

Building Resilient Rural Communities after Hurricane Otis

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Introduction

Climate change increases the frequency and intensity of hurricanes, which can potentially reach a level of catastrophic damage to communities and biodiversity, and affect the integrity and health of both, people and non-human animals. This is what happened in 2023 with Hurricane Otis, in the State of Guerrero, Mexico, which reached a Category 5—the maximum intensity according to the Saffir-Simpson scale, with winds greater than 250 km/h. These climate change induced phenomena increase the vulnerability of communities and reduce their capacity for resilience.

The damage and suffering caused by hurricanes on communities requires an ethical analysis, in addition to assigning responsibility of Government and companies in mitigation and adaptation to climate change, because it is not enough to think about the right of communities to participate in the planning and decision-making of climate policies, but also about the duty and scope of the responsibility they have in such participation. For this reason, in this work I address the moral agency of rural communities to generate resilience to the effects of hurricanes. The question I want to answer is: why should rural communities be considered moral agents of change in the face of environmental disasters caused by climate change?

Addressing the moral agency of rural communities does not exempt or attenuate the Government's responsibility, and its duty of care to protect current and future residents from the effects of climate change. However, the Government can fail in its preventive and timely response, and in its duty to promote resilient communities. For this reason, I propose that rural communities, based on their knowledge and social vulnerability, should seek to improve human, social, physical, and natural capital (community capital), to the extent of their capabilities, participating in the fulfillment of the State's duties. I use as a case study the rural communities of the state of Guerrero, in Mexico, that were affected by Hurricane Otis.

The work will follow the following outline: I will defend the notion of rural communities as moral agents of change to face climate events; later, I will argue that the complexity of the problem doesn't allow us to reduce the ethical analysis of climate change to the responsibility of the Government and companies; finally, I propose some recommendations to identify the social vulnerability of a community, so that it can develop its capacity for resilience in the face of future climate disasters such as hurricanes. As a tool for communities to identify their social vulnerability, I recommend the use of vulnerability indices determined by a community's capital.

Beyond Governments' Responsibility

As mentioned, in this paper I will argue that it is necessary to broaden the ethical responsibility for climate change beyond the Government and companies in the face of climate change and its effects. Looking beyond, I will consider not only the rights of communities, especially rural ones, to participate in decision-making on climate mitigation and adaptation policies, but also the duties and responsibilities that correspond to such participation, by virtue of their capacity to generate relevant information for local and state governments in decision-making processes.

This change of focus highlights the importance of the duty of participation of rural communities in building their capacities, identifying the affected vulnerabilities, and participating with their own information in decision-making on prevention and response plans, and programs for future hurricanes. The analysis of the scope of this approach requires addressing the following question: why should rural communities be considered moral agents of change in the face of environmental disasters caused by climate change? To answer this question, it is necessary to justify that a rural community, not only has the right to participate in decision-making regarding climate change adaptation and mitigation plans, but also a duty to do so, and to do so, it must be able to actively identify its vulnerabilities and gaps in its

community capital with the aim of contributing to risk reduction in the event of a future climate disaster. Analyzing this moral duty of communities in planning responses to climate change gains strength in the face of the Government's often inability to identify the vulnerabilities of rural communities, far removed from local power.

Claiming that rural communities maintain a passive position in decision-making regarding climate action reduces the possibility of their expressing their needs, preferences, and values during the response to a climate emergency, such as a hurricane, and later in preventive adaptation and mitigation plans. For this reason, it is important to recognize them as moral agents of change and assign them the responsibility of demanding that their knowledge of the territory be heard and considered in public decisions to confront climate change and its effects.

Rural communities, such as those in the state of Guerrero in Mexico, with pre-existing conditions of poverty and inequality, face greater risks in the event of a hurricane. The magnitude of the effects of an environmental disaster in a territory is related to the levels of vulnerability of the social groups that inhabit it, which in turn impacts the resilience capacities to face such effects. In this regard, the figures from the case study are important. In 2022, 60.4% of the population of Guerrero was in poverty, ranking second at the national level.¹ As a result of Hurricane Otis, losses were estimated at 3.2 billion dollars, and the impacts were on both the urban and rural populations. The government's response to the emergency, however, prioritized aid and rebuilding efforts to the tourist area of the Acapulco's port, because it is an important source of income for the state. This meant postponing support for rural communities, which exacerbated existing structural inequalities.

