lunch break* –

**4. Presentation of the group-results and final discussion**



## Group 1

### History: Timeline

How was the village formerly and what are the changes or transformations until today?

Including important events such as...:

environmental changes including climate, but also social and cultural change, political, and economic in conjunction with the environmental (e.g. times of famine or further extreme climatic events which have had an influence on the lives of the population, existence of churches, different projects of organisations and government, reforms, ...).

When was the first time that you heard of climate change?

More examples of important events in the village (CARE, 2009a: 37):

- Major hazards and their effects
- Changes in land use (crops, forest cover, houses, etc.)
- Changes in land tenure
- Changes in food security and nutrition
- Changes in administration and organisation
- Major political events

Participants: Participants should be people who best know the history (older, former village presidents, ...), men and women should be split equally, as much as possible.

Questions that could deepen the discussion are the following (CARE, 2009a: 38):

- Are there any trends or changes in the frequency of events over time?
- What are current strategies to cope during the difficult events? Are they working?
- Have coping strategies changed based on the changing frequency of events?
- What events do you expect will occur in the future? When?
- Does this perception of future events affect your plans for the future?

## Group 2

### Annual Calendar:

- 1) Agriculture
- 2) Customs, rituals, & fiestas (especially those which help to determine the weather or climate)
- 3) Weather and climate

Where do you see changes between then (20-30 years ago) and today?

Participants: Participants should be people of different ages and both sexes.

Realisation:

- 1) Agricultural calendar: Seasons of sowing and harvest (CARE, 2009a: 35; example from a workshop of CADEP)

Activity / Product	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DE C
Potatoes												
Fallow				X	X							
Pound & prepare the land								X	X	X		
Sowing										X	X	X
First hilling <sup>174</sup>	X										X	X
Second hilling		X	X									
Phytosanitary / weevil control	X	X	X									
Harvest					X	X						
Production of chuño & moraya						X	X					

- 2) Calendar – customs, rituals, & fiestas (especially those which help to determine the weather or climate)

Customs, rituals & fiestas	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DE C
Village												
Province												

<sup>174</sup> Hilling means to weed and to return the soil to the stem of the plant so that the plant stays firm and with more soil.

3) Climate/weather calendar: Rain, drought, hail, snow, frost, wind, ...

Climate Indicators	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DE C

Other dramatic events in the community (CARE, 2009a: 35):

- Periods of food scarcity
- Times of migration
- Timing of hazards/disasters such as cyclones, droughts and floods
- When common seasonal illnesses occur

Questions that could deepen the discussion are the following (CARE, 2009a: 36):

- What are the most important livelihood strategies employed at different points of the year?
- What are current strategies to cope during the difficult times? Are they working?
- Are there any differences in the timing of seasons and events as compared to 10 / 20 / 30 years ago?
- Have livelihoods/coping strategies changed based on the changing seasons or events?
- How are decisions made on the timing of livelihood strategies?

### Group 3

#### Drawings:

- 1) The village in the past (ten years ago)
- 2) The village today
- 3) The village in the future (in five years)

Including: Houses/buildings, woods, water (sources, channels, rivers, lagoons, ...), fields, pastures, animals, ...

The village today: Points of threat should be represented (floods, rock slides, droughts, ...)

Participants: At least three people to ensure discussion. If there are enough participants, half should be women and the other men. A mix of age would be good.

Questions that could deepen the discussion are the following (CARE, 2009a: 33):

- Who has access to the resources shown in the map? Who controls this access?

- What are the impacts of the hazards identified?
- Are the hazards different now than they were 10 / 20 / 30 years ago (depending on age of participants)? How?
- Are there places in the community that are safe from the hazards?
- Are the safe places used to protect from hazards (e.g. to store food and inputs, or to shelter livestock)?
- Who are the members of the community who are most at risk from the different hazards? Why?
- How do people in the community currently cope with the impacts of the specific hazards identified? Are the current coping strategies working? Are they sustainable?

## Endnotes

<sup>i</sup> “AW: ¿Y por qué piensa usted que tenemos este cambio climático? ¿Por qué hay estos cambios en el tiempo?”

B8: Cambio climático según lo que nos dice la radio y los científicos, la capa de ozono poco a poco está roto dice y por eso.

AW: ¿Y por qué pasa eso? ¿Y por qué se ha roto?

B8: Por este, por el humo, lo que quemamos, pastos, algunas cosas, cada día quemamos, de eso se malogra pe yon con las fábricas, también ahora ya utilizamos como juguete el carro, su humo también hace contaminación, pe.”

<sup>ii</sup> “Imagínate, [...] se conformó lo que es la *Comisión Ambiental Municipal* [CAM]. Se conformó, no se logró este año quizás hacer los otros instrumentos como son el diagnóstico ambiental, se dejó un borrador, después la agenda ambiental no se logró hacer, después las organizaciones no entendieron en qué consistía la *Comisión Ambiental Municipal* y ni para qué servía. [...] Ahora se ha institucionalizada este espacio, pero no les están dando tampoco una debida importancia a este que es muy muy importante para lo que es la gestión ambiental, esto de la CAM [...]. Y se está yéndose de verdad. De lo que debería ir para arriba se está yéndose para abajo.”

<sup>iii</sup> “El *Programa Conjunto* dejó muchos estudios relacionados al medio ambiente: Cosecha de agua, reservorios, forestaciones, eh, cuidado de nevados, [...] una cantidad de estudios. Estos estudios se rastran así como unos archivadores puestos. Nadie de los gobiernos locales se da la molestia de poder revisarlos.”

<sup>iv</sup> “AW: Y usted está haciendo algunos costumbres, [...] rituales, ritos, como pagachu a la pachamama? ¿Eso están haciendo? ¿O otra cosa para ver cómo va el tiempo en los próximos meses para la siembra [...]?”

B14: No, nosotros ya no acostumbramos eso. Mis padres sí acostumbraron, pero nosotros ya no ya.

AW: Y puedo preguntar por qué, bueno por qué piensan..., bueno, los padres lo han hecho y normalmente siempre los niños hacen lo de los padres, ¿no? Y, ¿por qué ustedes ya no hacen?

B14: Es que nosotros pensamos que es por gusto (riendo). Así yo creo. Entonces ya no, entonces ya no sigo por sus pasos de mi padre.”

<sup>v</sup> “T: ¿Pero solo por ustedes no podrían, así, como en antes nuestros abuelos hacían, las humaredas, cuidando los manantes, o haciendo ofrendas, estas prácticas ya no las hacen?”

B14: Aquello de ofrendar nos hemos olvidado por completo señor/a X, las últimas generaciones ya no las realizamos ni poquito estas [prácticas].

T: ¿Ni ustedes?

B14: De ninguna manera, solo cuando se avecina la granizada hacemos humareda, solo eso, sí.

T: De acuerdo a tu percepción, ¿están bien estas [prácticas] o no para que nuevamente las realicemos?

B14: Está bien estas [prácticas] señor/a X, porque en antes realizaban, ofrendaban a la pachamana, gozosamente hacían el brindis y en verdad producían bien con buenos productos, así también los animales.”

### Quechua:

“T: Pero, qankunalla manachu imayna abuelonchis anteskunata riki ruwaq karanku q’osñichikuyta, manantikunata cuidaq karanku o pagokunata ruwaspa, chaykunata manañachu ruwankichis?”

B14: Anchiy, pagotaqa señor/a X q’alata qonqarapuyku, manaña qhepa wiñaykunaqa chikantapas yuyaykuñachu chaytaqa.

T: Qankunapas?

B14: Manapuniyá, solo chikchi hamuqtin anchay q’osñichiyku chayllayá, riki.

T: Pero, qan qhawarisqaykiman hina allinchi chaykuna manachu, chaymanhina hoqmanta chayta ruwanapaq?

B14: Allinya chaykunaqa señor/a X, porque antes aqna pagokunata pachamamakunaman ruwakuqku, sumaqta t’inkakuqku y cheqayta qoq allinta buenos productos, animales también, sí.”

<sup>vi</sup> “El cambio climático por ejemplo para mí [es] cuando nuestro clima ya no está pues en su debido tiempo, nuestros, por ejemplo, la lluvia, las heladas por ejemplo, la nevada, la granizada ya no está en su debido tiempo que era antes. Por ejemplo, ahora ya hay años que ya no cae la nevada, hay años que llueve fuerte, hay años que no hay lluvia también y ahora como este año que no hay helada.”

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vii “La percepción de la gente es [sólo], o sea veinte años tal vez atrás, o sea no es [...] muy largo, o sea el, su recuerdo del clima no es muy amplio.”

viii “Los granos, no tenemos ni siquiera para dar a las gallinas, solamente maíz y papa nada más, y los cebadas, todos cereales no hay. Sí, todito para cosechar estábamos, entonces todo se ha [caído al] suelo [por la] granizada.”

ix “El principal reto se encuentra en la incorporación de la perspectiva del cambio climático en los procesos de desarrollo en marcha (esfuerzos de reducción de la pobreza, gestión de riesgos, gestión de la agricultura y la seguridad alimentaria, diseño y ejecución de infraestructura económica y social, provisión de energía y gestión de los recursos naturales, principalmente), así como en el proceso de planificación nacional del desarrollo en todo nivel (nacional, regional, y sectorial).”

x Original Spanish version: “No es una reunión de ambientalistas: CC es economía, desarrollo, futuro.”

xi “[...] para nosotros, para el gobierno peruano es particularmente importante que este sea una COP participativa y que se perciba de esta manera, decir que la gente sienta que tuvo la oportunidad hacer oír su voz.”

xii “Esta campaña no solo busca sumar seguidores sino originar cambios de actitud en la gente, mediante un mensaje claro, ambicioso, fuerte y con futuro: Reconocer que el cambio de conducta personal es la única vía para luchar contra el cambio climático.”

xiii “Y miren Ustedes, que el Presidente de la Republica respalda fuertemente el tema, está empezando a liderar fuertemente el tema a nivel mundial, en el discurso de CELAC lo mencionó, cuando vino el secretario general de las Naciones Unidas lo mencionaron juntos con ocasión de la conferencia general de la UNUDI, ahora con el Presidente Santos en Colombia – a quienes escucharon en la television el presidente Santos y el presidente Humala – fue un tema de la conversación.”

xiv “El Perú facilita un acuerdo cuando es presidencia de la COP, y una lógica de presidencia, no prejuzga. Eso es un principio fundamental en la negociación porque si entramos a prejuzgar no facilitamos nada. En consecuencia, el rol del Perú es un rol de equilibrio, es un rol de generación de atmósfera de confianza [...] y esta generación de confianza es donde se puede ordenar una negociación sana.”

xv “Es ‘necesario crear un equilibrio entre países desarrollados y en desarrollo’, así como lograr el balance adecuado entre los programas gubernamentales y las propuestas de base, y ‘escuchar a más voces’ como al sector privado, la sociedad civil y las ONG.”

xvi “Ausencia de un sistema integrado o articulado de información entre ministerios, instituciones, gobiernos regionales y locales, con el sector del conocimiento (institutos de investigación y universidades), que se evidencia en la dispersión de los canales de recopilación de información.”

xvii “Hay muy poca investigación en las universidades, o sea casi nada, ni la parte física, ni en la parte social. O sea, hay esfuerzos digamos por conocer un poco mas los impactos económicos, cuánto cuesta este, los economistas están haciendo sus modelos de poder estimar, por ahí hay. Hay algunas universidades sobre todo privadas que están haciendo eso, pero así investigación social no hay.”

xviii “Y al ver de que las capacidades en el Cusco en el cambio climático..., entonces hemos [desarrollados] tres diplomados [...] en convenio con la Universidad Sant Antonio Abad [UNSAAC], el diplomado se llama “Ciencia y Gestión Frente al Cambio Climático”, con las universidades de Zurich, con las universidades de Panamá, con las universidades nacionales; 75 egresados que ahora hablan sobre el cambio climático de manera coherente con un sustento teórico y técnico y además hicimos otro diplomado sobre gestión pública y cambio climático.”

