

Greening the Economy: Articulation and the Problem of Governance in the Andes

Author: Rasmussen, Mattias Borg

Source: Mountain Research and Development, 32(2) : 149-157

Published By: International Mountain Society

URL: <https://doi.org/10.1659/MRD-JOURNAL-D-11-00106.1>

BioOne Complete (complete.BioOne.org) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at www.bioone.org/terms-of-use.

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

Greening the Economy: Articulation and the Problem of Governance in the Andes

Mattias Borg Rasmussen

mattias.borg@anthro.ku.dk

Waterworlds Research Centre, Department of Anthropology, University of Copenhagen, Østre Farimagsgade 5E, 1353 Copenhagen K, Denmark

Open access article: please credit the authors and the full source.



The “green economy” is increasingly being promoted as a way of creating socially and environmentally viable forms of development. Using the specific case of an attempted nongovernmental organization (NGO)

intervention in a minor peasant community in the Recuay region of the Peruvian Andes, this article raises the question of how to get from green economy as a theory of development to green economy as a tool of governance. The article is based on 12 months of ethnographic fieldwork in the region. Peru has experienced a decade of rapid growth, but this impressive progress hides the fact that large numbers of rural poor have been left untouched by the national economic boom. An examination of the household economy through the idea of

“ecologies of production” underscores the social, economic, and environmental embeddedness of Andean household economies and explores pathways to the market. Articulation and governance are the main concerns when it comes to understanding the ways in which the peasant economies are maintained through environmentally embedded social relations, which in turn govern how natural resources and ecosystems are managed. The article concludes by pointing to three issues of importance with regard to a green economy: (1) In conditions of poverty, economically risky investments are rarely sought; (2) matters of governance inform production; and (3) articulation to the market is crucial in terms of production input and output.

Keywords: Peasant communities; household economy; green economy; Andes; Peru.

Peer-reviewed: March 2012 **Accepted:** April 2012

Introduction

Worldwide, it is estimated that around 525 million farmers are smallholders, making a living from small plots of cultivated land through auto-consumption and—to greater or lesser extent—cash crops (UNEP 2011b). Like other mountainous countries of the global South, Peru has a substantial share of its population living in rural areas. Migration has inverted the rural–urban ratio within half a century, so that more than 75% now live in the cities, but demographic growth has meant that the steep slopes of the Peruvian Andes continue to sustain millions of smallholder peasants (INEI 2007). Among these are the rural dwellers of the province of Recuay, located in the upper part of Peru’s Santa Valley at the foothills of the imposing but vanishing white peaks of the Cordillera Blanca (Bury et al 2010).

Within the international development community, the concept of “green economy” is emerging and has gained ground in recent years (UNEP 2011a). As the argument goes, there is an urgent need to rethink how financial resources are put into play as current crises related to water, fuel, security, etc, are being coproduced by “the gross misallocation of money” (UNEP 2011a: 14). The concept of “green economy” is closely related to “sustainable development,” but at a different scale. While

the latter aims for “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Stoddart 2011), “green economy” reflects growing concerns for the environmental well-being of the planet and its growing human population. Thus, the UN Environmental Programme (UNEP) defines a “green economy” as one that results in “improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities” (UNEP 2011a: 16).

The aim and scope of the green economy is wide and ambitious. The baseline logic is that investments in green initiatives—initiatives that are ecologically sustainable—will create a trickle-down effect that “can contribute to the eradication of poverty” (UNEP 2011a). The question of how to go from a green economy as a theory of development to a principle of governance is, however, critical, and the implicit assumption of an “invisible green hand” that felicitously governs the market, leading people out of poverty, needs to be challenged through empirical research.

The challenge of greening

It is with these basics in mind that green economy is discussed here; it is not, however, as a project explicitly

formulated with reference to a greening economy, as there was no such thing in the Recuay area where the fieldwork was conducted. National and international nongovernmental organizations (NGOs) did appear in support of local well-being, although the majority of their projects were mostly concerned with domestic improvements such as kitchens and latrines. One NGO, internationally acknowledged and locally experienced, proposed a seemingly significant enhancement of production that would lead to a considerable increase in household income by improving the “productive chain” [*cadena productiva*]. The present article makes use of the NGO visit on the slopes of the Cordillera Blanca and a subsequent information meeting in the town of Recuay to discuss the aforementioned schism to be bridged in getting from a good idea to a good practice, and address the challenge of approaching smallholder farmers with green economy initiatives. I conclude by suggesting the implications in terms of socially sustainable development.

