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The Place of Justice and Vulnerability in Climate Resilience

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Abstract

Various understandings of 'resilience' dominate debates on climate change without consensus on its ethical implications. Individualistic interpretations can conflict with ethical values like minimizing population harms and countering health inequities. More systemic, ecological interpretations may overlook justice concerns, such as who is more burdened or marginalized regarding climate impacts. This paper argues for integrating a normative, justice-oriented approach to resilience, informed by feminist and intersectional theory. It outlines six principles: build in redundancies and diversification; foster knowledge acquisition and sharing, increase social cohesion, connectivity and willingness to cooperate; improve participation and facilitate polycentric governance; protect regenerative capacities; implement preventive measures.

Keywords: marginalization, climate change, social cohesion, feminist climate justice, climate injustices

1. Introduction

Climate change disrupts food systems and affects health, yet it does so quite differently depending on where one lives, the position one has within one's community, and the stage of life one is in (McMichael 2017). A concept that is frequently put forward in the discussion of the capacity to respond to climate change induced vulnerabilities is 'resilience.' Yet the concept itself is used in various ways and has different implications for justice (Manyena 2006). Those analyzing society from an ecosystem perspective tend to view resilience as how communities or systems have the capacity to recover from disruptions while maintaining essential traits (Adger 2000). In studies influenced by the literature in psychology, it is often assumed that individuals, either on their own or as part of a community, build up resilience by themselves to overcome adversities. In a world of neoliberal values such understanding shifts responsibilities towards individuals (Bracke 2016; Neocleous 2013) where resilience has become something like a virtue people should aim for and a valuable asset. As the concept of resilience plays such a central role in how we respond to climate change, it is crucial that the concept is not used to impose adaptation and mitigation responsibilities solely on the communities most vulnerable to climatic adversities (Barrios 2016). Nor should it serve as an excuse to avoid tackling structural injustices or to demand from individuals that they continuously overcome ongoing adversities on their own (Shwaikh 2023; Mahdiani and Ungar 2021).

In this paper, we argue that social justice, that is informed by feminist and intersectional theory (Luna 2009; Scully 2023; Fricker 2007; Young 2011; Crenshaw 1991), must be an integral element of the understanding of climate resilience. We develop this argument by discussing the implementation of seven illustrative principles yielding to resilience (Biggs et al. 2012). We condense these principles to six by revising them based on our analysis through a lens of justice, informed by feminist and intersectional theory. Thus, in

this paper we depart from a broad understanding of justice that includes multiple sub-forms, which allows an analysis of issues that go far beyond the allocation of resources (Pratt et al. 2020; Timmermann 2020). This lens then helps to conceptualize justice as particularly sensitive to structural gendered and intersectional vulnerabilities we can observe when responding to climate change.

In the present analysis, we concentrate on five forms of social justice: procedural justice, concentrating on issues of fair processes and self-determination; distributive justice, arguing for a fair distribution of benefits and burdens; contributive justice, demanding opportunities to participate as peers in solving social challenges; relational justice, condemning power relations that marginalize or harm vulnerable population groups; and intergenerational justice, defending the interests of future generations.

This paper proceeds by (i) summarizing major disruptions and vulnerabilities triggered by climate change and their gendered and intersectional justice dimension, (ii) offering a short introduction of the advantages and disadvantages of the concept 'resilience,' and (iii) analyzing six action-guiding principles to improve resilience that can be aligned with justice and is informed by feminist and intersectional theory. These principles are: build in redundancies and diversification; foster knowledge acquisition and sharing, increase social cohesion, connectivity and willingness to cooperate; improve participation and facilitate polycentric governance; protect regenerative capacities; and implement preventive measures.

2. Why is climate change a feminist justice issue?

Climate change leads to a series of vulnerabilities and disruptions to our health and well-being, our livelihoods, services we count upon, and institutions. Climate resilience is thus understood as the ability of communities to withstand and recover from such disruptions.

Especially in the rural context of the Global South, climate change can have devastating effects, particularly so if viewed from a gendered and intersectional perspective. As we will see, the following descriptions of unjust, gendered, and intersectional health and nutritional vulnerabilities and disruptions are strongly determined by a complex interplay of social and political circumstances.

Climate change can force people to migrate by making places less habitable through rising sea levels, increased flooding and wildfires, stronger heatwaves and extreme weather events, landslides, and the emergence of new disease vectors (GGCA 2016). Involuntary large-scale migration increases the chances that gendered and intersectional vulnerabilities are exploited. It is estimated that 80% of the people displaced by the climate crises are women, depriving them of their means of livelihood and placing them at increased risk of unsafe and unhealthy circumstances, and of gender-based violence while migrating and staying in refugee camps (OHCHR 2022). Moreover, environmental destruction and climate change may lead to water scarcity. People living in poverty are particularly vulnerabilized by water scarcity, as the availability of potable water is jeopardized and water available for sanitation and food production is increasingly limited. Additionally, the destruction of forests and the over-extraction of water force women in the Global South under gendered work arrangements to carry water over much longer distances (Shiva 1988). Hence, as disease vectors expand into new geographic areas, for instance mosquitos appear in higher altitudes as temperature rise, or winters not cold enough to decimate vectors such as ticks, they lead to more sickness and therefore caring responsibilities (Schmid and Schwienhorst-Stich 2023), which are still taken over primarily by women. Furthermore, heatwaves have a worse effect on the health of pregnant women and elderly, and thus, due to the considerably longer life expectancy, women are more affected by heat waves (Perkins 2018).