xix “Hay muy poca inversión en lo que es ciencia y tecnología, sigue sin usar la información básica, no es considerada prácticamente porque cuando uno va a pedir presupuesto o va a pedir un dinero te piden un resultado que sea aplicable a la reducción de la pobreza. Tengo una investigación básica, tengo una publicación muy conocida citada, por entonces eso no cuenta aquí. Nosotros ponemos indicadores de desempeño en el sector publico que estamos ahora. No te aceptan. Que tengas una investigación que sea conocida internacionalmente, no cuenta para los legisladores aquí.”

xx “Sí, se ve que [...] se le está dando mayor importancia a lo que se conoce ahora, a lo que se sabe, a lo que la ciencia está haciendo para la toma de decisiones. Peor todavía, no está bien articulado entre la información que es científica que se introduce y cómo eso llega y es tomado en cuenta. Pero sí están preocupados las autoridades en la toma de decisiones y están preocupados en este tema, pero todavía no llegan a comprender realmente. O sea, todo por lo general digamos usan lo que les conviene en el

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momento. [...] Por ejemplo, [...] a veces están interesados, 'queremos saber cuándo va a ocurrir un evento'. Pero sí tenemos probabilidades de que esto vaya a ocurrir, pero cincuenta años es demasiado tiempo, veinte años es demasiado tiempo, 'yo quiero saber ya cinco años porque cinco años es mi periodo, si soy autoridad de aquí a cinco años yo ya no estoy. Entonces, yo quiero hacer las cosas en este periodo [...]'. Entonces, y va mucho enfocado de que las prioridades cambian mucho de acuerdo [...] a la autoridad que entra. [...] Nosotros publicamos, hemos hecho conferencias, hemos entregado informes [...], lo tienen en cuenta, pero no al cien por ciento, no como se quisiera, no se ha hecho. Si pueden postergar lo postergan, ya no es tan urgente entonces, climático, escenario al dos mil cincuenta, a eso se puede ver después. Ahorita tenemos una necesidad de una escuela, un puente o algo así, construir una plaza [...]. Está mejor visto la autoridad y va a estar más querida porque están viendo algo físico."

<sup>xxi</sup> "Nosotros en la sierra, cada cinco años ocurren sequías debido a una anomalía en el atlántico, o sea es una información muy importante para nosotros porque podemos pronosticar y saber; se podría usar en planificación. Pero nosotros no vamos a hacer la planificación, la planificación, van a hacer los planificadores, los gobiernos locales. Pero para que ellos invierten en algo, a hacer en algo, tiene que haber un nivel de certeza altísima lo cual en la ciencia no siempre es posible. Nosotros vamos a hablar de que sí que tenemos un ochenta por ciento de que esto ocurra ahora, por ejemplo, tenemos un ciclo de periodo entre cinco y siete años, puede ser cinco o siete años, usamos desviaciones. A los políticos no les gusta, quieren ellos exacto. Entonces ahí digamos, este no se llega todavía a conversar bien o a comunicar bien. Es que no entienden a los científicos y los científicos no entendemos tampoco."

<sup>xxii</sup> "El tema de generación de conocimiento este, sí, las universidades están muy ausentes. [...] O sea, casi todos los temas de tesis que hay en las universidades están vinculados a cosas muy académicas, muy académicas [que quiere decir, no aplicable], cuando en la zona necesitan de mucha información, va a ser para tomar decisiones."

<sup>xxiii</sup> "Hay muchos proyectos de adaptación y eso también es un poquito la incertidumbre, o sea, hay proyectos de adaptación implementándose, algunos ya terminados en base [...] a la percepción de la gente, o sea, mas a lo que es la percepción de la gente, a resultados así concretos, estudios, porque siempre la pregunta es, nos vamos a adaptar, pero hay que saber a qué, a menos lluvias o a más lluvias. Entonces eso todavía está, o sea estamos [en] este. Vienen los proyectos, o sea, hay muchos proyectos que quieren implementar, implementar medidas, ya, pero hay que hacer una línea de base, hay que hacer este, un estudio. Entonces no hay tiempo para hacer los estudios, o sea 'queremos implementar'."

<sup>xxiv</sup> "Si no hay información no se puede tomar decisiones, no se toma decisiones al final no hay acciones. Pero, o sea, no hay todavía este. No sé, los países desarrollados me imagino la ciencia tiene más peso, tiene más influencia de repente."

<sup>xxv</sup> "Para nosotros como instituciones es necesario conocer el comportamiento del clima de todo América del Sur, de toda América Latina, los océanos para poder entender lo que va a pasar localmente. Pero localmente a ellos les interesa conocer, va a llover o no va a llover, en qué meses y por qué va a llover. Entonces hay que darles a ellos la información que ellos necesitan. Entonces ahí digamos, este discurso que tu dices, todavía desde la academia, desde las instituciones generamos información, trabajando en eso de cómo poder llegar hacia a ellos."

<sup>xxvi</sup> "Hemos estado mucho tiempo con un presupuesto muy bajo, incluso algunos años mucho menos porque no sabíamos vender lo que nosotros estábamos produciendo." "Al final lo que manda todo es la economía."

<sup>xxvii</sup> "Y una de las cosas es, porque los proyectos vienen formulados desde acá, por ejemplo, de Lima. Yo tengo la posibilidad de un financiamiento, voy a formular un proyecto, voy a buscar mi zona de estudio ya en base a ciertos parámetros, voy a identificar esta zona y hago todo mi diseño de mi proyecto desde aquí. Y sólo después, cuando voy a ejecutar el proyecto, voy a la zona. Entonces a la gente local a veces no le gusta, porque, o sea, no me has hecho participe cuando estás elaborando porque hay... O algunos bueno, lo aceptan porque ya está ahí, pero no son parte del proyecto. Entonces ahí hay muchas cosas que están faltando en el tema, digamos de vincular este con lo social, con la gente que finalmente son [...] los que tienen que adaptarse."

<sup>xxviii</sup> "Querría contarte algo también, realmente estamos muy aislados porque nosotros mismo nosotros hemos empezado los proyectos, ya vamos a estudiar cambio climático, tenemos información meteorológica, servicios del tiempo de cincuenta años, vamos a empezar a estudiar todo lo referente al clima, y tenemos la información en lo referente al clima y actuando, nosotros hemos ido a la zona y

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hemos presentado ahí este. La gente no entiende todos estos gráficos y todas esas cosas y además estamos hablando lenguajes diferentes, nosotros estamos hablando de sequía desde nuestra definición técnica, ausencia de tiempo por bastantes años. Y cuando ellos hablaban de sequías, de los veranillos que en tiempo de veraniego tienen por 10 a 15 días ausencias de lluvias y eso es sequía para ellos. Entonces nosotros hemos hecho investigaciones, hemos publicado y todo desde nuestro punto de vista, no realmente entendiendo lo que ellos realmente [...] querían.”

<sup>xxix</sup> “Entonces este al final damos algunas recomendaciones. Entre ellos estamos recomendando empezar los proyectos, deberían ir primero a la zona los proyectos en todos los puntos de vista, en lo ambiental, lo social, económico, político, cultural. El cultural es importante porque a veces llegan proyectos como infraestructura de riego que puede ser muy bueno, pero la gente local tiene un concepto diferente de cómo tiene que ser. El agua es sagrada, tiene sus culturas diferentes. Entonces no están dispuestos a desviar un canal que queda por aquí a pesar que va a ser en beneficio de ellos porque culturalmente o religiosamente les significa a ellos este algo.”

<sup>xxx</sup> “Entonces, se está usando bastante. Se está cometiendo ciertamente, yo pienso, [...] un abuso de esto de lo que es la percepción. Se van haciéndose encuestas, tu sabes que las encuestas de entrevistas, o sea es un trabajo de investigación también. O sea, no se puede solamente aplicar la encuesta y sacar los resultados, ya está. Entonces eso no se está manejando muy bien, no se está haciendo de manera muy seria. Entonces, y la percepción de la gente es – o sea veinte años tal vez atrás – o sea [...] no es muy largo, o sea el, su recuerdo del clima no es muy amplio. Entonces no podemos hablar de más de cambio climático si estamos sesgados a diez años o a veinte años solamente. Entonces, eh, con el título de cambio climático en realidad lo que estamos trabajando es la variabilidad climático. Entonces es más variabilidad, y los eventos extremos o sea que sí los tenemos, siempre los hemos tenido. Entonces de repente estamos en un periodo donde estos pueden ser más recurrentes, pero no le podemos, digamos, culpar cien por ciento que el cambio climático.”

<sup>xxxi</sup> “El tema del cambio climático en realidad acá en Cusco se ha posicionado muy bien, ha sido un trabajo muy bueno que se ha hecho: Dentro del Gobierno Regional hay unidad operativa de cambio climático, después de eso se ha formado el grupo técnico regional frente al cambio climático. O sea, cuando tu preguntas, por qué se ha logrado todo esto es porque se ha fortalecido el tema institucional frente al cambio climático. Entonces en esta estrategia vas a ver todas las instituciones que han participado en la formulación de esta estrategia, toditas están ahí, muchas, casi como sesenta instituciones y [para] la formulación de esta estrategia hemos ido provincia por provincia, en todas, para saber qué piensa la gente y qué propone sobre el cambio climático. Entonces esta es una política pública genuina, viene desde abajo.”

<sup>xxxii</sup> “Mira, nosotros ya estamos ya tres años, yendo cuatro años ya trabajando el tema más o menos del cambio climático. Porque en realidad nuestro, lo del tema de cambio climático, digamos, habrá algunos cinco o seis años que se empezó a trabajar un poco, pero así muy ligeramente en la región. Pues eran más que todo algunas instituciones y oficinas, que veían el tema de riesgos que... bueno, habíamos visto que, bueno habíamos revisado toda la información sobre que el cambio climático básicamente estaba incrementando los riesgos en la región, no. Y para eso, fue el 2010 en el Cusco, tuvimos un evento climático muy duro, cayó la lluvia terrible nos inundó media región, malogró casas, bueno fue una desgracia. Entonces, todas esas cosas nos hicieron preocupar sobre el tema del cambio climático y en lo que estábamos en eso de tratarnos de organizar dentro de la región algún grupo de profesionales. [...] Bueno entraron algunos proyectos de cooperación, entró el Programa de Adaptación al Cambio Climático, el PACC, y por esa época también entró un proyecto de [...] Naciones Unidas que trabajó en Chumbivilcas, [...] [el] Programa Conjunto. Y en la zona de Santa Teresa también, entró el Proyecto de Adaptación al Retroceso Acelerado de Glaciares, el PRAA, que también vino a hacer unos estudios sobre las zonas aledañas.”

<sup>xxxiii</sup> “Mira, a nosotros hemos visto que por ejemplo lo que decía, los desastres del 2010, que fue una lluvia terrible y que exactamente no estamos seguro si es un cambio climático o ha sido una cuestión de otros procesos climáticos. Pero nosotros lo hemos utilizado bien eso para decirles, miren esto que ha pasado puede ser un aviso de lo que nos puede pasar a futuro, este evento que pueden a ver pasando después de cuantos años, puede volverse a presentar con más frecuencia debido justamente a todas esas alteraciones del clima. Entonces si hoy esto, ¿puede pasar nuevamente? Sí, puede volver a pasar y más rápido. [...] Entonces ya hay preocupación. Entonces, eso digamos nos ayudó un poco para hacer notar a la gente que estaba pasando algo.”



