

**Title: Exploring Community Resilience and Human Development in the Context of
Climate Change Adaptation in El Salvador and Canada**

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i) Basic Project Information

Abstract:

This project sought to explore the processes that best support community resilience and human development in a climate change context in El Salvador. Local people living in agrarian communities often do not have the opportunities to study and educate themselves on the science behind climate change. Thus, when scientists and environmental practitioners come into the community and speak in technical terms on the issue, the effect can be disorienting and disempowering, and often the mechanisms of climate change go misunderstood. Our research team sought to involve community members in exploring what climate change means in their daily lives and realities, using photo elicitation (or photo voice), focus groups (family dialogues), and learning exchanges (North-South and South-South), as a way for local participants to make meaning of the issue of climate change in the context of their own realities and from their own perspectives. Through the project, we examined how this might evoke a more

relevant awareness about climate change, generate community resilience, build adaptive capacity, and increase ownership over the adaptation process. The project resulted in an improved local understanding and capacity in two communities on climate change, adaptation, and its impacts, local researchers engaging in learning exchanges in Panama, Canada and other parts of El Salvador to share research methodology and findings, as well as the emergence of local environmental committees in two communities through which the adaptation process will be further engaged and developed.

Keywords: Climate change, resilience, adaptive capacity, El Salvador, photo voice, meaning-making.

ii) The Research Problem

The climate change problem is one that reveals wide disparities between countries, primarily the disparities between the developed countries that pollute and those developing countries who bear the greatest impacts of pollution. However, “what is less well known is that these basic inequities are amplified by the widely disparate capacities of nations to engage in climate change science and to translate that scientific effort into relevant domestic policies.” (Kandlikar and Zerriffi, 2012).¹ This is all the more the case in subsistence farming communities in which the population often has lower levels of education, minimal-to-no NGO interventions on the climate change issue, and limited interface with external information on the issue. Kandlikar and Zerriffi continue, “...capacity to understand the nature of these impacts and to make these findings relevant to the daily lives of people will be critical for the prevention of, and adaptation to, climate change.”

This was a point of departure for this project, wherein we sought to better understand how to make climate change more relevant to, and connected with, local people’s perspectives, understanding, and daily experiences. Even prior to a *scientific* capacity to understand climate change and its impacts, we started from what people currently understand about the issue, and how they make meaning of it in their daily lives and in their own perspectives. From there, the project rationale proposed that an adaptation planning process could bring in science when and where appropriate. In other words, perhaps it is less important that the scientific capacity be built, and more important that the community’s adaptive capacity be anchored in the existing viewpoints, meaning-making, and culture of local people. Science can always be integrated as needed; but local awareness, ownership and community resilience is harder to develop as these are *soft capacities* that arise through a different process of engagement.

¹ Kandlikar and Zerriffi (2012) Climate Science, Equity and Development: The Role of International Institutions in Capacity Building for Climate Change. UBC Liu Institute for Global Issues. Retrieved from <http://www.ligi.ubc.ca/?p2=/modules/liu/researches/research.jsp&id=40> Jan 24th, 2012).

At present, current adaptation efforts tend to intervene at the level of systems and behaviors, and climate change continues to be engaged primarily as a technical problem requiring a technical solution. In this project we examined how perhaps more effective, lasting results arise when culture and beliefs, and other *human dimensions*, are included as well. We proposed that human dimensions matter for several reasons. The first of which is that effective action must include local awareness and ownership, which tends to arise as the local worldviews, customs, and practices are considered and integrated. Secondly, not only do people's culture, values, worldviews, and innovations contribute to the issue of a changing climate, but they are also necessarily *part of the solution*. Thirdly, there is an inner strength and resilience in many communities—North and South—which can be tapped into for creative, original and community-based responses to adaptation. This is particularly the case in communities who are already feeling the impacts of climate change and are already seeking innovations for how to adapt and indeed survive.