These vulnerabilities and disruptions can lead to concurrent health threats which can create cascading and intersecting vulnerabilities (Romanello et al. 2022; Luna 2009), calling

for structural socio-political interventions. For instance, droughts not only lead to water scarcity and the mentioned harmful health effects. Under gendered work arrangements women have been and still are expected to get water and care for the sick. Now – under the conditions of climate change – it is likely that women, who are already vulnerabilized by climate change, have to walk longer distances to get water and spend more time on care responsibilities, and thus will be made even more vulnerable to harmful bio-psycho-social effects themselves.

Moreover, structural inequalities that create vulnerabilities do not only lead to harm and exploitation, but also deprive populations from opportunities (Thompson 2014). For instance, climate-related disruptions can be an opportunity for some people to expand businesses. People who are able to invest in complex irrigation systems can avoid harvesting crops at the same time and sell them at higher prices, in contrast to farmers whose crops are rain-fed (Popke, Curtis, and Gamble 2016). Additionally, as traditional crop varieties become useless under new weather conditions, seed companies are making huge profits on so-called climate ready seeds (Saab 2015). Furthermore, gendered barriers to land ownership titles and to agricultural credits frequently impede women in the Global South to benefit from technological innovations (Glazebrook, Noll, and Opoku 2020). Therefore, women – who are stewards of the majority of traditional seed varieties, and as these become less usable and are displaced by commercial varieties and external inputs – loose negotiation power and become more dependent (Bee and Park 2022). Hence, while for a few climatic disruptions lead to new opportunities, for the millions of largely female smallholders in the Global South these disruptions are leading to new vulnerabilities.

We can observe further challenges for justice: It is well known that people living in poverty, particularly those around the tropics, and Indigenous peoples have contributed the least to climate change and are the ones who are most exposed to climatic vulnerabilities, with much less means to adapt. Large-scale responses to climate change fail to secure procedural,

contributive, and relational justice, and to give sufficient voice to the global poor and Indigenous peoples. Institutions and policy-makers rarely acknowledge and include their expertise and know-how, and even impose technological solutions against their will (Nyéléni Forum for Food Sovereignty 2007). Climate change is also a major intergenerational injustice against the younger and future generations by imposing massive adaptation costs, directly harming and leading to a major loss of biodiversity (McKinnon 2012). Research shows that in relation to the dynamics of climate change as a driver of inequities, social cohesion can erode and the self-esteem of those in lower socio-economic positions is affected particularly negatively. Such relational injustices can have the effect that vulnerable groups redirect their anger to oppress those that they perceive as even more vulnerable than themselves: (other) women, immigrants, and minorities (Wilkinson 1999).

Injustices are perpetuated and aggravated when patriarchal structures and processes of epistemic exclusion keep minimizing the opportunities poor and otherwise marginalized people (and especially women) have to participate in decision-making, contribute to problem-solving, and take advantage of new opportunities.

3. Resilience to and as what?

In the literature there are countless uses of 'resilience' that vary significantly depending on the areas of study and application. In fact, there are so many understandings and uses of this concept that it has been labelled a "boundary object" (Brand and Jax 2007). This has the advantage of being able to facilitate multidisciplinary work by not having to reach major consensus on the ramifications of the concept, but requires openness in regard on how the concept is being used and applied.

A common denominator of the different understandings of the concept of resilience defines it as the capacity to "bounce back" (Alexander 2013). Studies using the concept analyze in how far individuals, communities, or systems are capable to respond to a vulnerability or disruption and to recover into a similar or new state of stability. The emphasis in resilience thinking is thus on responses to disturbances instead of attempting to control a system (Leach 2008). While the concept can be used to examine how individuals and communities respond to stress factors, it needs to be stated that resilience itself is not bound to a normative framework, but is often seen as an epistemological, descriptive, or scientific tool (Fernández Carril and Ruiz-Godoy Rivera 2017).

For the purposes of this analysis, two major uses of the concept of resilience can be identified: *person-based* and *system-based* resilience. A well-established understanding that is common in psychology seeks to understand the factors that make *individuals* more capable of confronting adversity and recovering from hostility and misfortunes (Schwarz 2018). The other way to understand resilience is by focusing on *systems* and analyze the factors that help to withstand stress and bounce back. Here, studies focus on how ecosystems, communities, and economies respond and adapt to stress factors (Walker et al. 2004). System-based resilience provides the primary source for the analysis in this paper as we are particularly interested in how climatic disruptions affect social relationships.

Over the last two decades, various currents in resilience research aim to provide a normative direction to the concept (Atallah, Bacigalupe, and Repetto 2021; Leach 2008). To be socially just, strategies to improve resilience need to include learning processes that embrace justice as a central value to recover and to move towards a socially and environmentally desirable direction. In this regard, there have been examinations on how communities can become resilient and overcome injustices over time by paying special attention to restorative justice and conflict resolution (Leach 2008; Turquet et al. 2023; Gonda et al. 2023). While we strongly support such approaches, we decided to take a forward-

looking approach that concentrates on building and maintaining social cohesion informed by feminist and intersectional theory. This approach can therefore be seen as complementary to studies that focus on restorative justice.