Smallholders are household-based agriculturalists who live in an economy that is partly based on production for subsistence and to a lesser extent oriented toward the market, and often sustained by additional off-farm employment (Netting 1993: 2). In a study on Andean ethics and markets in Bolivia, geographer Stephan Rist (2000) argues for the importance of employing an actor-oriented view of the economic behavior of peasants in order to grasp an economic logic that is different from Western theoretical assumptions. He concludes that development projects must engage in peasant social strategies and understand how these become entangled in traditional world views (*ibid*). Elaborating from his argument, another sociocultural aspect of the combination of market- and reciprocity-based economies must be pointed out, namely, the organization of production and the connections to the market. After a brief introduction to the study area and the methodology employed, the ethnographic case will be considered and the “ecologies of production” (Paxson *nd*) that inform household economies will be explored, raising two questions that seem important with regard to the greening of any economy. First, I argue that a “green economy” must address the issue of governance, which is understood as the act of governing production in a fragmented agricultural landscape (Rist et al 2007). Second, by following Larson’s axiom to “follow the pathways to the market” (Larson 1995), the problems of articulating household economies and the ways in which these are connected to the problem of governance in development projects will be pointed out.

Articulation was a key to scholarly debate in the 1970s and 1980s with regard to the incursion of Marxism into anthropology (Meillassoux 1972) and specific concern with the “modes of production” in noncapitalist societies (Wolpe 1980). An account of the complex debates is beyond the scope of this paper; a working definition will

be taken from Peruvian anthropologist Enrique Mayer—who himself part of these debates—who frames it as a question of the ways in which different economic systems are interrelated, and the possibilities of creating linkages between them (Mayer 2002). The primary concern, therefore, is how to conceptualize the connections made between the household and the economic systems into which it is embedded, such as an informal economy of barter and mutual exchange of labor, or a formal, capitalist economy of goods and paid labor (Rist 2000). In an important article, anthropologist George Marcus (1995) suggests that the ethnographer should follow people, objects, metaphors, etc, in order to grasp a field that can no longer be defined in terms of geographical boundedness; likewise, I propose here that the articulation of household economies is an empirical challenge that has theoretical ramifications, and that the task of tracing the pathways to the market (Larson 1995) is therefore a methodological endeavor.

Approaching the field: a few notes on methodology

Data presented here were collected during a period of 1 year from April 2010 to April 2011 in the Cordillera Blanca of Recuay, Peru. During that period, work was done on issues of water management in 4 villages that share the same water bodies through flows, either naturally occurring or artificially constructed. The methodological core of the anthropological work was participant observation at meetings and gatherings, collective and individual work, and religious and village celebrations. Since Malinowski, participant observation has been regarded as essential for obtaining ethnographic data; emersion into the life worlds of those studied means that the social researcher needs to “jump off the veranda” and join the everyday life (Malinowski 1984 [1922]; Dewalt and Dewalt 2002). This social engagement, in turn, opens the way for other kinds of findings, and a casual gathering on a square may prove to be as important as any survey. Data obtained through the systematic “being-there” was then triangulated with informal conversations, 50 recorded semistructured interviews, a household survey in the 97 households (455 persons) that comprised the 4 villages, participatory mappings followed by global positioning system (GPS) mappings of the water channels, and archival investigations in Huaraz and Lima. The survey was conducted to obtain basic information on the households with regard to their composition, income, crops, animals, water use, water management, and perceptions of climate change. A pilot survey was conducted in 12 households, and thereafter the inquiry form was revised.

This article is not intended to be an assessment of a particular development project and in order not to lead the reader’s attention astray, the names of both the NGO

FIGURE 1 Working in the field is hard manual labor. Preparing for potatoes also requires synthetic fertilizer that must be purchased in Huaraz. (Photo by Mattias Borg Rasmussen)



and the chief engineer, whose words figure prominently in the pages to come, will not be revealed. Recuay and the villages are real names of real places, and Don Lucas and Doña Isidora are the names of people whose everyday situation may help to understand the complexities of making a living in the Andes at the beginning of the 21st century.