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xxxiv “La implementación del Programa de Adaptación al Cambio Climático es una construcción social donde han participado muchos actores y hemos ido aprendiendo juntos, hemos aprendido implementar, de cómo se debería hacer la adaptación al cambio climático, nadie nos enseñó, lo hemos aprendido en el camino. Bueno y eso ha sido una experiencia muy bonita.”

xxxv “Lo que básicamente [...] recogimos de las comunidades fue[ron] sus percepciones. O sea ¿qué sentían respecto al clima ellos? No les preguntábamos cuestiones técnicas: ¿Qué es cambio climático, el calentamiento global? Eso no va con ellos, la cuestión es ¿qué sienten?, ¿creen que el clima está diferente? Sí, sentimos más calor, sentimos esto, sentimos que con las plantas pasa esto, con los animales esto, que mi nevadito estaba allá, ya no hay, bueno, esas cosas. Entonces esos periodos también se han incluido, se hizo una sistematización, el grupo técnico lo revisó y bueno tuvimos las ordenanzas, la estrategia regional del cambio climático.”

xxxvi “Cuando acabamos la estrategia del cambio climático dijimos, bueno, hemos acabado, ahora empezamos a convertir esto en actividad, en acciones.”

xxxvii “Ya tenemos una estrategia, pero la estrategia ¿qué dice?, la estrategia dice que hay que hacer, [...] la estrategia básicamente nos marca lineamientos grandes, dice en el tema hay que hacer afianzamiento hídrico hoy, pero ¿qué es eso? Sí, el financiamiento hídrico, sí bueno hay que mejorar la retención del agua en la altura, pero ¿de qué forma, de qué manera?”

xxxviii “Ahora, si bien es cierto que ya se tiene la estrategia, es necesario que exista una voluntad política para que el Gobierno Regional la interiorice y materialice las propuestas contenidas en este documento y que cada actor de la sociedad civil que tenga relación con una estrategia en específico participe proactivamente en su plena implementación. Es importante que el Gobierno Regional del Cusco tenga su ERCC, pero es mucho más importante llevarla a la práctica.”

xxxix “Se tiene que reforzar para luego hacer presión sobre las autoridades, sobre los líderes políticos para que lo vean también como una prioridad política. Se ha avanzado con las metas de gestión, hay propuestas, propuestas de marco normativo para el cambio climático, hay propuestas para el manejo financiero, hay propuestas para la misma gestión de proyectos, programas, pero todavía no se ha pasado de la propuesta en muchos casos, de pasar de la propuesta a la implementación, lo que está pendiente en muchos casos.”

xl “Y hasta la formulación de planes es todo muy simpático, pero de ahí a la ejecución no hay mucho en realidad, no hay mucho, no.”

xli “No sólo es adaptación sino también son medidas de lucha contra la pobreza.”

xlii “Hemos participado en eventos internacionales, hemos estado en la COP16 en Cancún, hemos estado en el Río de Brasil. Entonces hemos aprendido bastante en este tema del cambio climático. Y otra cosa, a nivel regional hemos hecho 22 estudios regionales y bi-regionales, de investigación en [el] tema de cambio climático y además tenemos 14 estudios locales que se han hecho sobre el tema de la vulnerabilidad al cambio climático, en el tema del agua.”

xliiii “Gestión Integral Adaptative de Recursos Ambientales para Minimizar Vulnerabilidades al Cambio Climático en Microcuencas Altoandinas.”

xliiv “El control vertical de un máximo de pisos ecológicos.”

xliiv “En nuestro país la raza ya no manda, ahora manda la inteligencia, la educación, la cultura.”

xlivi “Antes cuando yo estaba en el Cusco sabes cómo te tratan acá. El provinciano va a la capital que es Cusco, entonces el provinciano no sabe nada, así te dicen. Por lo tanto, los que saben son los que son de allá, son los que opinan y preguntan. Y dije entonces, ¿cómo entonces a estos patos de alguna manera entre comillas te respeten? Entonces, en ahí entré en su propia lógica. Me entré a buscar las diligencias de los estudiantes. Entonces hartos, todos los estudiantes me dijeron: Tu no pareces provinciano. ¿Por qué? Y eso me abrió otras cosas. [...] Y también había otro problema con los Chumbivilcanos: Ellos son unos salvajes, la vida no vale nada ahí. [...] Y entonces yo dije a estos, ¿cómo habría que hacerlos entenderlos de que estos no son salvajes? Y ahí empecé a indagar y empezar a escribir.”

xliivii “La gente de hoy deseamos educar a nuestros hijos de todas formas, ya no queremos que sean campesinos como nosotros, o algunos queremos verlos formado profesional.”

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<sup>xlviii</sup> “Pero ahora la gente recuerda del Sendero. ¿Sabe por qué? Porque ellos son los autores fundamentales para que se pierda el abigeato. Sí, abigeato lo mataban ellos. Entonces, no hay abigeato. Gracias al Sendero no hay abigeato, dicen.”

<sup>xlix</sup> “Hoy, aquella incursión de terroristas, el abigeo desapareció y además para hoy con la carretera ya mejorando con muchas cosas, ya vemos carreteras por estos lugares, vemos por muchos [lugares], los pobladores nos sentimos con seguridad. Ya no hay aquel abigeato, ya no hay ratería.”

Quechua:

“Kunan kaq, chay terroristakunaq jamusqanwan abigeo chinkan y además ña kunan kay qhepaman mejoranña no carreterawan imaymanawan, carreteratapas kayninkunataña rikunchis, tukuyinta rikunchis, seguridadwan sintikunchis runa, manaña kanñachu chay abigeo manaña kanñachu chay suwakuy.”

<sup>i</sup> “El cambio climático poco a poco, para hoy es diferente, con este cambio climático, cambió. En tiempo de sembrío hay presencia de heladas hacia agosto-septiembre en algunos años, a veces otros años las lluvias se presentan [sólo] hacia diciembre. Aquello del cambio climático estamos observando fuertemente en este tiempo.”

Quechua:

“Cambio de climático poco a poco kunanqa huqniraqtaña cambianpun kay climático chaywan tiempo de sembríopin qasa qasamushan agosto septiembre hay veces wata hay veces watataqmi parapas diciembrikunapiña chayamushawanchis kay chayta cambio de climáticota kay tiempo fuerteta qhawarishanchis.”

<sup>ii</sup> “Mucha gente tampoco ha vivido mucho tiempo para percibir estos cambios [climáticos] porque en tu diario vivir siempre habrá días de sol y frío, entonces estás acostumbrado. Pero cuando ves procesos diferentes o como este río de Santo Tomás antes era caudaloso ¿y ahora cómo está? Claro, entonces ahí ves si hay un problema de la cantidad de agua, ¿no?”

<sup>iii</sup> “O el Río Conde, o en esta época goteaba, no. Recuerdo que íbamos a pescar. O ranas, así habían, no [mostrando que grande eran]. Pero ahora totalmente seco, no hay agua. Eso la gente lo está percibiendo. Ahora que lo vea que es un problema o, no, eso es distinto, ahora se vive en el presente y nada más. Entonces, ¿cómo vamos a sobrevivir? Nadie está pensando idealmente. Entonces, ahí un poco, como te decía, y yo no sé si es una ventaja o desventaja el hecho de tener desde otra visión: Miren, saben esto es lo que va a venir. La otra gente está pensando prever estas cosas allá en Europa, está pasando eso, no, de cómo vamos a vivir más adelante, no. Entonces se están anticipando. En cambio, acá no se está viviendo todavía eso, se vivirá ese momento y se actuará si se hace o no se hace. [...] Entonces mucho aquí la gente no está pensando, ni en cosechas de agua ni nada. Entonces eso es una cuestión cultural, no, de lo que está haciendo hoy en algún momento tendrás que afrontar, no, o sea, eso es, no.”

<sup>iiii</sup> “Desencuentros y (potenciales) sinergias entre las respuestas de campesinos y autoridades regionales frente al cambio climático en el sur andino peruano.”

<sup>liv</sup> ... “las respuestas campesinas y de los gobiernos regionales a estos procesos no siempre coinciden, en algunos casos parecen inconexas, o hasta contradictorias [...]”

<sup>lv</sup> “Los resultados preliminares indican una larga tradición campesina de respuesta a la variabilidad ecolimática de los Andes, contrapuesta con respuestas oficiales reactivas a los eventos climáticos extremos e incipientes esfuerzos por respuestas programáticas frente al cambio climático.”

<sup>lvi</sup> “Y paralelamente con el apoyo del Programa Conjunto también hicimos, bueno un, digamos, una primera aproximación a lo que sería el plan de implementación de la estrategia [regional de cambio climático].”

<sup>lvii</sup> “Hay estudios del Programa Conjunto, dejó muchos estudios relacionados al medio ambiente: Cosecha de agua, reservorios, forestaciones, cuidado de nevados, no sé que nos..., cantidad de estudios. Esos estudios se guardan así como unos archivadores puesto. Nadie de los gobiernos locales se da la molestia de poder revisarlos.”

<sup>lviii</sup> “De hecho el proyecto tuvo bastantes problemas de implementación, se retrasó muchísimo, no lograron ejecutar a tiempo lo planificado, empezaron a terciar bastante con pequeñas ONGs.”

<sup>lix</sup> “Pues, cuando terminó el proyecto, es la gran ausente. Han trabajado con alcaldes, es decir, respondiendo a las reacciones del momento. Entonces, si yo encuentro un interlocutor que me resulta simpático, que acepta mis propuestas, o no me pone mucho reparo para yo entrar, pues yo trabajo muy

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bien con él. Con quien me pone cara seria o es crítico conmigo prefiero no trabajar. Entonces son las grandes distorsiones que tenemos cuando vamos a trabajar al campo y que hacen que gran parte de los proyectos no redondeen los resultados – vamos a llamarle éxito – no tengan sus resultados con éxito.”

<sup>lx</sup> “Ya teníamos mucha teoría hace cuatro años con el Programa Conjunto, ahora tenemos que ir a la práctica y los proyectos. El agua es clave.”

<sup>lxi</sup> “Y es más ahora lo están considerando, como ayer decía el compañero, que es la sub-gerencia de comunidades campesinas, o sea, ya no es sólo una oficina sino tiene una mayor jerarquía. Además, eso va a estar en el tema del organigrama de la municipalidad y eso no estaba antes y así hay cosas que digamos se van asumiendo como parte de compromisos públicos o presión de la población que va asumiendo por parte de las autoridades.”

<sup>lxii</sup> “Desde que se ha creado lo que es el Ministerio del Medio Ambiente ahorita por lo menos ya está entrando! [...] El Gobierno Regional por ejemplo ya está tomando su rol en lo que es fortalecimiento de capacidades de los gobiernos locales lo que antes no había, no. Ahora sí están tomando, no, porque ahora incluso el Ministerio de Medio Ambiente... Como es nuevo el tema del medio ambiente, un poco estaba descuidando. Ahora sí más o menos ya está entrando, sí más o menos bien ya está tomando su rol también, no, como gobierno central, tanto gobierno central como gobierno local.”

<sup>lxiii</sup> “AMC2: La Comisión Ambiental se formó el año pasado en 2012.

AW: ¿Por causa de qué surgió? ¿Del Programa Conjunto o de dónde surgió?

AMC2: Tengo entendido que esto [...] han venido trabajando desde el cambio climático Programa Conjunto y otras instituciones. Ahí primero han trabajado como mesa temática de territorialidad y medio ambiente en un espacio que discutían, que debatían problemas ambientales. Pero esto no tenía mucha incidencia en el gobierno. Era como un grupo aparte. Entonces planteaban soluciones o digamos proponían eventos. Pero, ¿quién les iba a apoyar? No había entre ellos [...], no tenía incidencia [...]. Entonces lo más conveniente que la CAM está normado a través del gobierno central a través del Ministerio del Ambiente. Las conformaciones de comités ambientales es su creación y los gobiernos regionales vienen haciendo eso. El año pasado recién se ha dado acá. Pero ahora a nivel de la provincia todas las comunidades cuentan con comisión ambiental municipal, todas las municipalidades. El problema es que uno [...] les ha unido: La presencia de las empresas extractivas. Entonces la única forma de poder contrarrestar eso [...] de repente es esta comisión ambiental.”

<sup>lxiv</sup> “Reglamento de la Comisión Ambiental Municipal de la Provincia de Chumbivilcas.”