The global disparities in both polluters/bearers of pollution, as well as capacities to understand and deal with adaptation, need to be directly addressed. One way to do this is to create opportunities for exchanges in learning, awareness, and practical ideas for action. The project sought to create opportunities for such learning exchanges. This was predominantly North-South exchanges between the Canadian and Salvadoran research teams and their affiliated organizations, communities, and universities in both countries. However, it also included South-South learning exchanges between both communities, and with the Salvadoran community researchers attending a workshop on, “Transformation of Socio-environmental Conflicts” in Panama City, with participants from all of Latin America organized by the *Instituto Cooperativo Interamericana*.

iii) Objectives

Specific research objectives:

The original research objectives were as follows:

1. To examine how community resilience and human development could be better integrated into adaptation efforts in the context of climate vulnerability;
2. To increase awareness and deepen understanding of what works for supporting sustainable adaptation to climate change in vulnerable communities in the global south and north;
3. To develop draft community plans for adaptation in Salvadoran communities; and
4. To share results of research through a North-South dialogues on innovations in climate change adaptation involving Canadian organizations and key Salvadoran practitioners in Action Dialogues.

During the course of the project, some of these evolved into slightly different directions than initially anticipated, which this report will describe in turn.

The first two objectives were more than fully met, with ample insights and lessons learned which are shared in a *photo journal* and in an article which has been accepted as a chapter in a forthcoming book on international development (SUNY press). Though this was a small research project, the project team was excited by the findings and think that it warrants wider dissemination and further research attention as possible lessons learned for other development organizations seeking to engage the topic of climate change within a larger matrix of working towards sustainable development. A key angle that arose from both objectives 1 and 2 was the different quality and degree of traction that was gained by inviting and including local people's first-person perspectives on the issue of climate change. By starting from within people's existing understanding, awareness and action on climate change, participants engaged with greater creativity, demonstrated a high level of resilience, and increased ownership, likely more so than if the conversation had remained largely scientific and technical. Technical conversations on climate change can remain disconnected from local realities and can be experienced as alienating to people who don't make meaning in scientific ways. By embedding this focus on climate change adaptation in the researchers long-standing work in community resilience and human development, the research met and expanded on these objectives in integrative ways.

The third objective—to develop draft community plans for adaptation—was something that IDRC encouraged the research team to add in during the proposal writing stage. Although it was a good addition and one that we were excited to engage, it became clear over the course of the project that it was not appropriate to the communities' process of learning and engagement at this point. This region of El Salvador has had little to no engagement from external NGOs on the topic of climate change, unlike other regions of the country which are practically saturated with climate change interventions. Until our team began discussing the issue, most residents had only heard of climate change in passing, perhaps seen the word written about in the media, but had not had an opportunity to really get into what was meant by the term, and how it was already affecting their lives, let alone what it would mean for them in the future. All of this is important to first understand before an adaptation plan can meaningfully be designed. As a result, we moved into congruence with where the communities were at in their understanding of the issue, and began there. Over the course of the project, the participants began to realize that a) they were already facing and responding to changes that could be understood as "climate change", b) they learned what is meant by climate change and in very general ways learned what they might expect in the years to come, c) they discussed what their 'community message' or 'community insight' was regarding climate change (in terms of how they were affected as well as how they were adapting), and d) began to form 'environmental committees' through which they could take the conversations and capacity building further, including particularly adaptation planning. The local people themselves suggested that an 'adaptation plan' is more a 'life plan'

requiring more lead time to organize, more time to complete, greater financial resources, and additional capacity-building, which were largely outside the scope of this small research grant.

Instead of embarking on these draft adaptation plans, the research team took note of where the communities were at with this process and assisted them in becoming more prepared for this longer term engagement in planning in the following ways: 1) assisting in organizing and establishing environmental committees, 2) fostering connections with other communities, organizations, and institutions (such as the University of El Salvador, EMPOWER project of the UK NGO, *Progressio*, well-known for its' interest in the environment and now climate change, with the Institute of Inter-American Cooperation via the Panama workshop, mentioned above, as well as with groups and universities in Canada) which would assist them in deepening their capacity and understanding, and 3) writing and submitting two research proposals to European institutions (Norwegian Research Council and CDKN in the United Kingdom). Though this was not exactly or precisely where we thought this objective would go, it evolved to a place it needed to be, in alignment with the communities' capacities and needs at this time.