3a. Links between resilience and justice

Resilience has been understood as a political ideal, since systems we depend upon, such as the health and food systems, are vulnerable to disruptions (Kolers 2016). Unfortunately, while many factors that increase the resilience of a community are desirable from a justice perspective, it is important to be aware that resilient communities are not necessarily fair (Thorén and Olsson 2018). Often quite the opposite is true: some resilient societies are neither peaceful, democratic, nor efficient. On the one hand, democratic processes that seek procedural and relational justice may lead to instability while trying to facilitate change. On the other hand, factors leading to stability, such as processes that hinder historically marginalized communities to advance their interests, might protect the status quo and thereby block highly necessary transitions which impede correcting structural injustices (Aall and Crocker 2019; Meerow, Newell, and Stults 2016). Dictatorships with an extensive oppressive apparatus, for instance, can be resilient as a system and at the same time represent an unjust status quo to 'bounce back' to. The steadiness and 'resilience' of a system can also be a problem in democratic states. While the preservation of the homeland is a central conservative value, conservative political parties are usually hesitant, if not adverse, to implement changes that are large enough to lead a transition into a low emissions economy (Markwardt 2019).

At an individual level, people often adapt and 'become resilient' to hostile environments by giving up and masking, for instance by hiding traits that might lead to vulnerability (Harbin 2019) and avoiding any manifestation of how they perceive injustices,

such as crying or complaining, something that ultimately may end up advantaging perpetrators and preventing structural changes (Shwaikh 2023). Strategies to improve resilience can be considerably near-sighted by focusing on responding to immediate threats, while omitting to address more complex, structural, intersectional vulnerabilities.

Justice, in contrast, demands that strategies of resilience should not 'sacrifice' or lead to the disenfranchisement of weaker community members or come at the cost of their mental health. Furthermore, it demands to view resilience as a long-term goal. This means to see for example technological fixes and emergency relief as insufficient if they merely postpone or even suppress actions needed for structural changes, also regarding future generations. Instead of 'bouncing back' and defending the very mechanisms that made it possible for a disruption to end up as a disaster, it would be better to aim at 'bouncing forward' and fixing the system that permits structural injustices (Manyena et al. 2011). Several elements that act as sources of resilience are also demanded by justice. We turn to these elements in our detailed analysis of six action-guiding principles in the second half of the paper.

3b. Links between resilience and vulnerability

The resilience of a community is often assessed by studying its vulnerabilities. At first sight, vulnerability can be seen as the opposite of resilience, but this view oversimplifies the comparison (Gallopín 2006). In general, being vulnerable is to be susceptible to negative impacts. As feminist theory has shown, societies play a significant role in how far such impacts end up having negative effects on people (Hendl and Browne 2022). Feminist theory has also emphasized that vulnerability is not an essential property (or label) of groups *per se* (Ahmad et al. 2020; Luna 2009) and the acknowledgment of vulnerabilities should not overshadow the individuality and agency of people (Cuomo 2011). In this sense, both

inherent and situational vulnerabilities are dependent on the context and surroundings someone is in (Mackenzie, Rogers, and Dodds 2014). The different sources of vulnerability should be seen as layers not labels; such an understanding can create an awareness about the intersectional effects of multiple layers of vulnerabilities (Luna 2009). To reduce the harmful impact of sources of vulnerability, social policies need to balance efforts to protect groups that are rendered vulnerable by fostering agency, avoiding stigmatization, fighting discrimination, limiting abuses of power, and providing a social floor to avoid disruptions leading to deprivation (Rogers, Mackenzie, and Dodds 2012; Fineman 2010).

4. Interim summary

So far, we have shown that resilience is a term that is used in various ways with different implications for justice. Because of its definitory and conceptual problems and unclarities, one might be tempted to eliminate the concept of resilience altogether. However, the use of the concept 'resilience' has risen exponentially over the last years. Currently, discussions on climate change cannot be carried out without reference to the concept. We therefore proceed under the premise that the concept of resilience is now an indispensable element of climate change assessments.

We argue that, if used, the concept must make its links to vulnerability and justice explicit, and then not only in a descriptive, but in a normative way. Ideally, in our view, *'resilience' should be used as a normative concept that aims to address and reduce vulnerabilities and that improves justice.*

Our above-described empirical insights into unjust, gendered, and intersectional vulnerabilities, and their embedding into feminist, intersectional justice theory help us to formulate three criteria that we consider in our further analysis. Concepts of resilience to

climate change should (i) recognize care work by distributing responsibilities and supporting those who provide such type of work, (ii) reduce marginalization, particularly by empowering individuals and communities to defend their interests and contribute to society using multiple capabilities, and (iii) prevent harm by giving greater weight to measures addressing social determinants of health and well-being, as harm from vulnerabilities often arises from structural and complex sources which cannot merely be addressed by technological fixes or emergency relief.[1]

5. How can we improve the use of the concept of resilience? An ethical analysis of action-guiding principles

How can we improve the use of the concept of resilience by trying to increase its normative power in relation to vulnerabilities and justice, that is sensitive to feminist and intersectional aspects? Providing an answer to this question is tricky, because, as we have seen, there are various interpretations of the concept of resilience, and while links to justice and vulnerability are being discussed, they are not necessarily action-guiding. One way to *make use* of the concept of resilience towards climate change is to develop action-guiding principles. In the literature we can find numerous principles to guide action towards resilience (Tittonell 2020; Jackson and Ferris 2013; Yu et al. 2020). Again, as there is no consensus on what resilience amounts to, there can also be no agreement on a fixed set of action-guiding principles. Nonetheless, there is useful work that we can build on to test whether and how the feminist, intersectional justice orientation of resilience can enrich existing approaches.

[1] The criteria are not meant to be an exhaustive list and they can and should be adapted by other scholars.