The reason for focusing my analysis on rural communities is because they are generally considered to have greater social vulnerability compared to the urban population. Additionally, their protocols for responding to climate emergencies may be precarious, or non-existent, and they may face greater challenges in their implementation, due to the community's previous socioeconomic and structural inequalities. This implies that they face a greater probability of suffering damage and, therefore, greater climate injustice. The marginalization suffered by rural communities in the state of Guerrero in the government's response to the emergency and rebuilding is a case that illustrates the need to argue in favor of a limited moral responsibility of the communities. They have the responsibility to generate information that allows them to identify and develop their capital to reduce the gaps in the informed response to climate emergencies, because the government, when faced with catastrophic risks, may not have a timely response due to a lack of territorial presence and access to relevant information.

Hurricane Otis

On October 25, 2023, the port of Acapulco, and surrounding municipalities in the state of Guerrero in Mexico were devastated by the sustained 260 km/hr. winds from Hurricane Otis. There were at least 51 dead and 34 missing people; hotels, homes, hospitals and urban infrastructure in general were damaged, and essential public services were paralyzed. According to UNICEF data, approximately 273,844 homes in rural and urban areas were affected, and an estimated 2,487.3 hectares of construction were damaged. Floods and landslides damaged local flora and fauna, affecting some 4,685.2 hectares of coastal areas.² According to the assessment prepared by the International Displacement Monitoring Center, Hurricane Otis displaced 187,000 people, the highest number in Mexico related to storms.³

On November 2, 2023, the Mexican government published a Natural Disaster declaration for 47 municipalities in the State of Guerrero. A day later, it declared only the municipalities of Acapulco de Juárez and Coyuca de Benítez as disaster zones, leaving out 45 affected municipalities.⁴ This focused attention and relief efforts on the port of Acapulco and Coyuca de Benítez, marginalizing the urban population of poor areas, and rural communities that were affected by the loss of their homes, boats, crops, and jobs. Three months after the hurricane, rural communities were still without access to drinking water, and with health problems such as dengue, stomach, and respiratory diseases. They did not have a specific assessment of the damage to their corn, bean, squash, lemon, coconut and hibiscus crops.⁵

The rebuilding of the port of Acapulco was focused mainly on the reactivation of the tourist area, displacing the rural and urban population from marginalized areas in the prioritization of emergency care. The pre-existing conditions of poverty, and social inequality that they had were not considered, which increased their risk and vulnerability to the emergency.

The Role of Rural Communities

Considering rural communities as moral agents in the face of climate change does not mean diminishing or attenuating the main responsibility that is attributable to the states, which are required to promote, respect, protect, and guarantee human rights in the face of the effects of climate change. Although communities have the right to participate in the State's immediate and preventive responses to climate change, this right is enhanced to the extent that rural communities, which probably know the territory and its people best, assume the duty and responsibility of identifying their vulnerabilities, and recognizing gaps in social capital when communicating with the authorities, during a climate emergency, and in the process of designing adaptation, and mitigation plans.

The community acts as a moral agent of change both in the critical phase of the emergency, by cooperating with the

authorities, and in the planning and response phase for future hurricanes, exercising its right to be heard, and to express its needs in the response plan. Another active way to contribute is by proposing climate change adaptation measures that reflect their values, for example, through the care and protection of biodiversity by the community, for example, by promoting community tourism and other sustainable practices.

This approach is preferable to communities' reliance solely on state and federal governments to respond to climate-related emergencies. Not only does this approach deny communities' moral agency but also perpetuates the problem that governments have historically overlooked rural communities and failed to live up to their responsibilities to citizens.

Assessing Social Vulnerability

In a context of climate disaster, rural communities depend on timely government intervention to address the emergency caused by a hurricane. If a response is not given in a timely manner, many of the human rights of the population are violated, and this can endanger their lives and social integrity. In scenarios such as the one experienced in Acapulco, where attention to the rural population was postponed in areas of preexistent conditions of greater poverty and inequality, it is necessary to implement mechanisms that start from the fact that there are differentiated effects of disasters in the territory, and the different social groups.

The role that rural communities assume in the face of climate emergencies caused by climate change is fundamental to increase their resilience and reduce their social vulnerability. Given all the knowledge they have about their various resources and capital, and their care for the environment they call home, as well as their cultural and heritage wealth, rural communities are in a position to be active moral agents in the face of environmental disasters caused by climate change.

