

Examining external interventions in a context of high vulnerability and unequal power relations: A case from the highlands of Peru¹

INTRODUCTION

This paper examines a community level adaptation project implemented by non-governmental organizations. The project introduced new technologies and practices to help poor indigenous communities in the highlands of Peru adapt to climate variability and change.

This paper seeks to make three main points. Firstly, it argues that adaptation needs to address the root causes that make people vulnerable to climate hazards. Poverty and marginalization increase people's vulnerability to climate variability and change. Secondly, at the local level, the entry points to support adaptation for a more equitable development path must be embedded into a social political context which challenges power structures. Thirdly, challenging entrenched power structures requires addressing issues of voice and visibility and fostering new areas of engagement that include formally marginalized groups. Adaptation can then foster transformational change - challenging models of development and practice.

Finally, as way of methodological explanation and background, this paper presents work in progress that is being produced by three people with distinct roles and functions: two work for Oxfam America, and one is a full time researcher. Our functions in this project span from local engagement as listening and gathering information at the community level, engaging in activism, coalition and politics, to research and analysis, as well as advocacy work. The material presented here is based on first hand accounts, project reports, and external sources.

The Fourth IPCC Assessment established a consensus position for the science community that anthropogenic activity has led to an unprecedented warming of the planet, and the consequent impacts are projected to be disastrous for large segments of the world's population. With this has come a growing recognition of the need to prepare

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for and manage the effects of extreme weather events influenced by climate change (UNISDR 2008; Venton and La Trobe 2008; Thomalla et. al 2006; Helmer and Hilhorst 2006). Along with climate mitigation, the attention has also turned to adaptation. NGOs in particular have played a pivotal role in helping to shift the media and public attention from polar bears to poor people living in developing countries. They have brought a moral outrage and a cry for action by highlighting the injustices of climate change and the need for financial assistance to assist developing countries and communities adapt to climate change.

But what does adaptation mean? Some scholars criticize what they call the dominant technocratic approach to adaptation that draws on physical, technological, economic and managerial frameworks, values and narratives to explain the problem of adaptation to climate change and its possible solutions (Heyd and Brooks 2009; Nelson et al. 2010; Smit et. al 2000). In discussing the omission of cultural anthropology in adaptation research, Nelson et. al. also emphasize that “the climate-change debates have historically focused on technologies and the elusive search for large-scale, cookie-cutter solutions, leaving aside the important role that individuals, cultures, and societies play in constructing and living out an adaptation dynamic” (Nelson et. al 2010, 272).

Those debates emphasize the need to improve our understanding of adaptation, situating “climate as one factor within a multiplicity of influences in the lives of individuals and communities” (Nelson et. al 2010, 273); as a phenomenon that is intertwined with many other social dimensions like culture, gender, ethnicity, age, and “many other factors that constrain or enable adaptation opportunities” (Tanner and Mitchell 2008, 3). In any given context, certain individuals, households, and groups are likely to be disproportionately affected by climate change or disasters most commonly being those living in poverty or facing marginalization. In other words, some groups are more vulnerable than others.

If vulnerability is not evenly distributed, the capacities of different groups to adapt to climate change will be different. People have diverse histories and worldviews and consequently have different interpretations and perceptions of risk and vulnerability. Hence, different social actors may develop varied responses to similar conditions and processes (UNISDR 2008). Thus, actors with additional tools or capacities may have more useful response to hazards that they face. In short, the effects of climate extremes cannot be understood independently of larger social, economic and cultural changes. So the context – the local, meso, national, and global levels and their interactions- in which adaptation is being fostered, facilitated or guided matters. Adaptation is thus not about a technical fix but it is a political and social agenda.

How Oxfam's experience can contribute to this discussion? In this regard, Oxfam's position is to help "vulnerable communities become stronger and more resilient" but also helps them to "overcome poverty in the long term" (Siedenburg et. al 2009, 3). Oxfam and its partners focus on reducing the vulnerability caused by current climate variability and change. But we can not just focus on "climate" issues ignoring other issues. From our perspective, adaptation should not be seen as "the solution" to development problems, but as Schipper notes, it should "guide development" (Schipper 2007, 9). At the same time, the ultimate goal of development initiatives should be to reduce the vulnerabilities and to provide the "necessary structures for an effective adaptation process" (Ibid.). For Oxfam, adaptation is "...about what people continually do in order to reduce their vulnerability to climate shocks and avoid the downward spiral into poverty" (Siedenburg, et.al., 2009:8). As such, adaptation can be an opportunity to revisit some long-standing problems of environment and development in an innovative way. Adaptation can be, as Pelling argues, "...transformative by providing scope for the revision and reform or replacement of existing social contracts and the meaning of security and modes of development..."(Pelling 2011, 171).