From the several studies examining resilience in socio-ecological systems, we develop our analysis by building on the work of Biggs and colleagues (2012). The authors list seven principles conducive to increase resilience:

(i) maintain diversity and redundancy,

(ii) manage connectivity,

(iii) manage slow variables and feedbacks,

(iv) foster an understanding of social-ecological systems as complex adaptive systems,

(v) encourage learning and experimentation,

(vi) broaden participation, and

(vii) promote polycentric governance systems.

We take these – widely cited – principles as a starting point as they provide fruitful and fitting grounds to build on: they understand resilience as system-based, make explicit reference to ethical values, are sufficiently broad to be applicable to diverse settings, target a wide range of fundamental human interests, and allow to clearly exemplify the justice dimensions of achieving and deviating from these aims.

As we have established above, concepts of resilience to climate change should acknowledge intersectional, gendered vulnerabilities and therefore should (a) recognize care work, (b) reduce marginalization, and (c) prevent harm.

By weaving our three criteria into the principles developed by Biggs et al., we emphasize the normative dimension by enhancing the feminist foundation and the value-orientation towards structural and epistemic justice (see figure 1).

We are aware that others might use different action-guiding principles as starting point, or might choose other criteria to enrich them. The purpose of this article is not to

provide static lists of principles or criteria. Instead, our goal is to stimulate a critical debate on developing the use of resilience further as a normative concept.

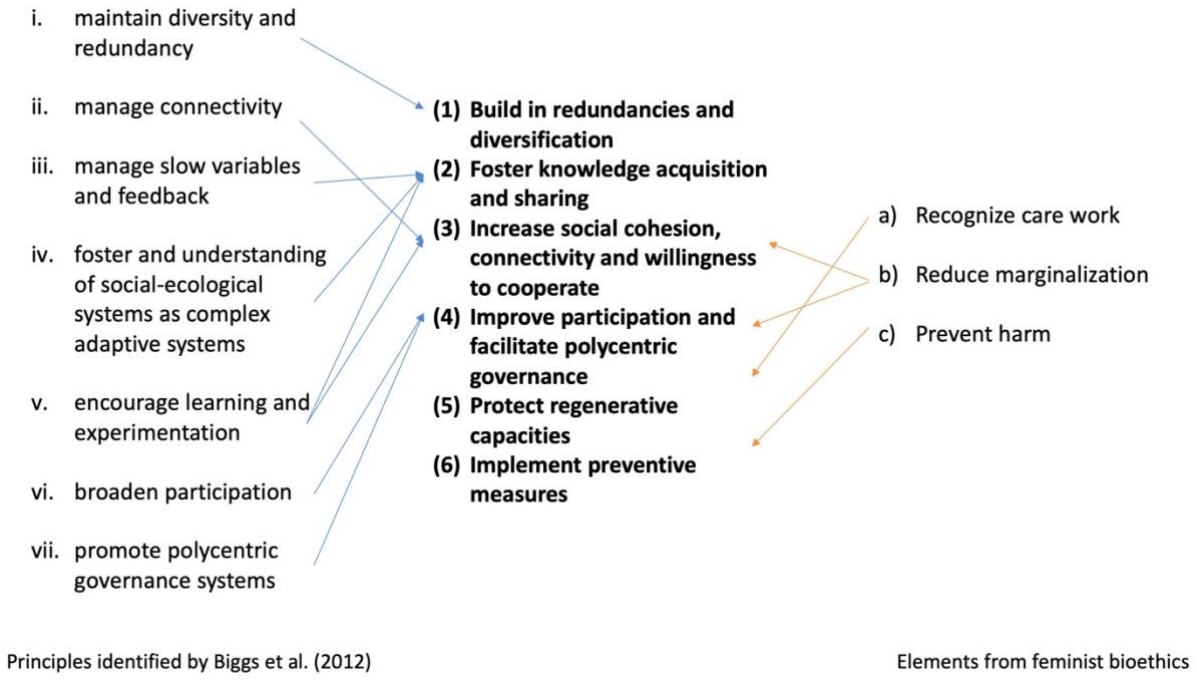


Figure 1: Roots of the assessed action-guiding principles to improve resilience (source: authors)

This approach leaves us with a list of six action-guiding principles we can examine further:

(1) build in redundancies and diversification

(2) foster knowledge acquisition and sharing

(3) increase social cohesion, connectivity and willingness to cooperate

(4) improve participation and facilitate polycentric governance

(5) protect regenerative capacities

(6) implement preventive measures

In order to show how the feminist and justice-oriented normative foundation of the concept of resilience enriches the action-guiding principles, we proceed by describing each principle:

Build in redundancies and diversification. While in the short-term building in certain redundancies and increasing diversity is costly, and thus may reduce competitive advantage, in the long-term, systems that have back-up elements and provide diverse responses to vulnerabilities and disruptions tend to be more robust (Folke 2006).

Essential systems, such as food and health systems, that are highly dependent on certain institutions, persons, or goods, are vulnerable. When these fail, it can lead to catastrophic consequences for the worst off. In Puerto Rico, for instance, the high dependence on food and energy imports greatly exacerbated the negative impact of Hurricane Maria when ports were damaged, leading to lengthy interruptions in food and health systems which were partly mitigated by collaborative networks of smallholders (Marrero et al. 2022). This example is one of many showing that climate-related catastrophes tend to disproportionally affect those with limited or no access to support networks. Increasing resilience and contributive justice thus demands avoiding excessive concentration of power, skills, and infrastructure for few, and diversifying people's skillsets so that they can step in and help out.