Risk and disaster analysis can be studied from various viewpoints. One of them comes from the social sciences, the constructivist approach, which recognizes the population as an active subject in the construction of risk, while from the natural sciences it is conceived as a victim or part of the exposed system.⁶

In this regard, I advocate carrying out risk and disaster analysis from the social sciences approach, since we start from the premise that governments may have limited knowledge of the conditions of rural communities, compared to the knowledge that the community has of itself. Compared to large cities, by having a smaller population, rural communities have greater ease to organize themselves and make decisions, for example, through community assemblies. These rural communities' characteristics allow them to be aware of the state of their various resources and capital, to identify their vulnerabilities or shortcomings in the face of a hurri-

cane, and to self-organize to assume an active role in climate change mitigation and adaptation plans.

Although this work proposes the recognition of the moral agency of rural communities through the duties of information, participation and petition, the truth is that they have historically suffered from poverty and unequal treatment, structural conditions that limit the degree of moral agency that they can assume. It is also understood as a limitation to this moral agency, the fact that it is the government who grants the conditions for the exercise of the right to participate in decision-making, providing the attention they require during a climate emergency. Despite these difficulties, rural communities have a duty to inform themselves about the climate risks they face, to be aware of the information provided by the government or, failing that, to ask the corresponding authority to carry out the necessary risk assessment of this type of phenomena, for which they have the duty to participate in the process by providing the information they have regarding the areas they identify with greater vulnerability, and the capital they have to face them. Also, during an emergency, communities would have a duty to comply with evacuation orders and recommendations provided by the government to reduce risks and find safety in extreme cases.

In the event that the community identifies that it requires the support of other social actors to understand its social vulnerability, and develop its assets, that community would have to organize itself to make these needs known to the government, and to channel that to the areas responsible for risk management in the municipality or, at least, direct them to whichever civil society organizations they could partner with, to better rebuild after the catastrophic damage they have suffered from a hurricane.

In order for the community to identify its social vulnerability, from a theoretical point of view, two components can be identified: 1) the insecurity and helplessness that communities, families, and individuals experience in their living conditions as a consequence of the impact caused by some type of traumatic socioeconomic event; and 2) the management of resources and the strategies that communities, families, and individuals use to face the effects of this.⁷ Additionally, it is necessary to consider the impact of socio-ecological events on social vulnerability.

For this analysis, I propose using the second component of social vulnerability because it allows the community to proactively organize itself with the state or municipal government to manage its resources and define the strategies that it will use to adapt and reduce its vulnerability to the effects of global warming.

One tool that communities can use is the model by Camacho et al. to measure urban resilience to hurricanes and floods in the Mexican Caribbean, which can be used in other areas exposed to the risk of these disasters.⁸ Likewise, a study of community capital, livelihoods, and social vulner-

ability to hurricanes, identified in the study by Soares et al., is suggested.⁹ For the purposes of this study, resilience is understood as:

The capacity of a system, community, or society exposed to a threat to resist, absorb, adapt, transform, and recover from its effects in a timely and efficient manner, particularly through the preservation and restoration of its basic structures and functions through risk management.¹⁰

Additionally, people's assets are understood as "the possession, control, or mobilization of material, and symbolic resources that allow the individual to function in a society. This involves physical, financial, human, social, natural, political, and cultural capital."¹¹ Assets, to a certain extent, can be modified by the community, and doing so would allow it to minimize vulnerability, create dynamic situations of well-being, and increase its capacity for resilience.

To study the vulnerability of the population, it is suggested that the community, supported by a civil association or academia, take up the work of Camacho et al, in which they developed a conceptual model made up of three main components: a) threat, b) vulnerability and c) capacity for adaptation, and apply the urban resilience indicators they developed to determine the following percentages: Percentage of population that has not experienced a hurricane; population that is unaware that the city is affected by hurricanes; population that is aware that their home is located in a flood zone, or that it may be affected by a hurricane; homes that have a family emergency plan; homes insured against hurricanes and floods; homes where two or more people work; homes that have received training on what to do in the event of a hurricane or flood; population that knows about risk prevention programs for hurricanes and floods; population that knows the location of the temporary shelter closest to their home, and population that knows the evacuation routes in the event of a hurricane or flood.¹²

These indicators are intended to identify their vulnerabilities and to manage, when faced with any of the events, the mechanisms that allow them to improve their resilience capacity.