This paper is organized as follows: In the first section, we will highlight the specific challenges that climate change poses for Peru and for its indigenous populations in particular. The second part describes the project and the social-cultural conditions of the communities. In the third section, we will discuss how this project tries to address the current climatic variability that indigenous communities are facing. We will highlight the technological practices that the project is disseminating, and the new relationships that this is fostering between communities and local governments. We will argue that technological interventions need to be part of a wider social transformation agenda. Finally, we will show how these practices are slowly changing attitudes and practices on the part of local government agencies.

CLIMATE CHANGE IN PERU

According to the United Nations Framework Convention for Climate Change categories of vulnerability, Peru is vulnerable to climate change.² Peru is one of the most affected countries by climate events related to ENSO (El Niño Southern Oscillation) and Pacific Ocean disruptions. 72% of the country's emergencies are related to hydrometeorology events as droughts, intense rain, floods, hail and intense cold spells. A recent research developed as part of the country's Second National Communication, showed that

² Vulnerable countries are those "with coast areas, arid zones, or zones exposed to floods, drought and desertification, developing countries with fragile mountain ecosystems" (UNFCCC 2007, 22).

temperature and precipitation patterns are changing. There is varying frequency, intensity and onslaught of extreme climate events (droughts, intense rain, floods, hail and intense cold spells). Future scenarios for 2030 predict that these changes will become even more extreme. For 2030, temperature is expected to increase and precipitation to decrease. Minimum air temperature could increase from 0.4 to 1.4°C especially in coastal and northern Amazon, central and southern Andes. Annual precipitations are predicted to fall by 10% and 20% in Andean zone, Central and northern Amazon, while precipitation in the northern coast and southern Amazon could increase anywhere from 10% to 20%.

In Peru, the water situation which is already challenging will become more so in the future. Until few decades ago, the tropical Andes' snowmelt was a reliable source of water, however the shrinking of the Andean glaciers means that this source is no longer so reliable. Because 80% of the population lives in cities on the coast, where 2% of water sources are located (Pacific basin), compared to 97% of water sources that run to Atlantic basin, there is a shortage of water due to greater demand and competing uses.

Peru's economy is dependent on the export of natural resources (e.g. agriculture, fishing, and mining). Its recent economic growth has been a result of the high price for minerals in the international market. Agriculture has been underinvested. Yet, 32.8% of the labor force depends on it. In rural areas, 65% of the population depends on agriculture.

Of the total Peruvian population of 28 million, in 2005 more than 50% lived in poverty conditions of which approximately 17% lived in extreme poverty (5.6 million). The likelihood of being poor is higher among indigenous communities, by 11%. There is a 58% labor earning gap between indigenous and non-indigenous people in 2004 which shows the high level of marginalization of the former. Sharp regional differences exist in Peru reflected in earning capabilities and life expectancy. People living in Lima can expect to live 20 years longer than those born in the southern highlands and they can earn 30 times as much as poor farmers. Nearly nine out of ten rural poor people are in the arid Andean highlands and most of them are indigenous people producing basic food crops at subsistence level which makes them more vulnerable to climate change effects.

Background to the Project: CLIMATE CHANGE ADAPTATION TO PROTECT AND IMPROVE THE LIVELIHOODS OF ANDEAN INDIGENOUS COMMUNITIES– Q’EMIKUSPA³

Oxfam America is a non-governmental organization (NGO) whose mission is to find lasting solutions to poverty and injustice. Oxfam funds field programs and together with partners and allies campaigns on issues. In 2008, it joined a coalition of development and environmental NGOs to campaign on climate change to bring attention to the fact that poor people were being disproportionately affected by climate variability and change and that financial compensation from developed countries to developing countries was needed to help.

In Peru, for a number of decades, Oxfam has been working with local NGOs in the Andes and Amazon regions. In 2004, Oxfam America supported Asociación Proyección, a local NGO, to do emergency assistance in 11 communities located at 4,000 ma.s.l. in the province of Espinar, in the Cusco region, in southern Peru. People were losing their main economic assets, their alpacas to deadly frost and freezing spells. This emergency response turned into a longer term collaboration to help communities adapt to climate variability.