<sup>lxv</sup> “AW: ¿Qué pasa en esos contextos, por ejemplo, con el tema de los cambios del clima, hay conflictos que surgen? ¿Hay problemas que salen?

BH2: Claro pe, claro que sí. Ya no es como antes, ya el clima ya no es normal porque de un momento a otro cambia. [...] Creo que es un cambio, un fenómeno casi constante. Entonces ese tema nosotros también lo tocamos de cómo vamos a intervenir frente a todos estos cambios.

AW: ¿Y cómo piensan enfrentarlo? ¿Tal vez de adaptarse? ¿Hay algunas medidas que ya están pensando o ya están haciendo hablando?

BH2: Sí, nosotros tenemos una mesa técnica donde tocamos justamente esos temas, [...] de qué forma tenemos que estar preparados para poder enfrentar esas situaciones.

AW: ¿Y quién es parte de esa mesa? [...]

BH2: Bueno tenemos una mesa técnica del CAM [...] y siempre llevamos una reunión [...] y específicamente tocamos estos temas.

AW: ¿Pero sí están preocupados con este tema, con el clima?

BH2: Sí es preocupante, pero más preocupantes son las comunidades campesinas.

AW: Y además, ¿qué falta de informaciones? [...] ¿Qué deberían saber para enfrentarse al cambio? ¿Falta algo?

BH2: Sí, estamos no todo al cien por ciento de desarrollar todo este tema, pero quisiéramos que estemos informados y que estemos preparados. Hay temas más importantes que se pueden tocar.

AW: Por ejemplo, ¿como cuáles, me puedes dar algunos ejemplos?

BH2: Bueno el tema de las contaminaciones del medio ambiente, poco lo que ha pasado sobre la presencia de las empresas mineras [...].“

<sup>lxvi</sup> “Hay algunos líderes bien interesados y además que siempre están en esos espacios de decisión que hablan del tema y que plantean soluciones o alternativas. Lo interesante sería que se trabaje dos o cuatro años más porque recién se está empezando como que hubiéramos puesto las bases, pero lo importante es consolidarlo. [...] Que se va continuar con esto. Está la CAM, que estamos demorando un poco pero

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que de alguna manera se va consolidando. Una vez que salgan estos instrumentos de gestión ambiental, van a ser de aplicación obligatoria.“

lxvii “AW: Al nivel político, creo que estuviste un tiempo también con la CAM, no? [...] Eso sería una medida para poder seguir implementar?”

E17: Sí, claro.”

lxviii “Mira, a través del Gobierno Regional nuestra Gerencia de Recursos Naturales y Medio Ambiente han promovido la Comisión Ambiental Regional que debería estar conformado por todos los gobiernos provinciales y las instituciones que tienen representatividad a nivel regional de Cusco. Este trabajo se ha venido desarrollando, pero no está dando los frutos que debería dar. Entonces eso mismo se refleja creo a nivel de la provincia. Entonces es poco la ligazón que nos tiene con el Gobierno Regional y peor con el Gobierno Central. El Gobierno Central tiene Ministerio Nacional del Ambiente y no se hace presente. [...] Lo que falta es trabajar la concientización, la población tiene que ser consciente a que nos estamos enfrentando. Entonces para hacer ese tipo de trabajo debe ser un trabajo conjunto con ellos y no se hacen presente. [...] A nivel de la provincia [...] hay gobiernos distritales que no cuentan con esta área de gestión ambiental, no hay nada, o sea hay distritos que todavía no tienen ni saneamiento básico [...] [y] acá en la misma provincia de Santo Tomás [...] no hay ni agua, que el agua que toman no es ni siquiera tratada, es del río.“

lxix “Para mitigar todo eso lo que es el cambio climático estamos haciendo lo que es protección de manantes, reforestación, o sea forestación.”

lxx “Mitigar, o sea, tu combates contra todos esos cambio climáticos.”

lxxi “Porque no generaríamos ningún tipo de contaminación. Porque en el tema de adaptación también hacemos todo lo posible de no contaminar. [...] Pero en el tema de las casas era el uso de la energía solar y la reducción de los niveles de enfermedades por estos cambio bruscos de temperaturas.“

lxxii “Fortalecimiento de Capacidades Locales para la Implementación de Medidas de Adaptación al Cambio Climático.”

lxxiii “Para nosotros el tema es importante, el tema es la funcionalidad! Tu sabes que CADEP funciona con financiamiento externo y si no tenemos una oportunidad de donde lo presentamos o como financiamos, es incierto.“

lxxiv “AW: Qué exactamente en este momento, [...] [comparado] con antes con el tema de medio ambiente, minería, ... y ahora con el proyecto de cambio climático: ¿Qué exactamente, qué aspectos incluyeron que antes no había en el [tema de] medio ambiente?”

E13: Yo pensaría que es el tema del agua porque hay como evidencias de que el recurso hídrico está disminuyendo y si no se hace algunos proyectos y todo eso... Y por lo menos en la zona de Santo Tomás, no tenemos ni para el consumo. Si no tendríamos el tanque, no tendríamos agua [...]. Y [lo] cortan y todo eso. Y por eso es el agua.“

lxxv “AW: ¿Se podría decir que hay una voluntad política para trabajar estos temas?”

E14: Sí, pero hay que estar tras de ellos. Entonces a veces las comunidades cuando participan en los temas de presupuestos van más a lo físico. Pero el tema de fortalecimiento de capacidades, el tema humano no lo ven. Igual los alcaldes dicen, ¿yo qué gano fortaleciendo capacidades? Si eso va a ser a largo plazo prefiero hacer una pista y es más eficiente y visto. Como se trabaja más a nivel político se está cambiando poco a poco.”

lxxvi “Hay que institucionalizarlo, hay que hacerlo, reconocer de tal manera que cualquier gestión que entre... porque al próximo año ya hay otras elecciones y pueda asumir estas tareas. O sea, hay varias cosas que digamos pueden garantizar la continuidad. [...] [Y] una vez que salgan estos instrumentos de gestión ambiental, van a ser de aplicación obligatoria.”

lxxvii “Las informaciones científicas ahora se puede obtener mucho más rápido por internet, ahí también hay libros que hablan de eso en detalle.“

lxxviii “¿Cómo podemos nosotros adaptarnos y mejorar nuestro sistema de convivencia con la naturaleza?”

lxxix “E18: Es que no sé qué está pasando, no tienen impacto digamos de cambio. Entonces ese es el gran problema, conocen y en ese ratito no más y luego siguen no más en el mismo modo. Entonces no han desarrollado la conciencia ecológica. La sociedad en conjunto, el detalle que la sociedad va por un lado y la educación por otro lado y la sociedad es la que absorbe esos estudiantes. A pesar que ellos no saben por qué no lo hacen. Uno porque no reciclan sus basuras en sus casas, todo lo ponen en una sola bolsa

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y ya está. Y ahí se puede ver que no hay una consciencia ecológica. Van por la calle, se compran una galleta y la basura lo botan. Las informaciones que damos no tienen impacto. A raíz de eso, con el club de ecologistas decimos, por ejemplo, hemos salido a barrer el Río Conte. Pero en qué queda eso si nadie cambia. Me parece que es un problema más psicológico, parece que salimos y en tres años o cuatro años... pero ahora no cambia nada la gente. Entonces no tienen mucho impacto o de repente unos cuantos de nuestros estudiantes cambian.”

<sup>lxxx</sup> “T: ¿Los profesores en la escuela deberían de enseñar esto a los hijos? Quechua: Escuelakunapi profesorkuna yachachinanchu chayta wawakunaman?

B16: Sí, estarán aprendiendo también ellos. Quechua: Riki, yachamushankucha paykunapas.

[...]

AW: ¿Entonces ya están contando volviendo de la escuela?

B16: Sí.

AW: ¿Qué están contando de lo que han enseñado en la escuela?

B16: Me dicen que están comunicando sobre el climate, cambio climático, diciendo nos cuentan, diciendo, saben contarnos. Quechua: Willakushanku niwanku climático, cambio climatico nispa willawanku. Nispa willawayta yachanku.

T: Todo lo que han aprendido sobre cambio climático vienen y comparten con sus papás: ‘hemos avanzado esto’, ‘nos han contado esto’.”

<sup>lxxxii</sup> “B20: En los centros educativos, sobre cambio climático, seguramente están enseñando o están llevando cursos sobre climático a veces. Mi hijito tengo en Santo Tomas nos cuenta [que] van a pasar siempre estas cosas como está cayendo más calor. Y ¿por qué cae más calor? Porque dice que la capa de ozono ya se está gastando poco a poco y se va a aumentar esto y más calor entonces. Siempre nos cuenta sobre este clima o el climático.”

<sup>lxxxiii</sup> “B20: En los centros educativos, sobre cambio climático, seguramente están enseñando o están llevando cursos sobre climático a veces. Mi hijito tengo en Santo Tomas nos cuenta [que] van a pasar siempre estas cosas como está cayendo más calor. ¿Y por qué cae más calor? Porque dice que la capa de ozono ya se está gastando poco a poco y se va a aumentar esto y más calor entonces. siempre nos cuenta sobre este clima o el climático.”

<sup>lxxxiv</sup> “B7: En la noticia creo que estaba escuchando pero no sé si era de la contaminación. Había una charla creo que duró 124 horas o no sé, pero no sé si era de contaminación ambiental pero sólo sé que CADEP más o menos están trabajando en eso.”

<sup>lxxxv</sup> “B10: Sí, de alguna forma están tocando [el tema cambio climático en las escuelas/los colegios] porque también la institución [CADEP] ha capacitado a los centros educativos y a algunos docentes. Ellos también de alguna forma a los niños están educando a esa realidad.”

<sup>lxxxvi</sup> “Es lo que más conocemos, que ya tres años que vienen trabajando, lo que conoces más es creo que CADEP, también trabaja en eso, lo que conocemos más es eso. Bueno, no tenemos mucho a nivel de provincia pero debe estar en su plan de trabajo, no tenemos mucha información al respecto.”

<sup>lxxxvii</sup> “T: ¿Quiénes les comentan sobre estos cambios? ¿Instituciones, organizaciones? Quechua: Pikunataq rimapayasunkichis chay cambiokunmanta?

SB13: CADEP nos [comenta] más. Quechua: CADEP mástaqa namanku.

AW: ¿Alguien más que CADEP?

SB13: Sólo ellos vienen mayormente por acá. Quechua: Chaylla másta kaymanqa hamun.

T: ¿De repente alcaldes, gobiernos?

B13: No.

SB13: Ellos no. Quechua: Mana chaykunaqa.

AW: ¿No?

B13: No les interesa a ellos.”

<sup>lxxxviii</sup> “AW: Hemos dicho que CADEP hizo talleres sobre el cambio climático, ¿pero también escuchó de otras personas, del radio, no sé, de la tele o del gobierno hablan también de esto, del cambio climático?

B14: No, sólo he escuchado de CADEP, nada más.

AW: ¿En la asamblea aquí tampoco no hablan sobre eso?

B14: No qué, ni les interesa esta a la gente. En la asamblea lo que hablan es de la *chakra*, del daño, de eso no más. Sí.”

<sup>lxxxix</sup> “BH2: Por ejemplo, a nuestras autoridades las informaciones de medio ambiente, sobre cambio climático poco o nada les importa. Más a lo contrario las autoridades están aumentando la contaminación.”

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<sup>lxxxix</sup> “El cambio climático por ejemplo para mí cuando nuestro clima ya no está pues en su debido tiempo, [...] por ejemplo la lluvia, las heladas por ejemplo, la nevada, la granizada ya no está en su debido tiempo que era antes. Por ejemplo, ahora ya hay años que ya no cae la nevada, hay años que llueve fuerte, hay años que no hay lluvia también y ahora como este año que no hay la helada.”