Recommendations

The complexity of adapting to climate change, and the climate emergency that is ravaging the world is not a simple task for states, governments, or rural communities. States are required to immediately assume their responsibility in prevention and response to the damage caused, to develop new risk maps, and disseminate them among the population. But above all, rural communities and the various civil society organizations, and universities that can contribute must be included in the development of climate emergency response plans.

Continuing to consider rural communities as passive entities in the face of climate change denies them access to the participatory design of the response to this type of ca-

tastrophe, especially for women, children, and other vulnerable groups. For this reason, we recommend that they assume an active role, and become involved in the knowledge and development of the following tools:

1. Know and use vulnerability indexes in relation to community capital by exercising the duties of organization and petition when facing any event.

2. With the help of civil associations or universities, use the model of Camacho and collaborators to measure urban resilience to hurricanes and floods in the Mexican Caribbean, which requires the participation of the entire community.

3. For rebuilding, apply the principle of "Build Back Better."

4. Implement the recommendations proposed in the Guidelines for a resilient and inclusive tourism recovery and rebuilding after Hurricane Otis prepared by the United Nations Development Program in Mexico, UNESCO in Mexico, UNICEF in Mexico, the Humanitarian Support Network for Disability and Mexican Transparency. Paying special attention to the content of recommendations 1, 3, 7, 9 and 10 and the content that we have extracted from them and shared below:

"1. Promote inclusive, equal, representative, and egalitarian community participation in all stages of post-hurricane tourism recovery, through: ... inclusive consultations, and awareness campaigns on community participation in land use planning... conceiving them as strategic actors in risk management, and sustainable and inclusive development. Conduct detailed gender, risk, environmental, cultural, and demographic analyses to identify the specific impacts of the disaster on different population groups...

3. **Identify and address the protection needs of vulnerable individuals and groups,** potentially exacerbated by the hurricane, through a comprehensive analysis of the vulnerabilities, risks, and specific needs of different population groups...

7. **Plan and manage tourism in a sustainable, inclusive and decentralized manner,** by: Identifying short, medium, and long-term objectives aligned with the 2030 Agenda and the 17 Sustainable Development Goals (SDGs)... Decentralizing the tourism supply, generating attraction outside the main tourist centers to promote the diversification of tourism products, including inclusive tourism. ...

9. **Promote sustainable development and respect for human rights in tourism reconstruction,** con-

sidering: ... the impact on intangible cultural heritage and its viability when formulating development plans related to disaster emergencies. ...

10. Design inclusive, safe and sustainable public spaces, involving the local community, especially vulnerable groups, through: ... community design workshops and public consultations to ensure that safety, accessibility, and universal design needs and concerns are centrally addressed, facilitating the inclusion of all people, with a particular emphasis on people with disabilities.”¹³

Conclusion

The challenge that the world faces in dealing with the ravages of climate change requires joint work between companies, governments, civil society, academia, and the general population, but above all the demand lies in giving priority to the most vulnerable population, and those at greatest risk of losing their lives, integrity, and property, in this case rural communities.

In conclusion, we reiterated that for the response, recovery, rehabilitation and rebuilding processes, the rights of the people most affected by the disaster must be prioritized, as indicated in the Guidelines for a resilient and inclusive tourism recovery and rebuilding after Hurricane Otis, a document in which it is stated that it is crucial to work hand in hand with those most affected.¹⁴

One way to achieve this is for governments to recognize rural communities as moral agents of change, which should contribute to their inclusion in the recovery, rehabilitation and rebuilding phases, determining the scope of their duties to share the information they possess, to actively participate with authorities, or members of civil society or academia, and to exercise their right to petition. This is expected to enable them to better adapt to climate change, both individually, and through the development of community adaptation capacities, always promoting the principle of “building back better.” Undoubtedly, the generation of resilience in rural communities will not be achieved if the rehabilitation of ecosystems and biodiversity is not included, as well as the protection of non-human animals that inhabit their territories.

Damage to coastal ecosystems has caused the loss of physical protection of people and land against storm surges. For example, in Sri Lanka, in areas where coral reefs, vegetated coastal dunes, and healthy mangroves were intact, damage to the coastal zone due to tsunamis was less.¹⁵ If rural communities understand that they depend on a healthy environment, and promote its conservation, they will be working in favor of their subsistence, and will contribute significantly to reducing the catastrophic effects of climate change for the rest of the world's population.

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