Climate conditions here are harsh. At this altitude, the main livelihood activities possible are livestock and alpaca raising, and a little bit of agriculture. From the life histories of residents that we have collected, we have a sense of how elders perceive the weather changes and their impact on their livelihoods. Julio Huilca Qquehui, 62 years old, from the community of Urinsaya from the district Coporaque recalled that : *“desde mi niñez yo no había pasado como ahora, la clima era buena, las lluvias a su tiempo, el agua suficiente y las cosechas también, la helada duraba 3 meses, mayo, junio, Julio y la quincena de agosto de cada año ya sembrabamos el maguay como primer siembra ya la segunda mes de octubre y el último mes de noviembre papa dulces, actualmente ya no tenemos las papas dulces, por ya no resisten a las heladas y granizadas”*.

Historically, people were use to the freezing spells of May, June, and July. They more or less could predict their arrival and would prepare accordingly. Every August 15th, they planted their first crop, on October they planted their second crop, and in November they planted sweet potatoes. Now, people do not plant sweet potatoes anymore because they do not tolerate the cold very well. We know from the life histories that we have collected that today families are keeping a smaller number of animals and growing less potatoes, canihua, and quinoa. On average, families will keep about 6 cows, 20

³ Q’emikuspa is a quechua word that means: “giving support to an effort”.

sheep and 10 alpacas or llamas. Milk, meat, wool, and crops are for consumption and what remains is sold at the market.⁴ Markets are far, the quality of the produce is not that high, and they are cheated in the negotiations, with the result that they do not earn very much from what they sell. In the communities, some people exchange their production. Milk, for example, is exchanged for potatoes between those farmers who keep more cows and those who grow more potatoes.

These communities have developed important techniques such as terracing, irrigation, and soil improvement. But soil erosion is still a big problem and a real concern for people. One alpaca needs almost one hectare of grass during a year. The months of July to November are the hungry months for the animals. There is not enough pasture and water for them to eat. Strong cultural practices of community work (or minka in quechua) and family reciprocity (ayni) have allowed kinship groups to share labour at key moments in the agricultural cycle are still an important part of community cultural life and organization.

Here, families cannot survive from what they grow and the alpacas and llamas that they keep. Therefore, men leave for long stretches of time to work in nearby cities either in agriculture or construction and send money home. Women stay behind and are responsible for the agricultural work, along with their regular childcare activities. The illiteracy rates among women reach as high as 30%, and older women only speak Quechua, constraining their participation in different activities. Women suffer from malnutrition and domestic violence. Basic social services like health and education are far away. According to the United Nations, this region has one of lowest Human Development Index in the country.

In this area, mining is the most important economic activity. It has been present since the 1980's. The most important mine is the Tintaya mine, which is an open pit copper mining and processing operation located at an elevation of 4,100 m in the Yauri district of Espinar province. The mine started production in 1985 and was acquired by BHP Billiton in January 1996, following their acquisition of Magma Copper Company. In June 2006, BHP Billinto sold it to Xstrata.

When BHP acquired Magma Copper and with it the Tintaya mine, it expanded mining activities. It constructed a copper oxide plant and tailings dam which allowed the company to process lower-grade ore. The conventional processing of higher-grade copper sulphide ore was also stepped up, using the environmentally devastating froth

⁴ This average may change according to altitude. As communities are placed higher, the number of alpacas and llamas increases and the number of cows decreases. Alpacas and llamas are adapted to highlands conditions.

flotation technique. Sulfuric acid and other toxic by-products of copper extraction soon began seeping from Tintaya waste reservoirs into local streams and groundwater.

Local inhabitants complained of contaminated water supplies and reported health problems such as chronic rashes, debilitating stomach disorders and persistent migraine. It was also noticed that dust emanating from the mine ruined the pastures, leading to a drastic loss of animals and crops. Also, to develop the Tintaya copper mine, the Peruvian Government took more than 2,000 hectares of residents' land. People affected by the mine allege that the government failed to compensate them adequately for their land or gain their informed consent, with some reporting that they were forcibly evicted and threatened by mine security. In 2001, communities and the mining company created the Dialogue Table to resolve community concerns. The Dialogue Table improved communication and trust between the company and local communities, and has addressed some of the communities concerns.