Economic intersections: national growth and local stagnation

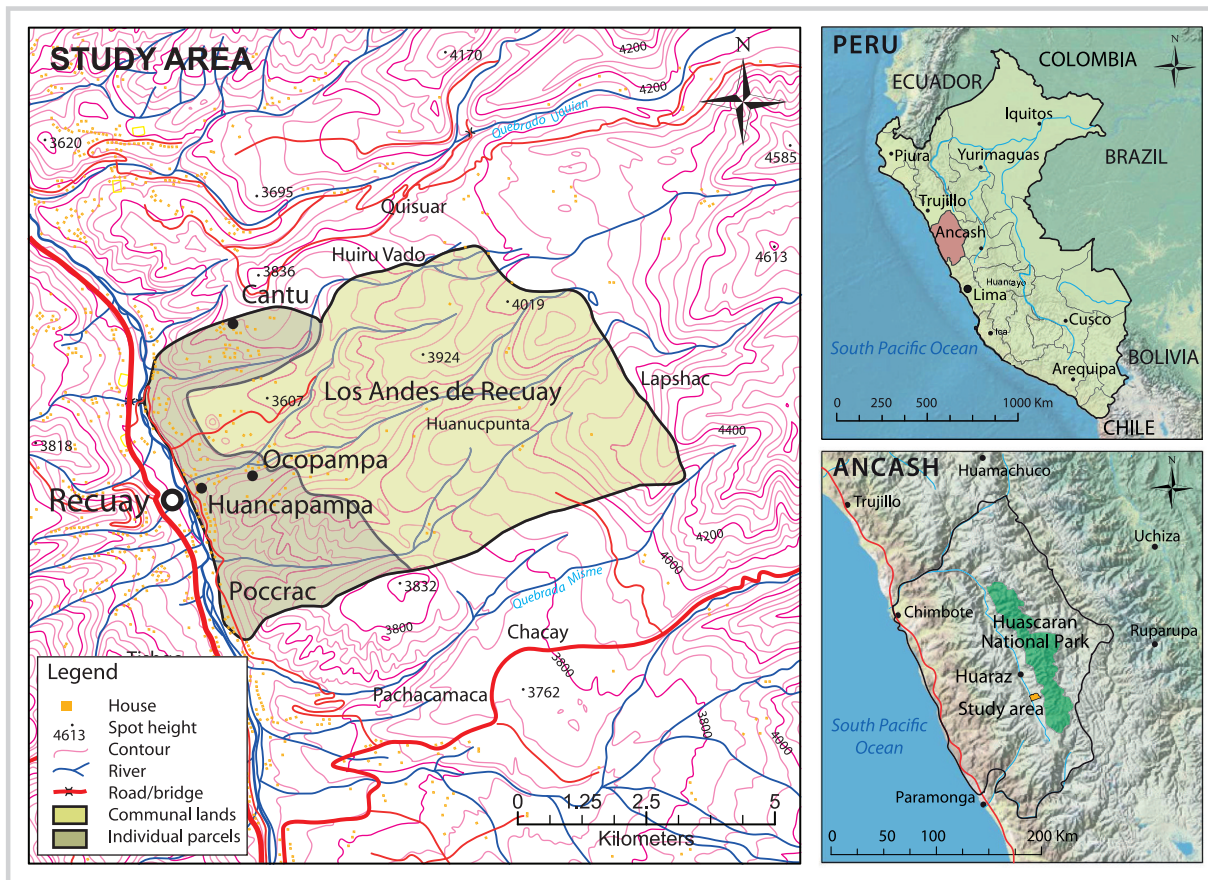
Recuay is a minor Andean town on the western banks of the Santa River in the southernmost part of the Callejón de Huaylas Valley (9°41'12.33"S, 77°27'30.82"W). Located at 3420 m elevation, this formerly prosperous mining town is home to about 4000 urbanites; in total, 19,102 people live in Recuay Province (INEI 2007). Up until the agrarian reforms in 1969 (Mayer 2009), Recuay was the home of a local, wealthy elite that made a living through mining and animal production, and whose prosperity was to a large extent dependent on exploitation of the poor, largely Quechua-speaking population that lived in and around the town. Nowadays, most of the "nobles" have left the town, which has largely been taken over by the peasant populations of the rural hinterlands. The province is still home to large-scale mining of precious metals, such as silver, gold, and copper, but people do not see much of the revenues, and the vast majority of the population continues to live off their lands and animals

(Figure 1). Some, especially those between 20 and 50 years of age, have left for Lima and other major coastal cities in search of a job and better opportunities. In other words, while the population has remained virtually unchanged numerically, the social and economic composition of Recuay has changed drastically within half a century.

Peru has experienced a decade of economic growth, but a large portion of the population continues to live in poverty. This is especially true for the Amazon and Andean regions (USAID 2011), and thus also for many people in Recuay. Poverty in Peru has been reduced drastically over the last decade, but this has been a reduction confined to certain sectors of Peruvian society; huge inequalities persist (UNDP 2010), and for people like those of rural Recuay, the neoliberal politics initiated by Fujimori in 1990s have brought little change.