While system resilience can be increased when multiple individuals are able to fulfil crucial roles, it needs to be considered that when individuals lose control, they may also feel less responsible (Potter 1971). This has been framed as the problem of 'too many hands' in moral responsibility (van de Poel et al. 2012). Here, however, we should be careful to underestimate the risks of power imbalances and instead recognize the role of special relational bonds, which usually are strong enough to trigger commitment, as frequently witnessed in care work (Kittay 2001).

In general, diversity is not something that will be achieved by one-time actions. Diversity needs to be built, maintained, and defended and it needs to be anchored in and strive

towards relational justice. Despite efforts to institutionalize and promote such values, we can witness major backlashes in establishing more pluralistic, more just environments. Nepotism is still a major problem for diversifying institutions and it blocks strategies to increase relational and procedural justice. For example, while there has been substantial success in promoting interdisciplinary and participatory cooperation, there is still considerable hesitancy to diversify know-how and ways of knowing in research and work environments (Brock et al. 2024). As one consequence, power structures render much of time-tested Indigenous knowledges as less valuable (Cote and Nightingale 2012).

As all humans undergo different stages of dependency, at young and old ages, and are vulnerable to sickness and accidents, every system needs to build in redundancies to allow for shortfalls and redeployment to other socially necessary activities, such as care work and child-rearing. Designing and allowing for a certain degree of redundancies should not lead to a situation where people are treated disrespectfully or made to feel less useful. To advance contributive justice, it has been suggested that rotation in the performance of certain tasks and in assuming responsibilities can reduce social exclusion (Sayer 2009), while developing experienced back-up teams. Due to the gender dimension of care work, failing to implement flexibilities will primarily affect women. Here, enough room also needs to be provided to recover from mental and physical sickness and allow time for expressing grief and joy for major life events (Shwaikh 2023).

To address relational and contribute justice, and improve social cohesion, it is therefore necessary that diversification and supplementation strategies distribute opportunities to participate fairly and actively reduce problematic power imbalances that disincentivize participation and allow marginalization.

Foster knowledge acquisition and sharing. A resilient community is characterized by its ability to effectively share and exchange information on possible threats, early warnings,

problems, available support, opportunities, and successful responses (Marrero et al. 2022). As we are dealing with complex socio-ecological environments, the need to share knowledge is massive. The effective management of a socio-ecological system is therefore dependent on how its members commit to monitoring variables, providing feedback on interventions, and sharing such information (Ostrom 2009; Biggs et al. 2012).

Despite this, it is widely reported that particularly the voices of women are repeatedly ignored when responding to climate disasters (Alston 2014). Furthermore, some who call out warnings are harassed and persecuted. This can discourage others to speak up, depriving societies of the multiple advantages of information exchange.

Societies where groups of people are not recognized for their intellectual contributions and insights risk failing to respond to important warnings by those immediately affected, are inefficient problem solvers, and commit epistemic injustices (Pratt et al. 2020; Timmermann 2018).

Furthermore, when single institutions massively capitalize on freely shared data or biological samples without benefit sharing, it not only deprives many of benefits but also disincentivizes the creation of internationally shared pools of resources. This has bitter consequences to effectively tackling major global threats such as infectious disease outbreaks (Langat et al. 2011) or to cooperatively developing seed varieties for the new climatic conditions.

A factor imperiling the credibility of scientific knowledge are campaigns manipulating information and giving excessive credibility to people who voice opinions in line with those in power. This is becoming a significant problem, in part due to the massive concentration of media ownership in a few hands and the extreme dependence on advertisement revenues. Particularly, climate change skepticism has been influenced by lobbying campaigns and the bribing of a few influential scientists (Oreskes and Conway 2011).

Furthermore, the climate crisis is creating a major rift between generations, leading to intergenerational injustices. This rift imperils intergenerational knowledge transfer, creating apathy within generations to reassess policies and work towards solutions in a seemingly hopeless scenario where irreplaceable goods, particularly biodiversity and related knowledge, have been destroyed and cannot be continued to be passed on (Schultz 2023).

To align resilience strategies with justice goals, it has been claimed that knowledge exchange should work towards 'centering the margins' by "building relationships toward directly prioritizing and privileging the voice(s) of marginalized individuals and groups with an emphasis on experiential and indigenous knowledges" (Atallah, Bacigalupe, and Repetto 2021, 893).

Establishing clear protocols and trainings to diversify voices in research, policy, and practice can advance justice. This can include, for example, providing adequate speaking time or actively confronting discriminatory practices even – and especially – in times of distress. It also requires protection for whistle-blowers on public health threats and environmental activists denouncing environmental hazards (Dwyer 2023).

Further, building on ideas of procedural justice, institutions in research, industry and the media should continue developing protocols on sharing and assessing new information to avoid that discrimination and power imbalances lead to some people having too much say while others are not heard. To make knowledge exchange systems more inclusive, contributive justice demands that people should not only have the formal opportunity to voice their concerns and ideas, but that capacity-strengthening is necessary, and mechanisms need to be in place to make sure that public debate platforms are not continuously captured by those with more power (Timmermann 2018).

Increase social cohesion, connectivity, and willingness to cooperate. A sense of community and active networks can improve the capacity to respond to disruptions and

therefore increase resilience. Therefore, the existence and quality of interpersonal relationships becomes a valuable resource when coping with distress (Mittelmark 2021).

Social cohesion is desirable for intrinsic and instrumental reasons. Communities with solid bonds are generally appreciated by its members, improving well-being. It also allows to solve complex tasks and build goods that depend on pooling resources. From a justice perspective, building social cohesion is helpful to give all population groups a sense of belonging and is crucial to provide a series of social goods, ranging from security to complex medicines.