The government seeks to expand mining. In the area, there are several mineral exploration projects happening. Next year, operations in two large-scale mines will start. This expansion of mining has led to a push to buy land from residents. And demand for water is growing. The neighboring department of Arequipa also wants the water to irrigate crops that are destined for export. In the past year, this issue has increased conflict in the province and region (De la Torre 2009).

While shifting weather patterns is indeed making it difficult for indigenous families here to make a living, blaming this entirely on climate change would be a simplistic explanation, ignoring historical processes, the participation of indigenous people in the national and global economy, and wider attitudes towards Quechua traditions. Indigenous community leaders repeatedly cite the lack of attention they receive from the government. Politicians visit them only to get votes at election times. Agricultural extension workers seldom come. There are very few agricultural programs that are implemented here. Clearly, changing weather patterns are just one of the issues that indigenous communities must confront.

Q'EMIKUSPA: Building the case to move from pilots to wider adaptation

As noted, the work in this area started as a response to an emergency. Since then, it has turned to a longer-term collaboration. In 2004, a local NGO called Asociación Proyección had been working with communities and local level governments to test interventions designed to reduce the mortality rates among alpacas and to increase their wool production. They did this by recovering overgrazed highland wetlands; sowing and silage of frost-resilient varieties of fodder barley and oats; reconstruction of

ancient canals to reduce water loss; installation of a sprinkler irrigation system; installation of early warning systems to help families in deciding whether to keep their livestock close to the homestead or, rather, to herd them to remote pasturelands; and livestock health. They also set up small weather stations and equipped them with radio equipment for communication provided by the project. The Meteorology Institution brings technical support to communities on the measurement and registration of data, and processes this information to elaborate weather forecast. In case of serious climate events, radio alerts are transmitted.

This work was expanded to include 6 additional communities, in the neighbor region of Cusco, in the east side of Espinar Province. Based on the success of these pilots and due to the increasing impacts of climate variability in the area, the demand was there to replicate them over a wider geographical area.

Hence, in 2008 Oxfam, Asociación Proyección and Practical Action – ITDG Peru, joined forces to validate these pilot level experiences so that they could be scaled out to other alpaca-dependent communities. In this phase, we are implementing these technologies in 22 communities. This includes water management through reservoirs and a sprinkler irrigation system. Water channels improvement is also considered. This is important to irrigate more efficiently the natural and cultivated pastures.

The project starts by first creating demonstration units in the communities that it seeks to work. The community will choose a family to run the demonstration unit. The community commits to provide their labor for the construction of each technology. Asociación Proyección signs a formal agreement with local authorities (Province and District) and technical and education institutions (e.g. Meteorology, Agriculture and Education) to ensure that relevant institutions know of the project and to assign roles and responsibilities. This is designed to win over their commitment to the project and thus increase the chances of its sustainability.

The NGOs provide the training on the technologies and information on the science of climate change. They supply clover seeds to promote cultivated pastures to address the overgrazing in the area. They also offer technical support to grow barley fodder to ensure food for livestock during the dry season (May-September), technical support for silage is also considered. Shelters for the animal have been built by local municipalities

and the Tintaya Mine Foundation. Finally, the project is piloting Trombe⁵ walls to keep inside house temperatures above 9°C, protecting families from respiratory diseases.

In schools, the project supports students to organize brigades on climate change and emergency simulation exercises. Additionally, the project specifically focused on improving women's position in their households and communities. This includes running training programs exclusively for women on livestock health, forage conservation and water management. Workshops on self-esteem and leadership, conflict management and women's rights are also given. Additionally, the project works to strengthen women's organizations so that they can better represent and articulate women's specific needs to the local authorities.

An additional objective of the project is to address the marginalization of these communities by changing how governments and the media understand and represent who is vulnerable to climate variability and change. Hence, the project works to ensure that government agencies (at municipal, regional and national level) assign budgetary priority to indigenous and extremely poor communities. This involves providing support to community leaders in preparing their proposals for their inclusion in participatory budgeting. Community leaders are becoming their own best advocates and trying to effect where district and province municipalities spend their budgets. To date, these proposals have mainly focused on water management. Additionally, during the election process in 2010, a number of local and regional events were held to get political candidates to commit to addressing climate change in their proposals. Finally, the project also targets journalists and holds workshops to improve their reporting on climate change issues.