<sup>xc</sup> “AMC2: Con esta temporada casi nunca se ha visto lluvia, siempre se ha visto sol radiante. Que te digo la helada en este año se ha visto algo inusuales. Todo este supuestamente invierno ha habido. Tres o cuatro noches que ha caído helada intensamente. Sin embargo, cambia bruscamente: Lluvia, la nevada, mayor fuerza de viento en las tardes. Entonces es un desorden y se nota que es un desorden porque antes había pues como una secuencia del tiempo, una secuencia de las estaciones, ahora ya no, ahora todo es impredecible.”

<sup>xc1</sup> “AW: Entonces, ¿qué es el cambio climático para ustedes aquí?”

B21: Es pues lo que sucede en la naturaleza, cambios bruscos que ya se notan fácilmente, cualquier momento cualquier cosa pasa, siempre, un ventarrón, una helada, lluvia. Dos noches está lloviendo y al día siguiente ya está cayendo helada, no era así mas antes.”

<sup>xcii</sup> “B2: Ahorita lo que es bastante preocupación a todo el mundo nos está preocupando lo que es cambio climático. Para nosotros es que ya mucho, mucho sol, mucho calor. Y el calor ahora no es como antes, sino directamente a la piel, te puede quemar, la cara te puede quemar, entonces mucho más fuerte.”

<sup>xciii</sup> “AMC2: Claro, exacto, es que no llovía, raramente, pero ahora por ejemplo en esta temporada en el campo que se hace la mayor parte se hace la cosecha, se hace los granos, la papa, de ahí sacan el chuño. Ahora, como no hay helada, no hay chuño. Claro, nadie ha hecho y la papa ahí está botado y el gusano se lo está comiendo. Entonces la situación es un poco diferente.”

<sup>xciv</sup> “AW: ¿Está preocupado por este cambio climático?”

B6: Sí estamos preocupados pues, por ejemplo, ahorita estoy haciendo chuño, está lloviendo, está nublado, no estoy haciendo chuño pues, estoy sufriendo ahí pues.”

<sup>xcv</sup> “BH2: Claro, este calentamiento global incluye bastante calor, bastante frio, es la influencia también de las enfermedades.”

<sup>xcvi</sup> “B24A: El cambio climático es en tiempo de lluvia también comienza a llover la helada. Entonces afecta y nuestra cosecha también, ya no sale como debe ser, es una preocupación.”

<sup>xcvii</sup> “B9: Prácticamente es pues cómo se cambia la vida, ya no es pues como antes practicamente. Entonces ahí nos bajamos pues practicamente y ahí nos va a dar enfermedades y todo eso, ya no va a ser como antes.”

<sup>xcviii</sup> “B18: Antes siempre aquí sentíamos esos sismos. Hace poquito hemos sentido aquí y nosotros pensamos que todo eso es con cambio climático. Que será, ¿no? Pero eso decimos.”

<sup>xcix</sup> “B7: Para mí el cambio climático es un problema porque sabemos que la gente del campo está viviendo las consecuencias del cambio climático. Por ejemplo, la gente de arriba ha muertos los animales, disminución de los forestales, decían, ya no crece, con la contaminación la lluvia también. Aquí más que todo nos afecta para hacer nuestros productos, para sembrar nuestros productos, no hay agua, la lluvia nos afecta porque aquí seguimos con esa costumbre de que la siembra empieza en septiembre, octubre, noviembre, ahora que ya no hay agua, no llueve.”

<sup>c</sup> “Yo entendiera [sobre] que es cambio climático: ¿Qué es cambio? ¿Cómo es este cambio? Primeramente, distinguiríamos compañeros, es el padre sol [que] está calentando demasiado, y cuando se viene calentando estamos diciendo [que] nuestras cordilleras, nuestros nevados se [vienen] derritiendo, y cuando aquello se derritan nuestras aguas [se vienen] vaciando, nuestros ríos [se vienen] vaciando, nuestras lagunas se están desecando. Y sobre este cambio climático que decimos aparece la variabilidad de temperatura, digamos viene mucho viento, cae mucha lluvia, se presenta la granizada, estos [eventos], y sobre esto también aparecen. En cuanto a salud, la enfermedad tanto para el ser humano [como] para los animales. Entonces hay una gran y justa preocupación, que está apareciendo en este ámbito.”

#### Quechua:

“Noqa entienderyman que es cambio climático: Iman cambio? Imaynatan cambio? Primeramente, qhawaysunman compañeros kay tayta intiyá supayta q’oñirimushan nishuta, qoñimuqtintaqyari nishanchis cordilleranchiskuna rit’inchiskuna derretipushan chullunpushan, chay chullunpuqtintaq ununchiskuna ch’akimushan mayunchiskuna ch’akipushan, qochanchiskunataq ch’akishan, chay patamantaq rijimun kay cambio climático nisqapi variabilidad de degamos de temperatura, nishu wayra hamun, nishu para

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chayamun, granizada chayamun chaykuna, chay patamantaq rihurimullantaq. En cuanto a salud, la enfermedad tanto para el ser humano tanto para los animals. Entonces hatun chanin preocupacion kay partepi kihurishan.”

<sup>ci</sup> “CADEP: ¿Para usted hay un cambio climático, que cambian cosas...?”

Participante: Para mi no, no hay cambio climático, clima, clima no cambia, lo que cambia es el tiempo, así tengo entendido yo.”

<sup>cii</sup> “En mi opinion, o sea, no veo más por cambio climático, sino por la sobreexplotación de las personas, mismas, del uso irracional de los, digamos de los arboles, del *chu* por ejemplo.”

<sup>ciii</sup> “B7: ¿Por qué está cambiando? Bueno, esas son las consecuencias ya, las causas son nosotros mismos, lo hemos contaminado con la quema de arbustos, por botar las basuras, por no saber reciclar que son orgánicos e inorgánicos y por otra cosa, por la contaminación de los ríos. Es que en todas partes del mundo siempre hay contaminación y eso todo día a día. Está aquejando aquí en el Perú y la misma situación debe ser en los diferentes países y también en los países industrializados y también con mayor grado están contaminando, sí.”

<sup>civ</sup> “AW: Y este cambio, ya me explicó un poco, como viene la contaminación y todo eso, ¿esa es la razón por lo que tenemos este cambio climático ahora o hay otra razón?”

B19: Esa es la razón, tanto de la minería también, principalmente también puede ser que viene de la minería.

AW: ¿Qué está pasando con la minería aquí, me puedes explicar un poquito más?

B19: Claro, lo que es aquí en la comunidad casi no hay todavía. Pero en otros sitios sí. Pero a veces por ejemplo por allá hay viento y por allá hay minería. Trae contaminación eso también.

AW: ¿Hay otros efectos que vienen de la minería para ustedes?

B19: Sí tanto para el agua hay contaminación, tanto para la tierra. Todo lo que utilizan, lo que es mercurio, azogue, no sé, casi no tengo tanto conocimiento...”

<sup>cv</sup> “AW: He escuchado que hay muchas minas ¿afecta a esta zona de ustedes?”

B6: Sí, afecta, pero pero acá no, más arriba está afectando más, pero acá hay mucha minería, acá hay minería bastante pues por eso vendrá pues [la contaminación].”

<sup>cvi</sup> „B14: Antes cuando era niña no habían minas [...] pero ahora en todas partes.

AW: ¿Y qué pasa con la minería ¿Cómo cambia o afecta la vida de la gente, de ustedes?”

B14: Porque [...] antes empezaba a llover desde el mes de noviembre para empezar a sembrar. Pero ahora ya no.

AW: Ahora, ¿cuándo empieza a llover?

B14: [...] A veces empieza a llover desde el mes de diciembre, recién. Sí, sí, así siempre varia. [...] Por eso, ¿cómo va a dar? Supongamos sembramos en diciembre, enero, febrero, en tres meses no va a dar buenos productos.

AW: Entonces, ¿eso entró con la mina?

B14: Aha, sí, antes no habían minas y como empezaba a llover septiembre hasta el mes de marzo.”

<sup>cvii</sup> “BH1: Ahí empezó el problema porque han [los de las minas] estado ubicados en las cabeceras de la cuenca, donde está la mayor cantidad de reserva hídrica para la provincia Chumbivilcas. Estamos hablando de algunos nevados, estamos hablando de algunos lagos y estamos hablando de manantes de agua, que son, como te vuelvo a repetir, una reserva hídrica que tiene la provincia. Entonces, a raíz de eso hubo varios conflictos funcionales en toda la provincia porque se entiende que todas iban a ser afectados. Se generó, ha habido fallecidos en los conflictos. Entonces esta empresa paralizó y después de un año volvió. Entró la empresa. Es la primera empresa que hizo explotación en la provincia de Chumbivilcas al nivel general. Entonces ahí es donde se vio realmente qué tipo de estrategia utilizaban las empresas mineras para entrar a las comunidades y cómo, o sea, distorsionaban incluso a los comuneros, cómo hacían los paros para que puedan entrar, qué tipo de obra les proponían a la comunidad, entre otras estrategias, que no estaban acordes definitivamente con el medio ambiente. Entonces el discurso de ellos era de que iban a ser amigables, eran una empresa amigable con el medio ambiente, que iba a respetar todas estas cosas. Pero al final no, no se veía, no. Y ahora están en la etapa de cierre. La población se dio cuenta muy tarde y ya después cuando estaba la mitad de la explotación quisiera botarlos, pero no se pudo, no, no se pudo, porque también en el país hay leyes que los amparan a las empresas extractivas. Entonces, siempre se han protegido con las leyes y a la par han sabido negociar con algunas comunidades. Entonces, fue un gran problema.”

<sup>cviii</sup> “AW: ¿Qué efecto tiene al momento la minería? [...] ¿Qué efecto ve usted?”

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B10: Sí compañera, porque ahorita nosotros estamos viendo porque anteriormente no había ese tipo de intervención de empresas mineras. Nosotros tranquilos vivíamos en las comunidades campesinas, nadie nos molestaba, nadie nos decía nada. Ahora en las autoridades, más que todo los gobiernos que entran, los gobiernos nacionales mayormente han entrado a privatizar, llamarlo a las empresas grandes y ahora nos ha perjudicado a nivel nacional, a Chumbivilcas y a esta comunidad también, nos han perjudicado. Hay de denuncias mineros que ya han logrado su título, hay otros que están a punto de lograr, casi la mayor parte de la comunidad que está denunciado y nosotros estamos viendo, nos está afectando mucho. Por ejemplo, en Quiñota, más estábamos viendo y todo el cerrito que había bonito cerro con su nevadito así bien bonito, ahora lo han destruido total. Ahora lo veo un desierto como esta pampa, no hay ni una planta, no hay nada. Y además nos está afectando el río Molino que teníamos, ya no hay truchas, ya no hay animalitos que vivían dentro del agua. Entonces nosotros hemos constatado y ahora, más que todo, esta comunidad nos hemos organizado. Cuando he entrado como presidente comunal hemos hecho un proceso judicial con las empresas mineras, todo. Entonces nosotros no aceptamos esas empresas mineras para nada porque nosotros realmente vivimos ni del oro ni de la plata, nosotros vivimos de nuestros productos. Lo que queremos es que siempre haya buena producción y eso nosotros pedimos y de nada nos serviría la minería a nosotros. [...] Además nos contaminarían todo que habría un problemón. Nos generaría porque la organización perdería. Ahí entraríamos divisionísimo: Los que queremos plata nos dividiríamos, los que no queremos hay una divisionismo entre nosotros, haríamos un conflicto. Eso no queremos. Nosotros queremos vivir así como estamos, viviendo en armonía, con tranquilidad. Bueno, eso es lo que queremos nosotros en nuestra comunidad.”

<sup>cix</sup> “B4: Actual no queremos que vengan [los de la mina], quisiéramos que no vengan, no.

AW: Escuché de esos problemas...

B4: Sí, sí, Quiñota total están, estarán recibiendo plata, billete, pero los que quedan, los hijos con el tiempo van a ser fracasos pues. Ese dinero se termina no más pues, no cierto. Entonces, los que quedan, las criaturas van a ser fracasados. Eso quisiéramos nosotros que no vengan.”