In his harsh scrutiny of the history of neoliberalism, David Harvey (2005) argues that neoliberalism as a form of "accumulation by dispossession" serves as a means of maintaining and creating the superior position of the dominant classes. Less regulation and state intervention will lead to the generation of wealth, but according to Harvey, this leads to enhanced societal inequalities. In Peru, neoliberalism is the dominant development scheme, and transnational petroleum and mining companies roam the coast, highlands, and jungles. Studies of mining (eg Bebbington 2007; Gil 2009) demonstrate the mark left by extractive activities upon not only the geographical but also the social landscape, and in Recuay, the sense of

FIGURE 2 Map of the area with the 4 villages and the town of Recuay noted. The colored planes mark the communally managed territory of Los Andes de Recuay and the individual plots of the villagers. Due to patterns of heritage, some of them also have plots of land elsewhere, and some who do not live in the villages have plots within the area. The total territory of Los Andes de Recuay is 3734 ha 1469 m² and includes a small terrain known as Acpash that does not enter this study. (Map by Gauri S. Dangol, ICIMOD, based on sources provided by M.B. Rasmussen)



being deprived of resources and missing out on the benefits of progress is indeed very present.

Living precarious lives: livelihoods at high altitudes

The territory opposite Recuay is home to 4 villages, Huancapampa, Ocopampa, Poccrac, and Cantu (Figure 2). A third of the households are members of the Peasant Community [*Comunidad Campesina*] Los Andes de Recuay, a collective ownership of the land that allows for relative autonomy of internal affairs. It is a rather small peasant community, with only 50 active associates (ie, those who represent their household and participate in meetings, communal work, and social gatherings). The lands are located on the semi-alpine *puna* and its lower borderlands at an altitude between 3500 and 4000 m. The majority of the community members have their main houses in one of the villages outside the community perimeter, with additional houses scattered over the *puna* area in immediate proximity to the allocated pastures. These *manadas* used to be more permanently inhabited, but now people stay closer to the urban center of Recuay

at the bottom of the valley, where they have easier access to the main road, the market, leisure, and education. Thus, while only 14 households live on a more or less permanent basis within the territory, half the peasant community lives in the adjacent villages, and the remainder lives in neighboring Acpash, Recuay, or Huaraz. Those who are not members of the peasant community manage plots that are either private property or accessible through a system of tenants that requires yearly sharing of surplus. The territory of the 4 villages under study is thus a mosaic of individually owned plots of land, larger areas that are under lease to individual households, and a communally owned territory divided into common fields and individually managed plots for agriculture in the lower part and individual pastures in the higher parts.

Both in terms of livestock and farmland, the people live off a highly dynamic environment (Earls 2006; Salavery Llosa 2006), where meteorological phenomena such as rain, hail, snow, wind, frosts, and heat all affect production (UNEP 2011b). In order to avoid the dangers of not having anything to eat, drink, or wear, various strategies of production and income-generating activities

FIGURE 3 Many of the members of the community have flocks of sheep that, like this one, consist of both their own and others' animals. (Photo by Mattias Borg Rasmussen)



are employed, acting as an extension of the traditional diversification of production (Rist 2000). In her study of artisanal cheese makers in the northeastern United States, anthropologist Heather Paxson (nd) suggests paying close attention to the “ecologies of production,” by which she means the intimate relationship between the mode of production and the environmental conditions that enable and restrain the agricultural enterprise. This underscores the environmental situatedness of social relations by looking at the way in which “natural and cultural forces are put into productive play.” Paxson points to the “multiple kinds of productive agencies [...] that constitute agricultural production” (nd: 53). Thus, agricultural production must be seen as an interplay between human and nonhuman activities, or, put differently, as embedded in social, political, and environmental structures.

The agricultural fields extend from the bottom of the valley to approximately 3600 m, where agricultural production is limited primarily to various types of potatoes and other kinds of Andean tubers; cereals such as wheat, barley, and oats; and the leguminous horse beans and lupine [*chocho*]. According to the villagers, cold nights and risk of frost during the dry season inhibit irrigation, and, consequently, there is only one agricultural cycle per year. Alfalfa and improved pastures (ie crops serving as fodder for livestock) are less common and require frequent irrigation. Ideally, the crops enter a fallowing cycle where potatoes are replaced by cereals and

subsequently the leguminous crops. Fertilizer is widespread but, in most instances, consists primarily of manure, or, in the case of potatoes, a mixture of manure and synthetic fertilizer. The use of pesticides is increasing, according to the villagers due to a slight rise in temperature, which increased crop vulnerability in terms of parasites and fungi. Overall, the villagers report that their yields are diminishing and that more fertilizer and pesticides are required year after year to produce the same output (*Supplemental data*, Table S1; <http://dx.doi.org/10.1659/MRD-JOURNAL-D-11-00106.S1>).