Reflecting on the contributions of Q'EMIKUSPA:

In the two years that the project has been implemented, we have been able to see some important results:

Firstly, the project is helping people protect their most important economic asset through better natural resource management. Now, it is possible to get green grass of good quality, which has contributed to an increase in milk production, from 2 liters a day to 4 liters a day. The number of months in the year that families have food for their

5 A Trombe wall is a sun-facing wall developed by the French engineer Félix Trombe in 1956. It is built from material that can act as a thermal mass (such as stone, metal, concrete, adobe, or water tanks), combined with an air space, insulated glazing, and vents to form a large solar thermal collector.

livestock has increased: families were used to have pasture for their livestock until June, now they have it until November. Because the animals are not dying, families have opted to keep more. We don't know what effects this will have in the long-term and needs to be monitored.

Additionally, due to the project, the communities involved now have information on the weather and can take action to protect their animals, children, and elderly relatives. Trombe walls have increased indoors temperatures to 10°C during the cold season when temperatures can reach minus 12°C. Warmer temperature has meant less people get sick which has reduced expenditure on medicines and transportation costs to the Health Post. Although the project did not build shelters for alpacas, the NGOs provided training sessions so they could be properly used. Morbidity and mortality have reduced in calves and sheep and alpacas, and the production of sheep and alpaca wool has increased. Shelters have added security to alpacas from animal attacks and thefts.

More importantly, we want to argue the project is re-shaping understandings of who is vulnerable to climate change. It has been able to make visible that indigenous peoples are disproportionately affected by the increasing frequency of cold spells and frosts. In the national system for Civil Defense, formal authorities (national, regional, province and district) sit in the civil defense committees and are the responsible to set alerts and develop emergency plans. In rural areas, communities were not considered a formal actor in prevention and response processes. As an important initiative supported by the project, 22 community civil defense committees are now working closely with District and Province Civil Defense Committees, in the different stages of prevention and emergency response. In prevention, community committees are now involved in coordinated actions for emergency simulation exercises and information events. In response, community committees are involved in damage assessments during emergency. This information is a condition to receive (material and/or financial) support from government. Furthermore, 2 district governments have decided to include some of the interventions in their development plans.

What we are seeing then is that the demands of indigenous peoples are slowly being acknowledged in local development plans. This idea of visibility is not only with external actors but also internally. The project sought to increase women's leadership role inside the community and outside. It gave women key roles in early warning systems and this has changed the perception that both genders have about women. Women are seeing themselves and men are seeing them too as technically competent. This has helped to improve women's position in the communities. This could begin to trigger a transformation towards more egalitarian gender relations.

Now, because both adaptation and climate change are in the attention of local government agencies, the possibility exists to challenge deeply entrenched practices that have led to the marginalization of indigenous peoples. Adaptation and climate change can be drivers of wider systemic change. But this is all quite fragile. A lot of things have to happen. First of all indigenous leaders will need to keep the pressure and be able to articulate the needs (both now and in the future) of their communities. The second challenge is how to embed this learning. Budgets and electoral cycles favor the short-term: politicians do their time in office and then leave. Likewise, NGOs move to work in new areas and issues. How can real transformation occur so that a genuinely sustainable development happens that supports adaptation to climate change. Finally, what is the role of mining in all this. Can mining be more environmentally sustainable? And can more of the profits stay in the province to support development?

Conclusion:

The project sought to address two important problems. On one hand, communities' need to preserve their natural resources and to turn them into productive assets; and second, the issue of visibility, voice, and representation given the lack of government awareness on the impact that climate variability was having on highland indigenous communities.

In addressing those problems, we argue that this kind of external intervention, recognized the need to address the structural sources of vulnerability and it framed the problem of adaptation as a structural and multidimensional problem, beyond the technical or managerial approaches that predominate in certain institutions and initiatives.

We argue that this kind of external intervention has been instrumental in terms of shaping social perception of the problem of climate change. Up till recently, the perception and understanding of the national and regional governments on the problem of climate change was framed exclusively by the impacts that climate change would have on the national economy – specifically, the implication for key economic sectors like energy, tourism, agribusiness and mining. There was no recognition of the effects that it would have on indigenous communities and on their economics. Their fate was not within the awareness of the government. The project is changing this, giving these indigenous communities both recognition and visibility to indigenous peoples. Furthermore, bringing different actors together can be the beginning of new discussions and planning processes.

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