Climate change is one of the largest collective action problems (Kallhoff 2021), as the failure of powerful players to put aside their selfish short-term interests puts everyone's interest – i.e., the public good of a stable climate – in danger. To respond effectively to disturbances, the different groups need to network and act in coordination. This may require periodic restorative processes to address discontent about current practices, abuses of power, and discrimination in order to ensure that community members continue to be willing to cooperate out of their own initiative (Timmermann 2020).

When climatic disruptions are abrupt, adaptation may require to take on extra workloads and engage in new tasks to avoid shortfalls or congestions without too much negotiation. As urgency may not allow to set just rules, some community members may have to do more than their fair share during the emergency. It is crucial here that people become aware that the injustices of failing to have access to subsistence goods may be higher than a moderate level of unfairness in distributing the costs of providing such services and goods (Stemplowska 2016). Resilient communities cannot allow a standstill in critical services while negotiating who does what and what are fair shares.

In the long run, not only adaptation is important, but also that certain groups do not fall behind and that all can take advantage from new opportunities. As much of competitive

advantage is shaped by institutions, we need to be wary that these do not lead to structural injustices by disadvantaging the already worse off.

It cannot be emphasized enough that climate change is hitting a highly unequal world. Therefore, communities are not only afflicted by external stress factors, such as extreme weather events, but also by internal stress factors. As the current climate crisis is anthropogenic, it cannot be considered as merely a natural disaster. Indeed, as the vast majority of carbon emissions are caused by the wealthy around the world, some claim that we should stop calling climate change human-made and instead call it a crisis of capital to make clear that the problem was not caused by every human alike (Fraser 2021; Moore 2015). This is not a subtle differentiation. Garzón Valdés (2004), for instance, distinguishes between overcoming natural disasters, such as earthquakes, and social disruptions, such as hunger in times of sufficient net food availability. He labels the former as catastrophes due to their inevitable nature and the latter as calamities, because they are a harm that could have been prevented by taking reasonable precaution measures. This is an ethically relevant distinction. It is likely that social cohesion will be maintained when the disruption is seen as something inevitable or when there is wide agreement that precautionary measures would have been so costly that many other social goods would have to be given up. It is however unlikely that the social glue that keeps people together will hold in times of repeated exceptional states, particularly those triggered by events that were foreseen and with ample opportunities to mitigate. At an individual level, repeated exposure to disasters may also lead to apathy and to less motivation to fight for the implementation of mitigation and adaptation measures (Ingham et al. 2022).

The fact that climate change is a serious threat that needs to be mitigated and for which adaptation measures need to be prepared has been continuously voiced in international political fora since the early 1990s, when the seriousness of the threat has become

scientifically undeniable (Singer 2004). Therefore, much of the damage climate change causes was and is preventable.

There are also some conflicts between individual adaptation and structural changes. When individuals take precautionary or adaptive measures to shield themselves from disruptions it may have negative effects on other community members. For example, when individuals install air conditioning to adapt to heat waves in cities, they increase their overall energy use and add to pollution and urban heat (Romanello et al. 2022). Independent adaptive strategies can lead to negative outcomes, that could have been prevented if communities coordinated adaptation efforts to implement large-scale changes, for instance by greening cities and thereby reducing urban heat. Failure to coordinate will most likely worsen the situation of already disadvantaged populations.

Efforts to improve social cohesion, connectivity, and willingness to cooperate are well compatible with justice demands, as people by nature tend to not participate in, or even boycott, systems they consider unfair (Ruger 2015). Additional work is still required to also include distant others and future generations. As those who contributed the least to climate change are often those who carry the highest burdens, such as younger generations or the poor living in tropical regions, it will be necessary to have restorative processes to (re-)establish bonds and give voice to those who have suffered the most. The magnitude of the problem and the minuscule contribution everyone can make on its own, should not lead to see climate change as something inevitable and be interpreted as abolishing the obligation to reduce our carbon footprint (McKinnon 2014). The interests between generations need to be unified (Kolers 2016) to build commitment for long-term survival of civilization.

Improve participation and facilitate polycentric governance. Resilient communities need to take collective decisions based on the newest and most reliable information. Facilitating broad democratic participation in governance at a local level comes with the advantage that it

includes people with a wide range of expertise and perspectives, leading to more effective governance and problem-solving. Communities who embrace self-determination, inclusion, and equity as governance principles improve resilience (Adger 2006).

However, authoritarian governments and patriarchal societies systematically exclude large segments of the population from decision-making, facilitating corruption, abuses of power, and the imposition of megalomaniac projects. Vulnerabilities therefore often result from loss of power and control (Hoffmaster 2006).

Furthermore, while it is important that certain communities do not end up overly burdened by the presence of nuisances, mostly wealthy and highly educated communities have been successful at blocking projects by appealing to 'not in my backyard' claims, leading to environmental distributive injustices.

To make sure governance is pursuing the interest of the communities, researchers studying socio-ecological resilience have observed that increasing self-organization and decision-making at the community level reduces the risk of implementing policies that merely favor the already better off and improves the suitability of interventions for local conditions (Martinez-Cruz, Reynoso Martinez, and Cox 2022).

To improve knowledge exchange and timely decision-making, people need platforms for self-organization, which are accessible for everyone. This can help to overcome discrimination by treating others with respect and encouraging wide participation (Timmermann 2018). Furthermore, participation comes with decision-ownership, which increases responsibility for collective decisions and cooperative revisions when decisions taken jointly were erroneous (Dubov, Fraenkel, and Seng 2016).