Being a member of the peasant community facilitates access to land and pasture, and the nonmember inhabitants of the villages (68%) generally have fewer animals. The high-altitude areas of the Andes have traditionally been dedicated to livestock production (Flores Ochoa 1979). Sheep are the backbone of the economy, and during the hacienda era, the area was known for its wool (Figure 3). Since the agrarian reform, the total number of sheep has dropped drastically, as has the intensity of production. The animals are important as economic buffers, as they can be sold in times of hardship, such as failure of a harvest or disease, and in times of joy, such as baptisms and important birthdays. The wool is sold to traveling buyers from elsewhere in the valley, or used to produce hats, gloves, and socks for their own use. For people who are located outside the financial system, the animals are like money in the bank (*Supplemental data*,

Table S2; <http://dx.doi.org/10.1659/MRD-JOURNAL-D-11-00106.S1>); however, it is a kind of money that requires constant attention in order not to perish.

The peasant economy is fundamentally social. In a dynamic and politically fragile mountain environment, social relations act as crucial safety nets, and the organization of production in multiple plots through multiple activities therefore is a way of reducing the risk of failure. The governance of production is related to the ecologies of production through this kind of attention to the climatopographical features of the environment. Likewise, the connections created to the market are embedded in social relations. Accessibility via the purchase of inputs and occasional sale of output is therefore also constrained and enabled by the social network and level of organization of the peasant (Box 1).

The peasant economies are mixed; the logic of diversification is extended beyond mere agricultural production, and money is a cornerstone of most households. A mixed economy demands of the household members that they find alternative sources of income. A vast majority of the peasants, especially men, undertake temporary and often low-paying jobs in construction, logging, and other kinds of manual, low-paid labor between sowing and harvest. The “chain of production” targeted by the NGO is continuously disrupted by a mixture of environmental and societal processes, as are the pathways to and from the market by flawed infrastructure and unfortunate prices for products such as rice and sugar. In sum, due to different economic, social, and environmental factors, many people from Recuay experience that their livelihoods are being eroded. Table S3 (*Supplemental data*, Table S3; <http://dx.doi.org/10.1659/MRD-JOURNAL-D-11-00106.S1>) provides

some basic figures of the household economy and composition.

Elements of governance, matters of articulation

In the villages, the NGO proposed to engage in a system of production that is at once deeply rooted in a tradition of subsistence agriculture and embedded in the national economy. Enrique Mayer (2002) provides an exhaustive overview of Andean household economies, arguing that the peasant economies should be seen in relation to changing historical circumstances and in interplay with the environment. Likewise, studies of peasant economies have long been interested in the way that the decision making of production is structured, and they have pointed to the diversification of activities as a central feature.

The NGO had decided to work directly with the households, thus avoiding the time-consuming activity of dealing with the community directives. They required prospective participants to make significant investments in irrigation technology and livestock sheds, a requirement that immediately made the projects inaccessible to a vast number of peasants inside and outside the peasant communities, but which nonetheless provided a platform for the project. The hope was, according to the chief engineer, that the power of example would create broader interest in making investments in the production chain. The second step of the project was a rupture with the dominant production scheme of the area, as the main idea was to initiate collectives of sheep producers that would eventually provide cheese for the national market. People in the villages did not quite see the point of doing this; first, they would have to change their production, and second, they would have to change their forms of organizing (Box 2).

In the interview, the chief engineer pointed to a series of challenges related to production in the area (management of natural resources, genetics of the animals, productivity of the animals, peasant organization, and market articulation), explaining how they would create a new type of organization based on informal networks of kin, friends, and close family. While these associations may be possible to form, the method by which to create connections to the market is still an unsolved task. Bearing in mind the present experience of the hardship of even buying fertilizer or selling crops, it may seem unlikely that peasants would embark upon the restructuring—rather than “improvement,” which is the official terminology—of their production.

On the plaza in Recuay after a second meeting with a group of peasants from Poccrac, there was an opportunity to discuss their perceptions of the proposal in further detail. The suggestion to improve the animals genetically had great resonance with the peasants, whose animals are robust, but low yielding (Kristjanson et al 2007). However, the suggestion had wider ramifications; it meant that

BOX 1: Accessibility and organization

Today, as we walked towards the potato field with the hatchet in our hands, Don Lucas and I jokingly had a tremendous idea that without any doubt would make him more money than his cobbler store in Recuay does now. “Import” fertilizer to Recuay, and sell it. For it is indeed a mystery! How can it be, that in a town where everybody grows potatoes and everybody needs urea and other stuff to make them grow, nobody is selling it? In the last meeting, the community had agreed that Doña Isidora should go to Huaraz to buy a bag of fertilizer so they could coordinate. But what about all the individual households that are not in association to arrange for a collective purchase? “The market here in Recuay is certainly not what it used to be,” Don Lucas added when I asked him why it was that way. Time and again I hear complaints that it is too complicated. And that seems to be a problem both when you want to buy and sell.