The final objective was met in spades. The North-South learning exchange included a Salvadoran delegation of *four* individuals (not *two* which was in the original design) to Canada: two women from the communities, one of the field researchers (a young woman who is an university student in biology), and the program director. Doubling the participants for this learning exchange was made possible by an additional funds raised by both organizations to support some of their costs, as well as in-kind support from Canadian individuals and organizations. The Salvadoran delegation traveled throughout B.C. while in Canada, visiting four First Nations communities, meeting with three organizations (EcoTrust, David Suzuki Foundation, and the Institute for Community-based Research at UVIC), holding learning exchanges at four universities (University of Victoria, University of British Columbia, Simon Fraser University and Quest University), and holding seven community learning exchanges in Port Alberni, Tofino, Opitsat Village, Ahousaht Village, Gabriola Island, Victoria, and Vancouver. The Canadian exchange to El Salvador was equally vibrant, and was more focused on the specific topic of resilience and the methodologies surrounding it.

In addition to this, there were several South-South learning exchanges that occurred over the course of the project. The two communities have engaged in their own community-to-community learning exchange. Although this project budget doesn't accommodate for a second community-to-community exchange, we have raised some additional funds to cover travel for some community participants from the target communities involved in this research at the headwaters of the River Lempa to visit the delta, the Bajo Lempa, where climate change impacts are acute and unique to the northern region of the country. It is interesting to note that although we are hesitating to add this in, after the project has officially ended and with few supporting funds, the community participants are insistent this that exchange also happen, showing great

ownership and commitment to the project goals. Also, (as mentioned above) a delegation of three people went to Panama to attend a workshop on “Transformation of Socio-environmental Conflicts” in Panama City, with participants from all of Latin America. This South-South learning exchange went beyond what the initial objective, and was incredibly helpful to anchor learning and leadership for adaptation more fully in the community participants who attended.

iv) Methodology

To gather information on the potential for human resilience in climate change adaptation, the project used action research in two Salvadoran communities at the headwaters of the Rio Lempa watershed. This action research entailed: photo voice, community conversations (family dialogues), and community meetings.

Photo Voice

Using *photo voice* methodology, we asked local people what they actually face, how they are affected by climate change, where they feel most resilient, and what adaptation would look like for them. Photo voice enabled us to gather and include local people’s perspectives on resilience and adaptation. This involved giving cameras to local people and orienting them to take photos towards three questions:

1. What is climate change to me?
2. What are the impacts of climate change for me and my community?
3. How am I already adapting?

One slight adaptation to the methodology occurred when we decided not to give cameras to a single individual, and rather to work in family groups. This honoured the culture which is predominantly collectivist and familial, and worked very well to stimulate creativity and discussions within the family groups, as well as ensured a diversity of multi-generational perspectives from both genders.

Before giving cameras out, the field researchers trained participants on how to use the camera, and the specific skills needed to link the question with the photography. In other words, participants learned that it wasn’t random photography, but photography placed in regards to an inquiry.

There was some initial hesitation to use the cameras, however, interestingly the topic of climate change presented no major confusion at all. In fact, local people have long since experienced changes in their weather cycles, ecosystems, and water levels in and surrounding the communities. Although the term “climate change” had only been heard in passing or had appeared written up in the media, there was a sufficient grasp of what was meant by it for everyone to explore these questions. Eventually all participants became comfortable with the cameras and took to the photo voice methodology very well.

Once the two-weeks per question was over, community researchers brought their cameras to the organization's office and downloaded their photos. This process involved having the participants select their top three photos, and interpret what the photos meant to them and how it related with the question. These were archived carefully by field researchers. Eventually, this process resulted in a substantial amount of photos about each question, and interpretations for each. This was qualitatively analyzed for central themes.

Community Conversations / Family Dialogues

While half the group in each community had the cameras for two weeks, the field researchers visited other family households to engage in *community conversations* on climate change. These family dialogues were not part of our initial design, and yet it became evident that they were very important to keep the momentum, develop trust, invite questions, and to deepen understanding of the issue.

Qualitative data from these family meetings, particularly themes that kept arising as points of confusion or need for further clarification, were highlighted by the field researchers and shared with the research team. This assisted for adjusting the process to account for areas of confusion or to clarify aspects that were not well understood. Using Skype conference calls and Google Docs between the field researchers in both El Salvador and Canada, we archived the data for use by all members of the team.

Community Meetings: Developing a Community Message

The next phase included community meetings in which participants explained the meaning to their photos to others in the group of participants. This culminated in the photographers selecting 30 photos out of hundreds to create a 'community message' about climate change. This process first occurred with participants in each community separately, and then later participants from both communities came together to craft a message that included both their populations and ecosystems. The process of deciding which photos would be included in the 'community message' was initially difficult, since people were attached to their own particular photos, and yet on the other hand, it served to shift people from their individualized perspectives to a community-wide perspective, and then a more regional perspective, from which the idea arose for environmental committees.