Polycentric governance avoids the concentration of power in central institutions, reducing the risk of corruption through excessive power, and allows better comparison between communities and their different strategies (Ostrom 2014). When there is transparency on policies and data, the effectiveness of policies can be monitored by

governments and civil society organizations. These factors augment the capacity for development and revision of governance and incentive structures. It should be recognized that participation in decision-making is also a human right – people value and seek self-determination also for its intrinsic value. Facilitating shared decision-making satisfies a craving that when left unattended can lead to instability.

However, facilitating decision-making at the local level will be insufficient without clear protocols to avoid that power imbalances lead to capturing of agenda-setting and to exclusion, particularly of women and Indigenous peoples. Commitments towards procedural justice demand to make sure that everyone deserves a fair chance to voice complaints, share important observations, and present innovative solutions. However, when facilitating decision-making at the local level, there still need to be clear guidelines on who assumes political and legal responsibility and on which level of governance (Cañizares, Copeland, and Doorn 2024).

Furthermore, improving decision-making at the local level is strongly aligned with procedural and epistemic justice as it increases the likelihood that people can voice concerns and ideas in governance.

Protect regenerative capacities. The long-term protection of regenerative capacities requires a strong commitment to care through entire lifecycles that cannot be abandoned during major socio-ecological disruptions (Fernández, Waldmüller, and Vega 2020). Communities are valued by their members based on how they provide for their dependents, particularly children, the sick, and the elderly. Increasingly, communities seek to live in harmony with their natural surrounding and attend their materials needs while conserving and restoring nature.

When it comes to care for each other, including the very young and the elderly, industrialized countries are not doing a good job. Austerity measures tend to increase the

precariousness of certain jobs and work environments, leading to burn-out, demotivation, and reorientation, and discourage new generations to work in affected areas. The effects of such measures are well visible in areas of work with a high female ratio, such as care work and running nursery schools. Providing care is traditionally a female role upon which all are strongly dependent and as such it continues to be frequently undervalued and misrecognized as work (Rogers 2006).

With the noble goal of fighting hunger, agricultural systems have eroded soils, natural pest controls, forests, and water reserves, all very slowly renewable resources, jeopardizing future food production and ignoring time-tested knowledge on good stewardship held by Indigenous peoples (Shiva 1988). Increasingly more scholars are questioning the general idea of sustainable development and advocating for degrowth (Kallis et al. 2018).

Communities must retain their capacities to continue life and life support at all times, even during crises. The protection of regenerative capacities also needs to consider the emotional level. Climate disruptions can have traumatic consequences, leading to anxiety, sorrow, and grief (Palinkas and Wong 2020), emotions that need to be addressed at a community and individual level. Many resilience strategies ignore the need to express emotions and provide space to do so (Fernández, Waldmüller, and Vega 2020; Shwaikh 2023).

A recurrent problem in policies when trying to respond to environmental risks is to overestimate the ability of scientists and engineers to provide adequate technological fixes that will not lead to further problems and endure. Many attempts to respond to environmental disruptions tend to be built on an oversimplified understanding of nature, care, and human relations, relying on an excessively reductionist approach that misses out many essential factors critical for long-term stability (Gilson 2015).

These types of solutions often do not support or even work against gender justice, social cohesion, and participation. Furthermore, they fail to mimic natural processes, omitting key factors for long-term survival (Gerola, Robaey, and Blok 2023).

The need for communities to protect their regenerative capacities is often assumed in studies on resilience and not discussed explicitly. As women in most regions are expected to take over an excess amount of care work, efforts to increase resilience must address gender injustices and work towards substantial changes in recognizing care work as work and implementing a fairer distribution of such tasks.

Implement preventive measures. Prevention is usually much more effective, less costly, and often less painful than fixing a problem. As climate disruptions have a disproportional impact on marginalized communities and individuals, addressing the social determinants of health and well-being in the design of preventive measures becomes a demand of justice. A community that emphasizes prevention will have to redesign human living environments to facilitate healthy living. Ideally, such environments will deliver 'generalized resistance resources,' allowing people to overcome stress factors that act against their physical and mental health (Mittelmark 2021). Prevention therefore goes far beyond risk reduction. From a feminist perspective, an additional factor favoring strategies that emphasize prevention is that many curative processes are dependent on un- or underpaid care work that is predominantly carried out by women.

There are multiple advantages in advancing structural changes. For instance, measures to target food insecurity are often limited to emergency relief or support through welfare systems. In contrast, there are case studies around the world of grassroot initiatives and local government policies that have made it possible to develop and revitalize urban gardens and allotments to improve food availability and diversity. Such initiatives have far-reaching benefits: they reduce food miles, allow to reintegrate organic matter in soils, reduce urban

heat, provide refuge for wildlife, encourage physical activity, provide space for social interaction and knowledge exchange, and build communities that can address other problems that require collective action. While immediate food shortages require emergency relief, long-term solutions need to empower communities to prevent food crises.

Yet, as we have seen, when it comes to mitigating climate change and implementing adaptive measures, ecological grief and widespread apathy need to be addressed (Ojala et al. 2021) before people can be mobilized. The plight among Indigenous peoples and environmental activists in fighting excessively extractive practices has been substantial and left deep wounds that require a restorative process before being in a position to request participation. Particularly in the times of multiple crises, measures need to be implemented to fight apathy to not wear down persistence.