—Excerpt from field diary

BOX 2: Improving the productive chain

All these goals [of improving the productive chain] will be reached through technical assistance and training [*capacitación*]. (...) We must start with the problem, right. The first problem is the deficient management of natural resources, and another problem is that they work with a race for wool and meat that is not, let's say, at an appropriate level for genetic improvement. The third factor is that in Recuay, everybody is working with ovine races of very low profitability. The fourth problem is the scarcity of association of the herders, that is, little organization, and the last problem and the last result is to articulate the herders. That means when they have, for example, sheep with better weight and better wool, and like I say, articulate it in an organized way so that the work will pay off. That means looking for markets, but in association. I am forgetting now, that this is just what the project seeks: to strengthen the organizations, forming associative networks. The associative network is more or less an organization of 15 producers. That means if we are talking about 800 families [in four provinces] and if they form organizations of 15 persons we will have approximately 54 organizations. Be aware that we are not looking for them to be legal and formalized for their task, because often you would say "so, we have an organization, an association, enrolled in the public register, with their papers in order." But it never works as an organization. So what we seek is the opposite; that they unite because of affinity, friendship, family, etc. Whatever, but without having legal status; in practice it works. And we want that they, arriving at the moment, buy their inputs together, and whenever they have something to sell they can make it count.

—Head Engineer

instead of the rotation of pasture sites between summer and winter, the animals would be reduced to a smaller number that would stay in the immediate vicinity of the irrigated pasture fields. The first issue to emerge would be: How does the logic of animals as economic buffers correlate with the logic of reducing racially robust quantity through racially fragile quality? Secondly, having a small number of improved, high-value animals increases the negative effect and probability of frequent cattle rustling in the area. At present, large flocks and a system of mutual leasing among kin are important aspects of the social organization of production. This would be changed if each producer were to rely on a few animals within his or her own plot of irrigated pastures.

A meeting never has a clear end; lingering on the plaza after the NGO left resulted in a conversation that pointed to a crucial incongruity between the NGO view of production as basically a matter of market rationality, and the peasants' knowledge of a production that is tied to both political and environmental factors. The resources—land, water, crops, and animals—are socially embedded and managed through institutions that extend from the household to the peasant community and irrigation committees. The peasants were reluctant to change this management regime because the outcome—that is, the balance between potential risk and potential benefit—did not seem to be perfectly clear. Whereas the genetically improved animals indeed seemed to be a great benefit, the issue of governance remained unresolved.

Governance concerns the ways in which something is being governed by somebody; in their study of Andean literacy, Salomon and Niño-Murcia (2011) point to the rigidity of village politics and the obsession with procedure, transparency, accountability, and what in the anthropology of state and authority has been termed "administrative regalia" (Hansen and Stepputat 2001). The ecologies of production indicate the troubles of disentangling agricultural production from the ways

through which the governance is choreographed (Lund 2006) and, thus, show that improvement of the productive chain must indeed take into account the way in which labor is organized in a dynamic mountain environment. This allows us to return to an understanding of articulation that moves beyond economic structure, and into the realm of culture and agency (Grossmann 1983). Any attempt to alter the productive chain should not only take into account the ecological and economic benefits, but also the ways in which production is embedded in social structures and forms of governance. Articulation, in this sense, is connected to forms of social ties and relations of reciprocity as much as to market accessibility. While the project thus addressed a dream held by many peasants in the area—irrigation, improved pastures, better animals, higher income—it did so by reducing the very production to a managerial process, a "production chain" disentangled from social relations.

The NGO project seems to address various issues of importance to a green economy. The improvement of the irrigation infrastructure would enhance productivity, reduce water consumption, and diminish soil erosion and overgrazing. Moreover, the project would secure a higher degree of market articulation, generating an income and thus improve living conditions. However, as the example has shown, it is not an easy task to restructure agricultural production. Entering an ecology of production with the aim of changing it—or greening it—requires a thorough understanding of the interplay among humans, animals, soils, seeds, clouds, and technologies, and an understanding of the ways in which these are articulated to, and by, social, economic, and political structures.