Our hope was that the process would provide a way for local people to explore the situation of climate change in their own lives and through their own perspectives. As well as to discover the ways that they are already adapting and being resilient to these changes. We hoped that through the process, participants would discover the potential ways the community could further adapt and that they would become the proponents and leaders of this adaptation planning.

Previous Research Data: Climatological Data on the Region

In the preliminary phase of the project, we sought climatological data on the region. However, found that this part of the headwaters of Rio Lempa had not been included in other climate studies in the country. We also sought to find any results from previous climate change work in the region, and too found that there had been none carried out in this part of the country. Though we sought this previous research data in vain, what we found provides an important insight into climate change action: namely, that often research, intervention, and adaptation efforts focus on the more dramatically impacted regions (such as coastal areas), even though the unpredictable weather events are causing impacts throughout the country, threatening food security, precipitating natural disaster events, and more. We hope that the findings of this study can contribute some initial climate data for the region.

v) Project Activities

Literature Review and Background Research

The first set of activities revolved around gathering background data on climate change in the region, and review the approaches used in El Salvador and other parts of the world. This included interviews with our project advisor, Dr. Karen O'Brien, from her experience in the IPCC.

Collaborative Research Design

The next set of activities included a series of meetings in El Salvador to more fully design the detailed research activities of the project, to hone the research methodologies, and to set up a communication system between the teams in Canada and El Salvador. This also included a preliminary site visit to the communities.

Involving University Students

At this point, we involved two Salvadoran university students, one studying biology and the other in anthropology, specializing in gender studies, and began to include them right from the start on the methodological design and site visits. A Norwegian masters student from the University of Oslo, Hanna Kvamsås, also joined the research team for two months to assist with some of the fieldwork as part of her graduate studies.

Focus Groups / Preliminary Meetings

The next set of activities included preliminary meetings in the communities about the research project, with key decision-makers, visiting different households to assess level of understanding about climate change, and to identify who would be interested and appropriate to include in the project as a participant-researcher.

Photo Voice

At this point, groups of participants were identified in both communities. The decision was made to work in 'family groups' not only with single individuals, which enabled us to get a more diverse set of perspectives on the issue from a variety of age groups and

from both men and women. Photo voice included: a preliminary meeting to explain the research project, objectives and intention, training participants on the use of the cameras, offering a workshop on how to link photography with a question, presenting the questions to each family group who were given a camera for two weeks. During those two weeks, participants took photos relating to that particular question. At the end of the two weeks, they came to download their photos, select their favorite three photos that best represented their answer to the question, and provide interpretations for each photo, all of which was archived on the laptop.

Community Conversations/Family Dialogues

With only enough cameras for half of the participants, when those participants had the cameras, the field researchers visited the other half of the families to hold dialogues ('community conversations') on the phenomena of climate change, the changes witnessed, the challenges people were facing, and also touching on themes relating to how the community might adapt to those changes, or how they are already adapting. This was an unforeseen component of the research activities, but became very central to keeping the momentum and also building knowledge at a local level about climate change, community resilience, and human development.

Community Meetings: Developing a Shared Message

Once all the participants (family groups) had taken photos in regards to the three orienting questions, then in a large group in each community participants began to reflect on a 'shared message' or a 'community message' from the many photos that had been taken. This community message became what the communities would then share externally to government offices and non-profit organizations in San Salvador, with Canadian organizations during a learning exchange, with other communities and groups in Latin America. It represented the key themes for climate change, development and adaptation that the community could then plan and organize for.

Research Findings Dissemination: South-North/North-South Learning Exchange

The next step was to then to share findings. This occurred via a North-South learning exchange that largely focused on methodologies and the approach to engaging human dimensions in resilience and adaptation to climate change. It also occurred through a South-North learning exchange in Canada in which four Salvadorans (two women from the communities, one of the two field researchers, and the program coordinator) visited B.C. to meet with universities, communities, and organizations about the project's methodology and findings. These Canadian organizations included: The Salvadoran delegation traveled throughout B.C. while in Canada, visiting four First Nations communities, meeting with three organizations (EcoTrust, David Suzuki Foundation, and the Institute for Community-based Research at UVIC), holding learning exchanges at four universities (University of Victoria, University of British Columbia, Simon Fraser University and Quest University), and holding seven other community learning exchanges in Port Alberni, Tofino, Opitsat Village, Ahousaht Village, Gabriola Island, Victoria, and Vancouver. The Canadian exchange to El Salvador was equally vibrant, and

was more focused on the specific topic of resilience and the methodologies surrounding it. That exchange became more specifically learning methods and developing tools for community engagement, based in the experiences of this research project.