<sup>cx</sup> “B5: Acá no dejamos. Ahí tenemos minas, pero no dejamos trabajar esto.

AW: ¿Por qué piensa que está mejor así que no entre la mina?

B5: No queremos que entre la mina pues porque la contaminación hace.

AW: ¿Qué contaminación harían?

B5: Para los animales, así el aire. Así la contaminación, harían con los disparos que hacen adentro la mina, para los niños, para todos pues, la agricultura mismo.”

<sup>cx</sup> “AW: Y aquí en la zona, ¿piensa que afecta la minería también, tiene su parte, juega un rol la minería o no?

B9: Aquí no hay tanto mina, más al lado de Apurímac, distrito de Quiñota, más bien hay pues y arriba hay. Y eso está haciendo contaminar prácticamente manantes también pues. Hay un río solito ahí atrás y eso prácticamente está contaminando a los cultivos también.

AW: ¿Y si viene la minería qué pasaría [...]?

B9: Es que nos quedaríamos más afectados, ya no podemos hacernos agricultura, prácticamente nos malograría pues de esa parte, ganadería también pues va a malograr de esa parte por contaminación pues.”

<sup>cxii</sup> “AW: ¿Y usted cree que o sería bueno que las minas se quedarían o deberían que irse?

B14: No, deberían retirarse.

AW: ¿Y el Estado les apoya con eso o el gobierno local, bueno, hace algo en contra de las minas o ...?

B14: No, el estado apoya a las minas. Sí, claro, como de las minas pagan. [...] Entonces el Estado apoya a las empresas, las empresas grandes. Pero [...] [para] nosotros nada.”

<sup>cxiii</sup> “AW: ¿Aquí no hay minería en esta zona, no?

B24A: Si tenemos, acá encima del río. Y como está así tapado con los árboles no lo detectamos, lo que vemos acá abajo. Entonces vienen las empresas a decir que queremos cortar, explotar, sacar muestras. Así, nosotros todavía no lo permitimos porque más que todo vivimos con la agricultura.

AW: ¿Han escuchado cómo funciona la minería en otras zonas?

B24A: Sí escuchamos también en la radio. A veces nosotros mismos también vamos al sitio y vemos como están, por ejemplo, en Chilloro que es Velille y Livitaca, ahí estábamos. Y entré a Velille, han hecho un convenio ahorita en explotación ya. Pero el problema es que ya no hay animales, por ejemplo, los animales, no sé, les agarra enfermedades mediante el aire, no sé, les contamina y están muriendo, flaqueando así, por ahí es, la minería no conviene. A veces preocupa, acá parte arriba, también lo que es el distrito de Llusco, Collpacasa, Lambenillo, el río que viene, que vemos acá en esta parte de esta



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quebrada, influye parte arriba, entonces supongo que siempre la minería va a contaminar y nos va a afectar a nosotros también. De eso estamos preocupados nosotros también.”

<sup>cxiv</sup> “AW: ¿Piensa que están buenas [las minas] para la región, o está mal?”

B6: Acá no entra mina, la comunidad [...] no quiere a la mina, totalmente no quieren. Pero por otra parte trabajar en la mina hay plata, cantidad, pero comida no va a haber pues. Por ejemplo, yo antes era minero, entonces he trabajado, he trabajado, teníamos platita, por eso aquí también terreno compramos, así compramos pues. Con eso también mejoramos.”

<sup>cxv</sup> “AW: ¿Aquí no entra tanto el tema de minería en esta zona misma?”

B26: Bueno como sabemos, la minería es un mal muy necesario para el, bueno, para que la colectividad tenga pues un campo de acción, un negocio, para que tenga más dinero etc. Pero hay personas que no quieren, pero imposible que no se pueda tener, porque el Estado mismo está esperando con ganas que le dé pues ingreso, para que pueda pues él mismo sobrevivir y dar al pueblo algo no.

AW: Y en su momento cuando entra la minería, ¿qué se toman en cuenta? ¿Qué sería importante de hacer para enfrentar los efectos que tiene la minería?

B26: Sería bueno, por eso le digo, que el gobierno local debería tomar más las cosas en serio, pero algunos aspectos no lo está tomando en serio. Bueno, se hace al tonto porque convive, porque la minería le da la plata para su campaña. Bueno, le ayuda y entonces, una parte al bolsillo, bueno ya se está asegurando su future. Pero está dejando al pueblo, un pueblo contaminado.

AW: ¿Ahí faltaría también más la conexión con el gobierno regional, con el nacional, no?

B26: Pero no toma en serio las cosas, todavía no. Bueno, a veces en etapa de transición, los gobiernos peruanos mas se han ocupado de si mismos no del pueblo, por eso estamos atrasados.”

<sup>cxvi</sup> “AW: ¿Por qué tenemos este cambio climático [...]?”

B31: Son los cambios, un poco haya afectado los que se llaman las fábricas que botan humo, el petróleo, diésel, todo eso haya afectado un poco. Pero siempre tenía que haber los cambios, cada ocho mil años o nueve mil años se van a producir los cambios y nosotros vamos a extinguir nuestra raza.

AW: Entonces cada ocho mil años, ¿es algo natural que pase?

B31: Claro, por ejemplo se dice nosotros antes de nuestra raza, feneció esa raza, vino una raza – bien difícil de pronunciar su nombre „nemanden“ – no aguantó los cambios climáticos y se extinguió inmediatamente, nosotros salimos en vez de ellos.”

<sup>cxvii</sup> “AW: ¿Sabe por qué se da el cambio climático, ha escuchado por qué cambia el clima?”

<sup>cxviii</sup> “AW: ¿Y por qué piensa usted que hay este cambio? ¿Por qué existe este cambio de repente?”

B18: Yo pienso que está mucho contaminación o bastante habrá pues, como fábricas o el humo, arriba hay [la] capa de ozono, eso quemará entonces ya no protege del sol y entonces todo eso debe ser.”

<sup>cxix</sup> “AW: ¿Y por qué piensa usted que tenemos este cambio climático? ¿Por qué hay estos cambios en el tiempo?”

B8: Cambio climático según lo que nos dice la radio y los científicos la capa de ozono poco a poco está roto dice y por eso.

AW: ¿Y por qué pasa eso? ¿Y por qué se ha roto?

B8: Por este, por el humo pues, lo que quemamos, pastos, algunas cosas. Cada día quemamos. De eso se malogra pues y con las fábricas también. Ahora ya utilizamos como juguete el carro, su humo también hace contaminación pues.”

<sup>cxx</sup> “AW: Este cambio climático, ¿por qué hay este cambio climático?”

B24A: Lo que nos está afectando, lo que es cambio climático, todos producimos. Por ejemplo, en acá, en la serranía, siquiera ya no será mucho, pero siempre, por ejemplo, en las ciudades las fábricas grandes en otros países, a nivel mundial es lo que está produciendo esto. Porque lo que nos informa, lo que nos informamos, que la capa de ozono ya está deteriorada. Todo eso está produciendo, nosotros también con las basuras, con lo que botamos, pilas, con lo que quemamos de repente los bosques. Con todo eso estamos contaminando nosotros también.”

<sup>cxxi</sup> “AW: ¿Y con las minas cómo es? Escuché que aquí no entra la mina ¿no? ¿O cómo es en esta zona? ¿Han decidido que no entre?”

B7: Sí, pero aquí en esta zona creo que la minería contamina con eso que se llama cianuro porque aquí no hay otras maquinarias que contaminen en mayor porcentaje, sino que aquí directamente contaminan al agua del Rio Molino con el uso del cianuro, ellos lo utilizan y con eso están contaminando con mayor porcentaje. [...] Y ese rio, esa agua está con limitrofe con Llusco y Quiñota. Ese han visto. Las personas

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han ido a entrevistar y han visto las consecuencias y han visto pescados con estas cositas que se hinchan, aaaa, no sé cómo se llama, pero esos han visto y están hablando en las noticias y no se puede pues y no sé cómo vamos a hacer eso.

AW: ¿Entonces los enferman a los pescados?

B7: La minería estaría contaminando directamente nuestra estratosfera, o sea la capa de ozono, porque el cianuro botan en mayor cantidad que es monóxido de carbono."

<sup>cxxii</sup> "B10: Tal vez puede ser para mi ese cambio por la contaminación del medio ambiente, por ejemplo, puede ser de grandes fábricas o de algunas por ejemplo lo que es motores, no. Bueno, otras cosas pueden afectar a nuestra capa de ozono que siempre nos regula pues la temperatura, el calor del sol. Tal vez ya con el tiempo tantos que nos hemos ingeniado la gente, hacemos daños, no puede soportar el sol, tal vez el sol con mayor fuerza está entrando. Eso puede ser para mi."

<sup>cxxiii</sup> "AW: ¿Y sabe usted por qué tenemos este cambio climático? ¿Por qué pasa?

B29: No sé, dicen esto: Hay bastantes carros y están transitando, luego hacemos quemas de paja en los cerros. Dicen [que] con estas que la capa del sol ya están todas gastadas. [Como] aquí estamos quemando plásticos, arrojamos esos descartables, arrojamos las basuras. Dicen que son con estas."

Quechua: "No sé, kay ñinku. Bastante carrupis puriyshan kunanqa kaq, chaymanta orkukunata kanayunchis icchukunata anchiywan nispa, manan intiq capan q'ala gastaduñan kaypi kanashanchis plastikukuna wiqch'unchis, kay descartablekuna, basurakuna wiqch'unchis anchiykunawan nispa."

<sup>cxxiv</sup> "AW: ¿Usted también cree que el tema del cambio climático es también a causa de la ruptura de la capa de ozono?

O: Bueno, la capa de ozono eso quiere decir que por la contaminación cada vez nuestra capa de ozono se va abriendo y cada vez los rayos solares son más fuertes, también es uno de las actividades también que podemos decir que es por el cambio climático o calentamiento global."

<sup>cxxv</sup> "Yo soy una de las defensoras en que la gente tiene el derecho de formarse en todo y en los términos que existen, como los gases de efecto invernadero. Pero si tú le explicas de que se trata con gráficos, dibujos o que sé yo y prácticamente ellos entienden. Yo no estoy de acuerdo de que se dé información rebuscada o sólo para cumplir con algunas cosas. Yo creo que tenemos de informarnos de las cosas tal cual, son producto de ello. Es que hemos producido un material que te consta, lo hemos titulado 'una memoria histórica del cambio climático' y cuales han sido los antecedentes. Si sólo hablas del contexto local o regional parecería que el problema sólo es acá, y que el problema es global las consecuencias son focalizadas. Entonces ellos tienen que saber que así como hay países que contaminan y que también se resisten firmar tratados, acuerdos y convenios y también hay gente que está preocupada en querer resolver el problema como estos científicos que hacen estudios. Entonces, hemos usado varias estrategias para comunicar."

<sup>cxxvi</sup> "AW: ¿Y cómo te parece cuando yo me voy la gente mezcla cuando les pregunta [que la capa de ozono se ha roto y por eso tenemos estos problemas con el cambio climático]?

E13: La verdad me parece raro que digan que es por la capa de ozono y demás cosas porque [...] [ella/él; compañera/o de CADEP] tiene bien clarito del por qué es el tema del cambio climático. [...] Sí, me parece raro que dijiste lo de la capa de ozono porque el tema de cambio climático es bien clarito."

<sup>cxxvii</sup> "Porque no utilizamos adecuadamente los conocimientos de nuestros abuelos."

<sup>cxxviii</sup> "Dentro de esa forestación podría ser que haya acueductos o represas para almacenar agua después de la lluvia. Si habría la posibilidad de almacenar agua en temporadas de lluvia y podríamos almacenar ahí o también instalar canales de riego, porque ahorita el cerro se encuentra totalmente abandonado. Entonces, para que sea más bonito, un ambiente más agradable también con la forestación estamos conseguiríamos. Ya, bueno sabemos que la forestación, la conservación del medio ambiente es un factor determinante para la salud de las personas, entonces para ello yo plantearía ese proyecto. También al forestar, nosotros estaríamos conservando y también estaríamos contrarrestando el cambio climático. También otro [factor] hay: erosión de suelo, eso también estaríamos contrarrestando."