Conclusion

The project was only in its initial phase after completion of work in Recuay, and this article has not been an

attempt to assess the feasibility of the proposed intervention. It has rather served as a starting point that is “good to think with” (Levi-Strauss 1968) in terms of attempts at greening smallholder agriculture. By way of conclusion, three points can be made:

Like “sustainable development,” “green economy” seeks to work on a temporal and spatial scale that is distant from the individual smallholder. This implies that there is no inherent benefit for the farmer in shifting from one type of production to another. As the example of Recuay shows, farmers who invest huge amounts of time and money in production only to meet the needs of the household will often show reluctance to engage in a new project, even though it might be promising. Engaging in this project would mean making an investment, and life under conditions of poverty is rarely conducive to such a risk.

Secondly, specific intervention by the NGO showed the need to understand the ways in which agricultural production is organized. The process of selecting adequate households for participation was counterproductive

because it did not sufficiently take into account how the ecologies of production are tied into social, cultural, economic, and environmental factors. Issues of local governance inform production as much as the existence or the lack of a sophisticated irrigation network.

Thirdly, the connections of the household economy to other types of economies—barter as well as the market—influenced the decision whether or not to engage. While it is acknowledged that “one cannot live without the city” [*sin la ciudad uno no vive*], the lack of predictability with regard to the prices of goods and access to a market beyond the fading market in Recuay created further reluctance. It is therefore important to be able not only to talk about hypothetical market opportunities on the coast, but to show more concretely how they will be realized. Production does not begin with the sowing of pasture nor does it end with the product; the articulation of the peasant economy is therefore crucial when it comes to the inputs and the outputs of household production.

ACKNOWLEDGMENTS

I would like to thank the Waterworlds Team at the Department of Anthropology, University of Copenhagen. This research project was funded by the European Research Council. Thanks go to Karine Gagné, Ben Orlove, Jorge Recharte, and three anonymous reviewers for their generous comments. I would also like to

thank the unnamed NGO and their chief engineer for caring and making a difference. First and foremost, I would like to thank the villagers and community members in the surroundings of Recuay.

REFERENCES

- Bebbington A.** 2007. Conclusiones: Minería, neoliberalización y reterritorialización en el desarrollo rural. In: Bebbington A, editor. *Minería, movimientos sociales y respuestas campesinas: Una ecología política de transformaciones territoriales*. Lima, Peru: Instituto de Estudios Peruanos, pp 281–313.
- Bury J, Mark BG, McKenzie JM, French A, Baraer M, Kyung In Huh, Zapata Luyo MA, Gómez-López RJ.** 2011. Glacier recession and human vulnerability in the Yanamarey watershed in the Cordillera Blanca, Peru. *Climatic Change* 105: 179–206.
- Dewalt KL, Dewalt BR.** 2002. *Participant Observation: A Guide for Fieldworkers*. Walnut Creek, CA: Altamira Press.
- Earls J.** 2006. *Topoclimatología de alta montaña: una experiencia en la vertiente oriental andina*. Lima, Peru: Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica.
- Flores Ochoa J.** 1979. *Pastoralists of the Andes: The Alpaca Herders of Paratía*. Philadelphia, PA: Institute for the Study of Human Issues.
- Gil V.** 2009. *Aterrizaje minero: cultura, conflicto, negociaciones y lecciones para el desarrollo desde la minería en Ancash, Perú*. Lima, Peru: Instituto de Estudios Peruanos.
- Grossmann LS.** 1983. Rural economic differentiation and articulation in the highlands of Papua New Guinea. *American Ethnologist* 10(1):59–76.
- Hansen TB, Stepputat F.** 2001. Introduction: States of imagination. In: Hansen TB, Stepputat F, editors. *States of Imagination. Ethnographic Explorations of the Postcolonial State*. Durham, United Kingdom: Duke University Press, pp 1–38.
- Harvey D.** 2005. *A Brief History of Neoliberalism*. Oxford, United Kingdom: Oxford University Press.
- INEI [Instituto Nacional de Estadística e Información].** 2007. *Censo 2007: XI Censo de Población y VI de Vivienda*. Lima, Peru: INEI. Also available at: <http://proyectos.inei.gob.pe/Censos2007/?id=CensosNacionales>; accessed on 10 April 2012.
- Kristjanson P, Krishna A, Radeny M, Kuan J, Quilca G, Sanchez-Urrelo A, Leon-Velarde C.** 2007. Poverty dynamics and the role of livestock in the Peruvian Andes. *Agricultural Systems* 94: 294–308.
- Larson B.** 1995. Andean communities, political cultures, and markets: The changing contours of a field. In: Larson B, Harris O, Tandeter E, editors. *Ethnicity, Markets, and Migration in the Andes: At the Crossroads of History and Anthropology*. Durham, United Kingdom: Duke University Press, pp 5–55.
- Levi-Strauss C.** 1966. *The Savage Mind*. Chicago, IL: Chicago University Press.
- Lund C.** 2006. Twilight institutions: Public authority and local politics in Africa. *Development and Change* 37(4):685–705.
- Mallinowski B.** 1984 [1922]. *Argonauts of the Western Pacific: An Account of Native Enterprise and Adventure in the Archipelagoes of Melanesian New Guinea*. Prospect Heights, IL: Waveland Press.
- Marcus G.** 1995. Anthropology in/of the world system: The emergence of multi-sited ethnography. *Annual Review of Anthropology* 24:95–117.
- Mayer E.** 2002. *The Articulated Peasant: Household Economies in the Andes*. Boulder, CO: Westview Press.
- Mayer E.** 2009. *Ugly Stories of the Peruvian Agrarian Reform*. Durham, United Kingdom: Duke University Press.
- Meillassoux C.** 1972. From reproduction to production: A Marxist approach to economic anthropology. *Economy and Society* 1:93–105.
- Netting R McC.** 1993. Prologue: An ethnological essay in practical reason. In: Netting R McC, editor. *Smallholders, Householders: Farm Families and the Ecology of Intensive, Sustainable Agriculture*. Stanford, CA: Stanford University Press, pp 1–27.
- Paxson H.** nd. Ecologies of production in inventing artisan cheese. In: Paxson H. *Artisan Cheese: Valuing Craft in Post-Pastoral America*. Not yet published. Draft chapter available from author of this article.
- Rist S.** 2000. Linking ethics and the market. *Mountain Research and Development* 20(4):310–315.
- Rist S, Chidambaranathan M, Escobar C, Wiesmann U, Zimmermann A.** 2007. Moving from sustainable management to sustainable governance of natural resources: The role of social learning processes in rural India, Bolivia and Mali. *Journal of Rural Studies* 23:23–37.
- Salavery Llosa J.** 2006. Macro-ecología de los andes peruanos: situación actual y dinámica de cambio en los últimos 20,000 años. Lima, Peru: Consejo Nacional de Ciencia, Tecnología e Innovación Tecnológica (CONCYTEC).
- Salomon F, Niño-Murcia M.** 2011. *The Lettered Mountain: A Peruvian Village's Way with Writing*. Durham, United Kingdom: Duke University Press.