Research Findings Dissemination: South-South Learning Exchange in Panama

An unforeseen opportunity arose for three of the community participants with the other field researcher to visit Panama for a Latin American workshop on “Transformation of Socio-environmental Conflicts.” This research grant helped to cover part of the travel costs, and the rest of the financial costs were either covered by other supporting grants or from in-kind support. We have received an official letter from the organizing agency, the Instituto Cooperativo Interamericano with excellent comments about the participation of the four Salvadoran community-researchers and about the project in general, which was very appreciated by the other Latin American participants of the workshop.

Environmental Committees (El Salvador)

The final steps in the communities included follow-up meetings where the question, “what is next?” was posed to participants. The momentum moved towards creating environmental committees which could then become the orienting entities to the issue of climate change, for engaging additional training, education, action, and planning in the community itself, or from other government offices and organizations working in the region.

Participation in Resilience and Adaptation Scenario Planning (Northern Canada)

In Canada, the Drishti project coordinator attended and helped organize a workshop in northern BC on community resilience and climate change adaptation scenario planning, which was primarily oriented to the local issues in Canada and yet benefitted from hearing examples from this project and the research carried out in El Salvador. Though this project didn’t exclusively fund her involvement in this, her involvement was carried out in-kind as part of this research project’s results dissemination.

Further Research Proposals

During the final four months of the project, coordinators from both the Canadian organization and the Salvadoran organization, in collaboration with University of Oslo, wrote and submitted two substantially large research grants for further research on climate change and human development in the region.

vi) Project Outputs

Research

Photo Journal

Hochachka, Madrigal, Flores, Cáceres, Tenney, Núñez, Tejeda and Delgado. 2012. *Climate Resilience: Climate Change Adaptation and Human Development Integrating human dimensions into adaptation and resilience. Photo Journal*. A shared publication of Drishti and Centro Bartolomé de Las Casas.

Community Field Guide

Hochachka, Madrigal, Flores, Cáceres, Tenney, Núñez, Tejeda and Delgado. 2012. *Climate Resilience: Field-Guide for Photo Voice in Climate Change Adaptation Engagement*. A shared publication of Drishti and Centro Bartolomé de Las Casas.

(Spanish version forthcoming)

One Academic Paper, forthcoming

The first draft of this paper has been accepted as a chapter of a forthcoming book to be published by SUNY Press. Given this unanticipated opportunity to be part of the book manuscript, more work is required to complete this paper as a chapter. Rather than the originally anticipated 10 page paper, this will be a 25-30 page chapter. Also, since we are co-writing this in two languages, the process is taking longer than we realized. This explains the delay. The chapter is expected to be complete by end of February, at which point it will be sent to IDRC.

Video

A video was created by the Salvadoran field researchers that depicted the process of Photo Voice in the communities. This entailed interviewing each participant on their involvement in the project, exploring what climate change means in their daily lives. It was played during the Learning Exchanges in Canada as a way to give participants of the exchanges a more realistic sense of the project's methodology. This video is in Spanish and is still being edited with English subtitles; it is expected to be complete by end of February. When complete, this will be sent to IDRC.

Capacity

University Students trained in community-based research, photo voice, and climate change adaptation

Roberto Cáceres, University of El Salvador
Monica Flores, University of El Salvador, Biology
Hanna Kvamsås, University of Oslo, Human Geography

