ENVIRONMENTAL JUSTICE AND CLIMATE CHANGE IN LATIN AMERICA

"The Social Vindication of the Highlands": Climate Change and Justice in Southern Peru

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We send water and send water, and the [people on the] coast do not even worry whether the water is drying up in these parts, whether there are no trees or whether there are filtrations, or whether a mining company comes in. [. . .] The poorest areas of the Peruvian Andes are those that provide water to the coast.

(Mayor of Caylloma province, interview, October 12, 2011)

Earlier the seasons were respected [by the rain], but the climate has changed and it affects the agriculture. The earth has transformed too much.

(Farmer and market vendor in Chivay, interview, November 13, 2013)

If we don't get the project through, we will make a water war.

(Activist from Callalli, interview, February 2, 2014)

Along with the rest of the global South, most Peruvians contribute very little of the world's carbon dioxide emissions: Peru was number 133 in the Carbon Dioxide Information Analysis Center (CDIAC)'s 2011 ranking of the world's countries per capita fossil fuel CO2 emission rates.[1] Yet global warming produces changes in temperature, precipitation, seasonality, glacier retreat, and water supply. These changes have adverse effects on the livelihood of small-scale farmers in the Colca Valley and especially in the highlands of Caylloma Province in the Arequipa region of southern Peru. The farmers perceive the effects of global climate change as the loss of stability—changes in the known seasonal cycle of rain, frost, heat, and drought. The greatest concern is the ever-decreasing water supply due to melting glaciers, drying springs, and irregular rainfall. The impact of climate change is unevenly distributed, both geographically and socially, and in the Andes, it adds to existing challenges of living in poverty and in a harsh mountain environment. While peasant farmers suffer from drought in the headwaters at more than four thousand meters of altitude, water is dammed in the Condoroma Reservoir and directed into the Majes Canal and down to the irrigation project in the flat, arid lands of Majes. Some water is also transferred to the Quilca-Chili watershed, which provides water to Arequipa City, hydropower stations, and the Cerro Verde copper mine. This unequal distribution of water shows how the Peruvian state gives priority to large-scale export-oriented agriculture, mining, and energy production over small-scale farming.

Water management has become politically significant during the past decade because of climate change, urban population growth, the mining boom, and the increasing numbers of socioenvironmental conflicts related to water. As a response, the National Water Authority in Peru is introducing stricter control with permit systems. In 2009, the government passed a new law on water resources inspired by the global paradigm of integrated water resources management, which emphasizes that water has economic value. In addition to tariffs for irrigation water, farmers have to register and pay for the right to use a certain amount of water measured by litres per second (Paerregaard, Stensrud, and Anderson 2016). Seeing that the authorities prioritize the economic value of water, and that this water is transferred down to the urban and industrialized coastal lowlands while the highlands continue with poverty and environmental disasters, people in the highlands perceive this as structural injustice (see also Stensrud 2016).

My argument in this article is threefold. First of all, I suggest that climate justice is not only about relations between the global North and the South, but that a range of actors in developing countries–for example extractive industries like agribusiness and mining companies (Bebbington 2015; Li 2015)–should be accounted for in questions of justice across local, regional, and global scales. Second, I argue that environmental inequality and injustice result from multiple structural practices: people living in the climate-sensitive areas in the Peruvian highlands are simultaneously suffering from poverty, discrimination, and the consequences of climate change, and measures of adaptation inspired by neoliberal ideas about payments for user rights to water are also imposed on them. Third, I suggest that new forms of political claims that are based on ideas of ownership, reciprocity, distributive justice, and non-anthropocentric natures are emerging and should be included in discussions about environmental and climate justice.[2]

Climate Change and Economic Development in Colca and Majes

"The world is upside-down," Miriam said when she was telling me about how the seasons had changed: this year it rained in the dry season, and the frost continued into what was supposed to be the rainy season. It was November 2013 and all the farmers in Colca Valley were waiting for the rain. Like most of these farmers, she and her husband, Pedro, perceive the effects of climate change in terms of seasonal instability, belated rains, longer drought periods, melting glaciers, decreasing water supply, sudden frosts that come

at unexpected times, and more extreme shifts in temperature: "the sun seems to be closer to the earth." Pedro complained that they must irrigate more often because the heat makes the earth dryer than usual. In 2011, Victor from Callalli told me that the glaciers and snowfields that could be seen on the mountaintops ten years earlier had disappeared: "When there used to be snow, there were water cushions [*colchones de agua*] where each mountain deposited water. So the springs were maintained all year. Today there are no snowfields, and thus there are no water cushions deposited under the mountains."

It is getting increasingly harder to earn a living as farmers because "it is not profitable" due to climatic uncertainties and insecure product prices. Small-scale agriculture is still the main economic activity in Colca Valley, but there has been a transition from subsistence farming to market production of potatoes, quinoa, beans, barley, and maize. "We used to cultivate to consume, but now everything is money," Miriam said. Like many others, Miriam and her husband had to find alternative income strategies in addition to farming. Miriam made embroidered clothes to sell at the market, and Pedro found odd jobs for the municipality and others.