Stoddart H, editor. 2011. *A Pocket Guide to Sustainable Development Governance*. Stakeholder Forum, Commonwealth Secretariat. Available at: <http://www.stakeholderforum.org/fileadmin/files/sdg-pocketguideFINAL-no%20crop%20marks.pdf>; accessed on 10 April 2012.

UNDP [United Nations Development Programme]. 2010. *Informe sobre Desarrollo Humano. La verdadera riqueza de las naciones: caminos al desarrollo humano*. New York: UNDP.

UNEP [United Nations Environment Programme]. 2011a. Introduction: Setting the stage for a green economy transition. In: *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. Nairobi, Kenya: UNEP, pp 10–27. Also available at: <http://www.unep.org/greeneconomy>; accessed on 10 April 2012.

UNEP [United Nations Environment Programme]. 2011b. Agriculture: Investing in natural capital. In: *Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication*. Nairobi, Kenya: UNEP, pp 30–77. Also available at: <http://www.unep.org/greeneconomy>; accessed on 10 April 2012.

USAID [United States Agency for International Development]. 2011. *Economic Growth Fact Sheet*. www.usaid.gov/pe/downloads/economicgrowth-english-february2011.pdf; accessed on 10 April 2012.

Wolpe H. 1980. Introduction. In: Wolpe H, editor. *The Articulation of Modes of Production*. London, United Kingdom: Routledge and Kegan Paul, pp 1–43.

Supplemental data

TABLE S1 Responses to the inquiry about the agricultural production system in Recuay, which is targeted primarily at household consumption; crops are only rarely sold. Nonetheless, it requires substantial input in terms of labor and costly pesticides and synthetic fertilizers, although the latter primarily is only needed for potatoes.

TABLE S2 Distribution of animals in the study area, and number of male and female animals.

TABLE S3 Age distribution in Huancapampa and the hamlets of Ocopampa, Poccrac, and Cantu shows a gap in the population in the active working age; the weekly income numbers for the entire household indicate at least one reason for leaving the area: the low levels of income.

Found at DOI: <http://dx.doi.org/10.1659/MRD-JOURNAL-D-11-00106.S1> (81 KB PDF).