Milestones achieved in knowledge-building and networking

Other milestones were achieved in knowledge-building and networking between

nations, with a very successful Salvadoran learning exchange in Canada. As mentioned above, this including bringing four Salvadorans, rather than just two, to Canada. Four instead of two meant that two women from both communities could attend (both whom are community leaders and thus the experience, capacity and knowledge gained on the delegation would be amplified in their respective communities), as well as Monica Flores, the biology university student, and the program coordinator. The impact of Canadians communities and organizations meeting with local women leaders and sharing lessons learned about resilience and adaptation had a positive impact on Canadians, particularly First Nations communities and university students and faculty. This type of knowledge-building across borders is important to address an issue that is invariably global in nature. Overlaying the issue of environmental justice on this issue, we discover an imperative to engage those very communities who are most impacted by climate change with those in developed nations who are most responsible for the increase in carbon emissions in the first place. We may not be able to mitigate the impacts of climate change quick enough, nor adapt to them as skillfully or easily as we may hope, but we certainly need to develop the moral aptitude and interpersonal capacity to engage as a planet, not just as discrete nations, on a problem that influences everyone. These learning exchanges lay the groundwork for such cross-border collaboration.

The other milestone in this regard was the networking that occurred between the Salvadoran community researchers and other Latin American countries at the workshop in Panama. This type of mesoamerician collaboration in learning and action is precisely what is needed for a coordinated approach to adaptation, and for sharing methods of research, awareness-raising and adaptive strategies.

We were able to reach out and include a more isolated community of Los Pozos, as well as Arcatao. Los Pozos is situated down a very steep dirt road of fine red soil that immediately becomes mud when it rains. Its name refers to the natural springs that exist in and around the community; springs which are drying up as a result of climate change. The multiple stressors of this community in a certain way are greater than that of Arcatao (which is located at the end of the road that leads towards the department's capital and is closer to more public services like schools, hospital and government offices). Unlike Arcatao, which has multiple sources of economic activities, Los Pozos is almost entirely subsistence agriculture, such that the impacts of climate change are being more acutely felt in that particular community. We view the projects' ability to work with the community of Los Pozos as an important output.

Gender

Considering gender balance and sex disaggregated data, with 7 women out of the total of 15 community researchers, with Monica Flores as one of two field researchers, with the two women (Helia Riveria and Gloria Ayala) visiting Canada, and with Hanna Kvamsås, Lauren Tenney, and Gail Hochachka as visiting researchers to El Salvador, we feel the involvement and influence of women in this project was exceptional.

Institutional Capacity

Centro Bartolome de las Casas had only recently begun to work in the field of climate change, and this project provided them an important opportunity to increase their own institutional capacity to hone and deepen their research capacity towards the issue of climate change in the context of human development. This research capacity was achieved through the collaborative design of the research resulting in the individual researchers and the institution as a whole to be better able to conceptualize and ask research questions and better able to draw conclusions and synthesize. During the course of the project, the partner organizations collaborated on writing two much larger research proposals, gaining the practice and honing the skills for writing better proposals. With three opportunities for learning exchanges, often cross-cultural in nature, Canada-El Salvador, El Salvador-Canada, and El Salvador-Panama, the researchers are more effective in making linkages with other stakeholders and researchers, making effective interventions in global debates, and participating meaningfully in these South-South and North-South dialogues.

Main Achievements

The main achievement of this project was to introduce a new area of thematic focus, namely, climate change linked to resilience and human development, in a region that formerly had not have this type of intervention. This evoked a greater awareness about climate change, and developed capacity amongst the community researchers for engaging in these issues in the future.

We learned that for a research project that seeks to ask questions in innovative ways and with unconventional methodologies about resilience, it was very useful to work with a local partner organization that specifically had previously focused on developing resilience in the target communities. This foundation of resilience work done by Centro Bartolome became an important piece of the process, since there was already such an affinity to explore and examine further what resilience looks and feels like in a climate change context.

After over a year of emails, including a design trip to Norway in 2009, when we finally began the project in El Salvador, the second partner organization (CESTA) suddenly announced that the research grant was too small for them to participate in the project. This is understandable, and yet presented a problem of adjusting the research design to accommodate such a change. The way we sought to adjust for this was to deepen our work with the one partner organization and to work with two communities (and one *caserío* or, hamlet) in the headwaters of the Rio Lempa. We anticipated this would be a positive adjustment for three reasons: 1) it would consolidate the small resources for transportation in one region of the country, 2) would serve to build on the extensive resilience work done in the headwaters already, and 3) would expand a focus on climate change on a region of the country that is not already inundated with climate change resources (as is the case on the coast). To resolve this, we discussed at length with the

Board members of Drishti as well as the project advisor, Dr. Karen O'Brien in University of Oslo, and all were in agreement to focus in greater depth with the one partner organization, Centro Bartolome de las Casas, at the headwaters of the River Lempa in the northern region of El Salvador. This type of change in design is bound to happen in the course of a research project, and our team took it in stride and felt that in the end the change benefitted the process and results of the project becoming itself a key achievement in the project.