<sup>cxxix</sup> "Bueno, ahorita lo que estamos planificando nosotros es, supongamos yo tengo cinco hijos, ya, y los cuatro tienen que ser profesionales, ya, ellos profesionales, y uno tiene que ser un agrónomo profesional, pero queda como hereditario [heredero] en la casa, más trabajando chakra, ya tecnificado con otro riego o surco con alinear a la siembra, así. Como así no es común, sino, puede crea más gallinas, más vacas mejoradas. ¿Por qué? Porque es agrónomo y sabe todo lo que es, ya cambia más más. Ya no será maíz de repente, puede poner frijol, puede poner, a qué se llama, más tarwi o más quinoa, kaniwa, es más rico

para comer, ya no este tipo de maíz. Entonces, él para el futuro siempre tiene que quedar en la casa uno. ¿Y los demás? Sí, van a trabajar afuera. Sí, entonces, ya van teniendo hijos, igual hace.”

<sup>cxxx</sup> “Reforestación con pinos, hemos hecho cercado, enmallado mantenemos al otro lado de la comunidad y hemos sembrado platones de pinos, plantas nativas y esas cosas. Y además hemos hecho cercar nuestro manantecito porque era como una pampita no más. Hemos hecho cercar bien bonito nuestros manantes y para que nadie moleste ni los animales ni nada para conservar el manantecito que tenemos.”

<sup>cxxxi</sup> “Así es sólo con ello [el concurso de CADEP] yo también me he ganado [accesorios] de riego, mangueras y todo. [...] Sí, estas casas hemos ganado mediante nuestra [participación] en concursos, así es. Allí estábamos casi nueve [personas con los que] nos habíamos juntado. Allí hubieron para el primero, segundo, tercero, hasta quinto y sexto puesto. Allí es donde hemos ganado. Así con estas cosas hemos cambiado, bastante cambiamos con aquello. Hablamos y andamos por este cambio climático, bastante cambiamos. Vamos hasta otros lugares a pasantías y vemos como es que viven. Y viendo estas cosas nosotros también optamos por realizarla igualmente. [...] Fuimos igualmente a ver las “casas calientes” a Espinar. Entonces fuimos a esta. Ahora viven en aquellas “casas calientes”. Es esta la que vimos. Entonces dijimos que nosotros nos construiremos. Es por ello que aquí concursamos y para construirnos aquí, también aquel [tipo] de cosecha de agua, así también andenes, igualmente realicé [forestación] con plantas construyendo el andén, para que no vaya el agua, para que no venga la erosión. De esta forma haciendo el andén hicimos plantaciones, sí. También realizamos conservación de suelos. Estas hicimos mayormente sobre el llamado cambio climático.”

#### Quechua:

“Ari chaywan kamalla noqapas chay riegokunapaqpis, manguerakunatapas llapanta ganakuni, mayoría ganakuni namanta, hasta wasitawanpis ruwachikunaypaq kan kjayna concursuwan ganakurayku, kay wasikunatapas, kunan chay ganakusqayku patamanña comunta riki lliupa ruwayachishanku, riki kay wasikunataqa chhayna concursaspaykun ganakuykun, ari, chaypi karayku yaqa isqonchus juntanakurayku chaypi, primero, segundo, tercero, hasta quinto sexto puesto karan, chaypi ganakurayku, ari chaykunawan cambiaykuya, bastanteta cambiayku chay nawan, chay cambio climaticumanta rimayku puriyku bastanteta cambiayku huqhawakunamanpis rikun pasantiakunawan qhawamuyku imaynas tiyasqaku anchiykunata qhawamuspayku kaq noqaykupas ruwayta haykuyku igualchallataq, riki pasantiaman rispayku, riki. Chhaynata ruwakunki, kaq nata riyku, kaq rillaykutaq kaq q’oñiwasi qhawakuq Espinar chay anchayta riyku, chaymi hinaspa kunan q’oñiwasi tiyanku anchiytaya kaq qhawamuyku chayqa noqayku ruwakusaqku niyku, chayqa chaypi aqnata concursarayku, chaypi ruwakunaykupaq, chay cosecha de aguakunata, chaymanta andenes kaq nakunata ruwani plantakunata andenta ruwaspayku plantata mana unuq haykunapaq mana erosión haykunapaq, aqnata andenta ruwayuspayku plantachakunata ruwarayku, riki, conservación de sueloskunata ruwakuyku, chayllataya mastaq ruwayku cambio climático nisqaqa.”

<sup>cxxxii</sup> “AW: ¿Están pensando en algunas medidas cómo pueden resolver los problemas?

[...]

B8: Preparar agua en balde amarillo y poner en las noches con plástico amarillo en la noche y ahí chocan mariposas y chocando se caen al agua. Es una trampa. Ahora estamos haciendo esas técnicas.

AW: ¿Y quién les enseñó eso o quién les explicó o ustedes mismos lo han pensado así?

B8: No, no, nos capacitan así ingenieros de CADEP y otros, de eso estamos aprendiendo.”

<sup>cxxxiii</sup> “B27: Ya no acostumbramos [hacer estos costumbres y rituales]. Antes sí lo hacían, antes, antes, nuestros abuelos. [...] Mis abuelos hacían una *t’inkana*, bailaban, cantaban, Pachamama, así así. [...] No sé cómo se hacía, con su coca, con su trago, con su *t’inkana*, todo. Con su poncho hacía, todo tenía. Eso hacían.

AW: Pero su papa ha hecho. ¿Usted ya no?

B27: Ya, ja nosotros ya no!”

<sup>cxxxiv</sup> “B2: Entonces ahora, los viejitos siguen acostumbrando eso. Pero la nueva generación ya olvidó, ya no hay eso. Entonces, por ejemplo, sembraban papa en los cerros y en los cerros primero un día se iban en caballos llevando chichi, coca, cebo de alpaca y flor de clavel y hacían pago especial con vino, llevaban vino y eso lo *t’inkaban*, lo hacían pago a la *Pachamama*. [...] Entonces, se hacía aprovechando bien y la gente era gruesos, gordo, gruesos, grandes eran. Sí entonces, así acostumbraban. Pero ahora ya no hay, ya no hay.”

<sup>cxxxv</sup> “AW: ¿También hacen rituales, algo así, tradiciones que apoyan el cultivo?

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B26: Bueno, en mi zona, sería mentiroso, todos son casi religiosos y lo ha desplazado a la costumbre, a la tradición muy poca importancia le damos.

AW: ¿Y qué religion tiene?

B26: Bueno, somos cristianos. [...] Pero hay un grupo siempre que cree. [...] Son supersticiosos, [...] pero sí hay poco. Habían, habían, mayormente los antiguos, esa tradición han mantenido bastante nuestros abuelos, han mantenido.”

<sup>cxxxvi</sup> “AW: Y últimamente con la cosecha, la siembra, ¿hacen algunos rituales como pago a la tierra, están cuidando a la *Pachamama* o eso no existe?”

B28: No, no creo en esta cosa, yo sólo creo en Dios no más.

AW: ¿En Dios?

B28: Sí. No creo en cerro, no *Pachamama*. Yo creo en Dios no más.”

<sup>cxxxvii</sup> “De alguna manera nosotros también necesito apoyo así para que nos oriente así. Entonces aquí siempre gente de campo no podemos. Ya estamos viendo agua suficiente está entrando al río, pero nosotros no sabemos como mantener esa agua, esito falta. Entonces las instituciones vienen, algunos unos ya estamos sembrando hortalizas, pasto para los ganados ya estamos cambiando también poco a poco. Falta que llegue la carretera ya, después ya pensamos otro también.”

<sup>cxxxviii</sup> “No pensamos, entonces esito estamos un poco atrasado.”

<sup>cxxxix</sup> “Entonces, ¿cómo vamos a sobrevivir? Nadie está pensando idealmente. Entonces ahí un poco como te decía y yo no sé si es una ventaja o desventaja, el hecho de tener desde otra visión. Miren, saben esto es lo que va a venir. La otra gente está pensando prever estas cosas, allá en Europa está pasando eso, de ¿cómo vamos a vivir más adelante? Entonces, se están anticipando. En cambio, acá no se está viviendo todavía eso, se vivirá ese momento y se actuará, si se hace o no se hace. [...] Entonces, mucho aquí la gente no está pensando, ni en cosechas de agua, ni nada. Entonces eso es una cuestión cultural, de lo que está haciendo hoy, [pero] en algún momento tendrás que afrontar.”

<sup>cxli</sup> “Sí, hemos cambiado con esta institución CADEP habiendo este [cambio] climático, hasta nuestras casas hemos cambiado bonito, las pintamos, ingresamos a los concursos, aquellos [productos] las elaboramos naturalmente, con estas hemos cambiado, ahora ya no [estamos] como antes. Sí con ello cambiamos.”

#### Quechua:

“Riki, cambiayku kay Cadepwan institución Cadepwan kay climático kaspá hasta wasiykutawanpis cambiayku sumaqta, pintakuyku concursukunaman haykuyku, chay nakunata ruwakuyku naturalmente anchaywan cambiayku, kunanqa manay anteshinañachu riki chaywan cambiayku.”

<sup>cxlii</sup> “En el colegio hemos preguntado: ¿Cuántas variedades de papa conoces? No conozco, nos dicen. ¿Estaría bien eso? ¿Cómo no van a conocer variedades de papa? ¿Debe saber acaso? ¿No es niño agricultor? Nos dijeron que no debemos de conocer sobre estas cosas. ¡No es así!”

#### Quechua:

“Colegiopi tabuyku: Haber hayk’a variedad papa reqsinki? Mana reqsinichu nispa ninku, Allinchu kanman chay? Cómo no va a conocer variedades de papa? Yachananya manachu agricultorwawa kashan? Manan chaykunamantaqa yachaykumanchun niwanku mana chhaynacú.”

<sup>cxliii</sup> “Esta cuestión de no-dialogo y más bien de discriminación hace que finalmente la sociedad dominante no logra a ver el otro, no logra [...], incluso en las ONGs [...], es tan anclado esta percepción.”

<sup>cxliiii</sup> “Entonces lo que he visto, desde veinte y cinco años y más, es que [...] ahí tu tienes una falla de lo que llamamos los proyectos. Los proyectos son tres años. [...] En tres años hay procesos que no, apenas puedes empezarlos. Yo veo, por ejemplo, estas experiencias: la gente dice, ya, vamos a hacer tal tal cosa, entonces, generalmente, en la mayoría de los casos, la iniciativa de la propuesta, por ejemplo, en adaptación al cambio climático. No es que viene de la población, no. No es que la población dice, ‘ah, observo el cambio climático’. Entonces de manera proactiva, consciente dice, ‘ya pués, entonces hay que hacer esto esto, voy a intentar esto, voy a intentar aquello’. ¡No! En general, el proyecto viene, ah, vamos a concientizar, vamos a explicar a la gente qué está pasando con el cambio climático. Y ya partimos de que tu tienes que explicarles. No es que ellos pueden entender desde su propia experiencia. A menudo, ya vienes con los cuadros, las cifras, todo eso. A veces es [...] es como una caricatura, la gente viene con grandes explicaciones de lo que es el cambio climático, que tienes que partir de la experiencia de la gente. No puedes construir la cosa sobre un informe del IPCC. Bueno, entonces yo creo que lo muy a menudo la iniciativa de lo que hay que hacer y, por ejemplo, unas cocinas mejoradas y las viviendas.