Upriver in the headwaters above four thousand meters of altitude, the situation is even worse. The highland inhabitants are among the poorest in the region as they are struggling to make a living on alpaca pastoralism in the extremely climate-sensitive highland environment. Glaciers have disappeared, springs and pastures are dry, the rain is more irregular, and when it finally comes, it falls so hard that it erodes the soil. The incidents of strong frost periods and heavy snowfall are more common than before and harder to anticipate. The local authorities of Caylloma Province have declared states of emergency several times since 2011, after large quantities of crops have been ruined and thousands of animals killed by extreme weather events. In April 2014 a group of mayors from the highland districts travelled to the capital, Lima, to present their complaints and demands to the government: financial compensation, insurance for camelids, and agrarian insurance. However, they were bought off with Band-Aid measures like medicines for the alpacas in the highlands and two kilos of seeds to each farmer in the valley. Responses like these only exacerbate a pervasive yet ambivalent feeling of abandonment, which is a common idiom by which relations between Andean communities and the Peruvian state are described (Rasmussen 2015). Many families see no other choice than to move away, and many end up in Majes, which is seen as a place of opportunities where everyone could get a piece of the "progress" and "modernity" that the government envisions for this place.

Starting in the 1970s, the Majes Irrigation was a state project for colonizing and cultivating the desert lowlands. The goal was to create export-oriented agriculture and agro-industry that would generate economic growth and development for the southern region of Peru. Farmers were given the opportunity to buy land in family units of five hectares at subsidized prices, and they received technical and financial support from international agencies, like the European Economic Community, to transform the desert into fertile land. Today, Majes is bustling with economic activity and the population has rapidly grown. However, because of the frequent absences of rain in the Colca headwaters in the past few years, the water levels in the Condoroma Dam had sunk to 60 percent of its maximum capacity in 2014. In January 2016, an Emergency Coordination Committee was established in Majes because of the drought-related risks, and the discharge from Condoroma was reduced from 9.5 cubic meters per second to 6 cubic meters per second from February. The farmers were encouraged to use the water more efficiently, but they also needed to reduce their areas of cultivation.

Still, in the upcoming second phase of the irrigation project Majes-Siguas II, the private Consortium Angostura Siguas, made up of Cobra Instalaciones y Servicios S.A. (Spain) and Cosapi S.A. (Peru), has been awarded the concession to build the Angostura Dam, which will have a capacity of 1,140 million cubic meters (MMC) at 4,220 meters of altitude. The amount of water running through the Majes Canal will be doubled and enable the construction of two hydropower stations, in addition to the irrigation of 38,500 hectares of land in the arid pampa of Siguas, next to the already irrigated pampa of Majes. This land will be sold in units of two hundred, five hundred, and one thousand hectares, which means that big agribusiness will dominate. The consortium will administer the infrastructure for 20 years, and the small and middle-sized farmers fear increased water tariffs. "We call this privatization," a farmer told me. No matter how strongly the government argues that the water is still public property according to the law, the farmers know that the operator that administers the infrastructure also controls the water flow.

The Value of Water: Struggling for Compensation and Justice

The project was delayed for several years because communities in Espinar, a highland province in the neighboring Cusco region, contended that the Angostura Dam

would take water from the headwaters of Apurímac River and thus leave them without water. Their struggle has recently inspired people in Callalli, the district where the Condoroma Dam is located, to initiate a collective claim for land rights in Majes. They claim this right because they have not received any benefits from the dam, and they will no longer silently accept that agribusiness companies make profit on the water from their territory while they suffer from drought. A group of three hundred families have organized and aim to obtain the legal property rights to four hundred hectares of land and to get infrastructure and water to irrigate and produce on this land. Their goal is to grow fodder and other crops with the water that comes from their home district. If their project is not accepted, they are willing to start what they call "a water war." The leader of the group, Victor, expressed a profound feeling of structural injustice because of the uneven distribution of climate vulnerability, economic opportunities, and access to water, agricultural land and markets between the headwaters and the Majes Project:

> This is the social vindication of the highlands. The Majes Project I was a project for integration of the high part, the middle part, and the lower part [of the basin]. The project has broken this principle. . . . The high part has absolutely been abandoned from the project. . . . Therefore we as proprietors of the water, as owners of the water, owners of the earth, owners as *arequipeños* and as *cayllominos*– who we are because these lands belong to Caylloma–we have taken this democratic and legal option in order to be able to take on this project with the regional government. . . . We have not come to beg for charity from anyone; on the contrary, we come to contribute; we want to invest here.
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> (Victor, interview, February 2, 2014)

Victor and the rest of the group from Callalli claim the right to own land, work, and invest in Majes because the irrigation project exists thanks to the water from Callalli. This claim is based on a sense of ownership toward the water emerging from their local springs. This water is seen as being owned by the mountains and given to them by the mountain lords (Apus). The world of the farmers and pastoralists in Caylloma is a relational world in which all human and other-than-human entities are interdependent. Water belongs to the Apus and the territories of which the Apus are guardians.