Overconfidence in human progress often takes for granted that we can fix things we break while 'moving forward.' This partly underestimates the price paid for fixing things and can lead to injustices over who ends up undertaking reparations. It also tends to overvalue the current *status quo* and position as something impossible to change. As a measure to adapt to unfortunate circumstances, people tend to adapt their preferences to levels below what people would be entitled to under just conditions (Sen 2009). While this might be a coping mechanism for individual well-being, it comes at quite a high cost from a community perspective, as people will be less likely to demand and work towards wider societal transformations that are urgently needed. Widescale redesign of urban environments, such as removing cars and parking spaces from the city to give (back) room to cyclist and pedestrians and thereby facilitate active transportation, may seem politically unfeasible, despite their health co-benefits. It is easily forgotten that the countries that have managed to redesign their cities have done so despite massive opposition from powerful lobbying groups and car worshiping citizens.

To implement transformative change, which takes full consideration of preventive measures, the very platforms through which decisions are made need to be challenged and the type of policies we are asked as citizens to choose from questioned. If new decisions are based on assessments and solutions offered by those experts that brought about the climate disaster, we are limiting ourselves in the full range of solutions at our disposal, especially considering how the present system has historically marginalized women, racialized people, and the poor (MacGregor 2014).

In sum, communities that are conscious about the situation of marginalized and vulnerable population groups can take active steps to include these groups in society and reduce their plight, thereby addressing multiple demands of justice while strengthening resilience for all.

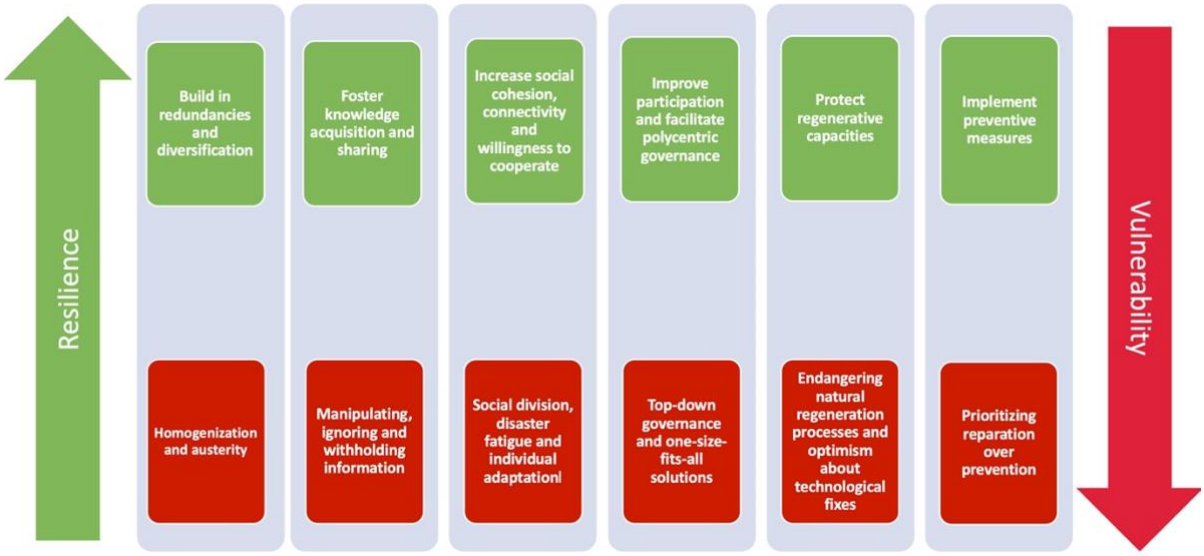


Figure 2: Interaction between factors improving and decreasing resilience (source: authors).

6. Conclusion

The concept of 'resilience' has strong potential to inform public policies in building societies that are better prepared to adapt to the uncertainties of the climate crisis and work towards reducing carbon emissions. Yet, the concept has substantial limitations because there is no consensus on how it should be understood and used, because the idea of stabilizing and bouncing back might overlook, perpetuate, or even aggravate existing structural injustices and because it is often used in a way that is indifferent to how resilience is to be achieved. The resilience of a system is frequently measured by how it succeeds in its aggregate totality without paying too much attention to how individuals fare (Fernández Carril and Ruiz-Godoy Rivera 2017) and whether and how inequities are addressed. Here, we need to recall that we live our day-to-day lives tolerating a substantial number of injustices – starting with the fact that 10% of the world's population suffers from hunger. Maintaining indifference to the fate of others is a morally impermissible outcome and obliges us to think beyond how a system performs on its aggregate level by paying better attention to how the burdens are distributed and how they can be reduced.

Returning to a classic definition of resilience that understands resilience as the "ability to absorb change and disturbance and still maintain the same relationships between populations or state variables" (Holling 1973, 14), we argue that this is not enough. If the concept of resilience is used, much more sensitivity for its implications for social vulnerabilities and justice is needed, especially with a focus on feminist and intersectional aspects. We go a step further to argue that if the concept of resilience is used, it should be used as a normative concept that aims to increase justice and reduce vulnerabilities. Failing to care for vulnerable populations in the face of the climate crises makes it impossible to maintain justice in relationships between different human populations and between individuals as moral equals. Continuing to ignore the knowledge, creativity, and voice of large segments of the population undermines problem-solving capacities and is an injustice that fails to recognize others as equals. Such injustices are not only inherently morally

problematic but also pose a risk of social instability, which hinders communities to work collectively to adapt and transform themselves towards a more sustainable and just society, one that is able to shoulder the climate crisis sustainably. Improving a community's capacity to respond to climatic disruptions can be an opportunity to implement changes and address demands of justice. Resilience strategies should embrace inclusiveness, provide recognition for all essential work, and build support systems, oriented towards structural and epistemic justice.

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