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Generalmente viene del exterior. Claro, tampoco es totalmente falso, o sea, es obvio que hay condiciones de vivencia de las familias que son insalubres [...]. O sea, vemos que mezclar los animales que viven debajo de tu cama o viven en la misma cocina, pueden afectar la salud. Pero obviamente si tu le dices: eres una cochina porque concinas al suelo, [...] es decir... no puede ser. Tu tienes que construir eso y eso toma tiempo. Y justamente lo que no tienen los proyectos es tiempo. En tres años te dice, yo lo he visto hace poco en otras regiones, aya, cocina mejorada, ya, acabo de dos años tiene que haber cincuenta por ciento de la población. [...] Entonces el mismo productor, el mismo facilitador de la institución, del programa tiene que ir corriendo, hacer la meta, ya, tenemos que hacer tantos cursos, tenemos que hacer tantas cosas. [...] Entonces, eso son cosas que son un poco grave, en el trabajo de la cooperación del Estado, porque el Estado, muchas veces es peor, [...] digamos, ahí sí la gente viene, tienes que hacer pa pa pa pa pa pa. [...] Es como una orden y de verdad, que la población campesina comunera está un poco acostumbrada, entonces viene el ingeniero, viene el funcionario y [...] ya, hay que forestar, ya pues va, si nos dice que hay que forestar, vamos a forestar. Y a menudo, acabo de dos años ya no hay ninguna de las plantitas que quedan. Entonces, yo creo que sí hay buenas experiencias, hay experiencias donde se trabaja de otras maneras, se trabaja, por ejemplo, la capacitación de campesino a campesino donde la gente va, conoce otra zona, cómo hacen en otra familia. [...] Y va creando digamos una capacidad propia de la población de reflexionar sobre su situación, de encontrar la solución. Pero esto es un camino, boah... Como digo, bueno para mi yo regreso acá desde tiempo, hace tiempo que no he venido a Santo Tomás. [...] Yo recuerdo todavía más antes, proyectos de riego que, porque es un poco mi especialidad de trabajar esos temas, era netamente [...] nuestra idea. Claro estábamos lleno de buena voluntad, eso siempre es, no cierto, la buena voluntad. Pero en realidad, los campesinos, las comunidades no estaban listos, no lo veían como importante. Entonces, tu no puedes tampoco forzar cosas. Y de hecho sí, se fuerzan muchas cosas, de hecho, sí, fuerzan muchas cosas. Entonces, yo creo que eso es un tema muy fuerte también en la adaptación al cambio climático. Porque ahora tú tienes un, como una especie de carga montón. Todo mundo mete cambio climático. Entonces es desarrollo productivo en condición de cambio climático, seguridad alimentaria en condición de cambio climático. Hace veinte años, era seguridad alimentaria con enfoque de género. Vienen como un poco en modas. [...] Pero de hecho que se transforman en moda, hace que no se hace bien la cosa. O en vez de profundizar, por ejemplo, el tema en trabajo con mujeres, con realmente una pericia [...]. En realidad, se ha empezado a trabajar con mujeres, con gente que ni siquiera le gustaba el tema, pero como era de moda, se hacía así. Estoy un poco pesimista pero bueno, [...] hay cosas también que se han hecho...”

<sup>cxliiv</sup> “La cuestión de concepciones de tiempo era de que en el campo la gente, o sea, no lo está dividiendo el tiempo, lo único es: lo que pasa antes, qué cosa es lo que se está viviéndose hoy, qué cosa es lo que va a venir más después, sino más bien en el presente se está viviéndose, lo que hay en el pasado y también lo que habrá en el futuro no. O sea, entonces ese es un poco la diferencia digamos con otras formas de entender el tiempo y el espacio y entonces cómo la gente del campo vive el presente.”

<sup>cxliv</sup> “Sí, hay una relación con la población horizontal porque hemos aprendido a respetar sus costumbres y tradiciones y todo y que para nosotros es un ciudadano más con todos los derechos y deberes y que no es un ciudadano de a pie o ciudadano de segunda categoría, para nosotros es una persona de derechos que tiene sus propias costumbres, su lenguaje, sus formas de organización y convivencias y que tienen que ser respetadas e incorporadas en nuestro que hacer.”

<sup>cxlvi</sup> “Una de las cosas que se ven en el proyecto es la recuperación de los conocimientos y saberes, tecnológicas tradicionales.”

<sup>cxlvii</sup> “Todos los conocimientos locales están desvalorados, no están reconocidos como tales. Sin embargo, nosotros sabemos que esos conocimientos en otros espacios son válidos, no. Eso hay que entenderlo más desde una lógica de dependencia de pensamiento. Nos é si allá [en Europa] pasara igual pero aquí todo lo que se hace al otro lado es mejor que lo que haces tú. No hay un reconocimiento de uno mismo. Ya pues, ¿para qué vamos a enseñar los conocimientos en la comunidad si eso no es científico?”

<sup>cxlviii</sup> “Ya, entonces, yo creo que esta cosa de la discriminación que es tan fuerte en nuestro país que podremos también decir racismo. En fin, porque en realidad, lo que sabe el campesino no vale, y solamente vale si lo ratifica un técnico, un ingeniero. Si el ingeniero dice, ah sí lo dice el campesino, vale, ahí empieza a valer, hm, pero no vale por sí mismo.”

<sup>cxlix</sup> “O cuando por ejemplo nuestros ingenieros salen al campo a enseñar a nuestros comunarios, a enseñar como cultivar la papa o cualquier otro producto, entonces todo lo que saben ellos, saben.”

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Entonces ellos van a asesorar. Ahí hay grandes choques con la gente del campo, not e lo dicen de una forma de que lo que les dicen no sirve, sólo te escuchan en el fondo dicen que lo que les están diciendo no tiene nada que ver con lo que ellos saben. Como te digo, hay un choque pero que no sobresale como que no se notara, pero en el fondo hay esas cosas. Eso en distintos aspectos, pero un poco en todo el conocimiento, la sabiduría de los pueblos originarios no está reconocida como tal, sino es un apredizaje empírico por lo tanto puede servir en algo, pero no son los determinantes. En eso hay serios problemas especialmente con los profesionales y todo eso.”

<sup>cli</sup> “Ellos empezaron con ese proyecto, los dos o sea los tres eran agrónomos, ingenieros agrónomos. Primero contrataron a un biólogo, vino el biólogo, se di una vueltita por la zona, no le gustó la zona y renuncia al toque, o sea en meno de un mes. Luego el otro equipo hizo su línea de base, identificó comunidades, todo igual, no había, digamos esa relación horizontal que buscamos entre la población y la institución. Por lo menos el coordinador venía de una experiencia un poco más del sector estatal pero su relación era de ingeniero a comuneros. Entonces esa no era la relación que establecemos aquí en la zona. Entonces igual, un poco, no sé, durante seis meses no habían organizado. Entonces también se cambió, ahí entré yo, luego igual salieron los otros dos, entramos, optaron otros y así cuatro a cinco veces.”

<sup>clii</sup> “O sea, tú no puedes ir a la comunidad y decir que yo soy el ingeniero, a mí me tienes que respetar y [...] decirles yo no soy tu compañero o algo así. Y por eso que la gente fue saliendo, esos son los principios de [la organización].”

<sup>cliii</sup> “Entonces, ¿qué está faltando? Vuesta voluntad, organización, ¿cierto? Si no hacemos estas [acciones] seguirá ocurriendo más, no habrá para comer, no habrá para llevar de visita a nuestros hogares, ¿cierto? Entonces ustedes están conscientes pero no están actuando.”

#### Quechua:

”Entonces, iman faltashan qankunaq? Voluntad, no cierto, organización? Mana chayta ruwansunchis chayqa siguishallanqa astawan mana kanqachu este mijunanchispaq, mana kanqacu wanchiskuman vistinanchispaq, no cierto? Entonces qankuna consiente kashankichis pero mana actuashankichischu.”

<sup>cliii</sup> “Ve entonces, ya no hay este círculo, este círculo que ellos manejaban y definitivamente ya no hay esta visión al futuro porque tu ya no piensas de que allá más adelante puede cambiar, sino es momentáneo.”

<sup>cliv</sup> “Es que aquí hay un problema, los temas de antes con la generación de ahora. Hay una desconexión entre la naturaleza y la generación de nuestros padres, ellos viven con la naturaleza, interiorizan su servicio a la *Pachamama*, primero antes de tomar el vino, primero al suelo el agua de arroz, por ejemplo, no puedes echar caliente la papa cuando haces hervir el agua caliente, no puedes echar porque lo estas maltratando. O sea, es tremenda, a nosotros mismos nos sorprenden, por ejemplo, cuando hablamos con los chicos ese ratito dicen: mi mama lo hace; pero ellos ya no lo hacen. Ahí la religión también es otro problema, muchos dicen de por qué vamos a creer en eso, es un pecado, lo que causa efectos y originan esa ruptura. Entonces, por ejemplo, los adventistas, [si] dicen estamos creyendo en el cerro, damos nuestro pago a la tierra, pero eso es un pecado, está sirviendo a otro dios, ya la mentalidad de los chicos ya va cambiando no, las creencias poco a poco y esa creencia que era tan rica con el medio ambiente se va rompiendo. El otro son los medios de comunicación de todo pero nada que ver con medio ambiente no hay temas ecológicas, más son venta de productos. Eso es otro problema.”

<sup>clv</sup> “Ese es un problema triste, como los jóvenes se van a otro lado y los papas continúan y ahí va muriendo. Ese es un gran problema y tratamos de rescatar justamente eso con el club de ecologistas, ahí hay. Incluso el otro año pensábamos hacer, por ejemplo, pago a la tierra con los mismos chicos pero no lo hemos hecho, pero nos falta. El problema también es, los profesores pues [de] los demás áreas, ya pues, toman como burla el aspecto ese, es el detalle. Es fuerte acá, es fuerte.”

<sup>clvi</sup> “Bueno, los estudios y todo que se hace a nivel digamos más académico se reconoce que estos conocimientos estos son de ancestrales y ques on vigentes.”

<sup>clvii</sup> “Por ejemplo, tuvimos bastantes discrepancias con XY acá. Yo le entiendo, pero yo lo he vivido, mi papa me obligaba y me llvaba. [...] Pero yo no lo interpreté en el sentido de machismo sino dependiendo del contexto como aquí la gente siempre para peleando y que tu no haces nada, nadie te va a respetar y por ese lado ya sabes que te van a defender o te van a ser respetar. [...] Yo le entendía más en esa lógica que en las otras lógicas y eso es lo que pasa normalmente. [...] Claro, esas son las formas de

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conciencia social, lo que aquí es bueno puede [ser] malo allá, depende mucho el contexto. Pero eso es lo que entendí en las diferentes realidades y eso me hace entender de otra manera.“

<sup>clviii</sup> “Pero sí, hay avances porque [si] tú vas a las comunidades ya te hablan del cambio climatológico, [lo] que es y todo eso.”

<sup>clix</sup> “Hay varias iniciativas que hacen que podamos afirmar que hay una preocupación y una interiorización en el tema del cambio climático, y no sólo gracias al CADEP.”

<sup>clx</sup> “Todo el mundo sabe del cambio climático. Y por eso que cuando en su *chakra*, por ejemplo, maíz cosechan y sacan pues poquito maíz, ahí: ‘por el cambio climático y no tengo ni maíz, por el cambio climático’. Ahora todo es por el cambio climático.”

<sup>clxi</sup> “La gente está acostumbrada a que ayudes, a que [...] van a ayudar, si hay una ONG, es para ayudar, si hay un proyecto del estado tiene que dar. Entonces este cambio de la relación entre la sociedad mayor y la sociedad campesina indígena y las distintas culturas que existen en el país es clave. [...] Si no se resuelve, nunca vamos a lograr en el país a encontrarnos. [...] Bueno, no está mal tampoco que haya crecido el pueblo, que haya más servicios, que haya más transporte, está bien, está bien. Pero no es eso [...], esa cosa de la valoración propia, autónoma, de la identidad da la cultura; no porque lo dice el proyecto, no porque lo dice un programa, una ONG, sino porque la gente lo vive así!”