These relations of ownership to water have also in recent years been articulated in political claims for financial compensation. The water resources law, which is partly legitimized by climate change, stresses the significance of water as resource and value, especially for economic development. The law also aims to foster a new "water culture," embedded in ideas of modernity, efficiency, and productivity, and which is connected to the payment of licences to water use rights (Paerregaard, Stensrud, and Andersen 2016). The promotion of the new "water culture" is part of the Water Resources Management Modernization program that has been financed by the World Bank.[3] Referring to the principle of economic value, the mayor of Caylloma Province in the period 2011–2014 said that water is their wealth: "When the world gives value to the water, we can say that our water costs [money]." Hence, district mayors and leaders of water user committees in Caylloma Province have started to organize in order to demand financial compensation from companies that make money on water that is born in the highlands: the Cerro Verde copper mine, the electric company EGASA, and agribusiness companies in the Majes Irrigation Project. They base their claim on the principle of valuation of water as formulated in the water resources law, but also in the principle of reciprocity that is practiced in the Andes, as explained by the mayor of the province in an interview in 2011: "I give you water, so you should give me something back. . . . They should pay us, and we will make schools and restore agricultural terraces and build dams. But the idea is that we sow water with a large percentage of that money. We will sow, for example, native plants around the water sources. In other words, this is all work to preserve and harvest the water." With the money they will preserve the headwater environment, which consists of a particular kind of wetlands (*bofedales*) that serve as pastures for alpacas. Projects of tree planting and building microdams are called "sowing and harvesting of water." The microdams replace the glaciers that have disappeared; they collect water when the heavy rains come in short periods, protecting the soil against erosion and enabling a more even distribution of water throughout the year (see also Stensrud 2016).

The claim for compensation for water echoes the environmental justice movements, in Latin America also called environmentalism of the poor (*ecologismo de los pobres*), which address conflicts about unequal access to nature's services and resources, connecting economic and ecological distribution to political power (Martínez Alier 1992). The struggle for environmental justice in Peru is mainly directed against multinational mining companies (Chacón 2003). When water scarcity is caused by global warming, however, there is no local industry that can

be held directly responsible. Instead, claims for justice are addressed to the industries that make profit from water which has become a scarce resource.

Conclusion

In Peru, the urgency of climate change has grown massively the past decade and has become a matter of great concern among both governmental institutions and NGOs, and not least among the peasant farmers who are most severely affected by them. However, there are no projects concerning environmental vulnerability that seriously address the problems of structural inequality. The programs for development and modernization of water resources management in Peru are often justified by climate change, yet mostly focus on individual user rights and payments rather than the complexities of local systems for water governance, poverty, and inequity.[4] This pattern is confirmed by dominant political arenas and media, where concerns with efficiency and growth overshadow debates on inequality and justice. An important question is whether making the peasant farmers pay for water is a solution for water scarcity and climate change.

Local initiatives of adaptation, on the other hand, can be articulated with ideas related to, or similar to, environmentalism of the poor and climate justice. When leaders of local organizations in highland Caylloma claim compensation for the water that is born in their territories and used downstream for value extraction, they address the unequal relations to the powerful others in the watershed. These demands also emerge from relational worlds where all entities are mutually connected, and can thus be seen as allied to a new kind of politics, identified as "pluriversal politics," which is a politics that would allow for disagreements on the definition of nature itself, and accept nature as multiplicity (De la Cadena 2010). When the highlanders adeptly appropriate the developmentalist, market-oriented way of arguing, while embedding the argument in the interrelations of earth, mountains, water, and people, multiple worlds emerge as interlinked and overlapping in new and creative ways. Hence, I argue that responses to the climate crisis must be embedded in a systemic critique with a view to justice. Furthermore, I suggest that alternative forms of environmental governance should be taken seriously in approaches to environmental justice by acknowledging that all entities and beings in the world, both human and nonhuman, are intrinsically connected and mutually dependent.

Notes

1 Peru had 0.49 metric tons of carbon per capita in 2011, according to the CDIAC: http://cdiac.ornl.gov/trends/emis/top2011.cap.

2 The ethnographic data referred to in this article was generated during two long-term fieldwork sessions (March–October 2011 and November 2013–April 2014) in Chivay and other villages along the Camaná-Majes-Colca watershed.

3 World Bank, Peru, 2016: Water Resources Management Modernization, Implementation Completion and Results Report (IBRD-77010), http://documents.worldbank.org/curated/en/912691467955228834/pdf/ICR3535-P107666-Box396273B-PUBLIC-disclosed-7-6-16.pdf (accessed September 2, 2016).

4 In June 2014, Peru passed the Payments for Ecosystem Services Law (Ley de Mecanismos de Retribución Ecosistémico), and the regulations of the law were approved in July 2016. It remains to be seen what the practical implications of the law will be in Caylloma Province and the rest of Peru.

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