Unique or innovative outputs.

While photo voice has been used before in other regions to focus on other thematic areas, it has not been used in El Salvador towards climate change, and nor has it been held in a larger inquiry into how it, as a methodology, might serve to include and engage the first-person perspective of local people in the often more technical approach to climate change adaptation. This way of holding a psychological understanding along with the methodology itself proved to be an innovation for other climate change interventions elsewhere. This innovation is one that we are highlighting and developing further in the article/chapter and one that we hope to continue to investigate in future projects.

Incomplete Outputs

As mentioned above, it became clear that with communities who'd never worked on the issue of climate change previously, it was too much to expect them to learn about the issue through photo voice, compile climate resilience findings, develop a community message, engage in North-South and South-South learning exchanges, become organized as a community around environmental issues in a larger human development framework *AND* compile a draft community adaptation plan. We did complete the first five of those outputs, but did not find it appropriate to push towards a draft adaptation plan at this point of the action learning process. Instead, the project supported the emergence of environmental committees in both communities, which will be the institutions through which further adaptation planning can occur.

Policy and practice

The two communities developed greater awareness about climate change and what it means for their communities' development and they became organized through this project with the formation of environmental committees. As a result, the communities are better placed to make policy recommendations about climate impacts in their region. More is included on policy change in the next section below.

vii) Project Outcomes

Scientific, research, or knowledge innovations

The knowledge innovations of this project relate with the methods of integrating human dimensions into adaptation, resilience and development work, and the extent to which

that has increased understanding, community ownership, and empowerment for climate change adaptation, at least on the short term of one year. How that continues to progress will have to be monitored beyond the bounds of this single research project. However, the research innovations into *how* to include the first-person perspectives of local people has been well documented in this project: particularly in how photo voice, family dialogues, and community meetings helped to access how people make meaning of climate change in ways that are relevant to their daily lives and congruent with their community's development, and thus anchor motivations more fully in the communities and inspire more sustained action.

Changes in behaviour, capacities, actions, or relationships of researchers, networks, or research institutions

Until this project, Centro Bartolome de las Casas had not directly worked on the issue of climate change in their community work, and yet had received requests from communities to engage more fully on environmental issues which are inseparable from their development objectives. This project built the capacity for the researchers at CBC to work in this thematic area, and assisted in them forming research networks within the University of El Salvador and with University of Oslo, as well as develop those research partnerships already in place with Canadian non-profit organizations Drishti - Centre for Integral Action, Office of Community-Based Research (UVIC), and One Sky – The Canadian Institute for Sustainable Living. The research capacity of the organization has increased particularly in how to design research questions, how to hire and train field researchers, and how to do photo voice and use qualitative analysis to discover the central themes in the research. Their capacity to write research proposals has increased dramatically, having written and submitted two more large research grants during the course of this project.

Changes in behaviour, capacities, actions, or relationships of research users or those affected by the research process or findings

The research users—namely the local people in the communities of Los Pozos and Arcatao—have explained in various ways how the research assisted them in becoming more aware of the climate change impacts in their region and stimulated them toward action. For example, Gloria Ayala, one of the community leaders in Los Pozos, described how before the project, they were already responding to changes in the weather patterns in her community, yet they didn't know at that time that these changes were linked to or were a result of climate change. Through the research, they have become more aware that these changes are due to a larger climatic change, and are thus more motivated to create committees to support and enhance adaptive behaviors.

Policy influence (e.g., expanded policy capacities of researchers; broadening policy horizons of policymakers; and affecting policy regimes)

Affecting policy influence was not a direct outcome sought by this project, as we see it comes after the first steps in raising awareness and action in the affected communities. However, the research results have been presented to the community councils and religious institutions, and we anticipate interest for follow up engagement on the topic,

as it is clearly a challenge to the region's development. Already we have received an official offer from the mayor of the municipality of Nueva Trinidad (of which Los Pozos is a part) to promote the environmental committees both in Los Pozos (with support from the local council) and to replicate this process in another neighbouring community of Carasque as well as in the urban center of Nueva Trinidad itself.

Furthermore, one of the project participants, Gloria Ayala, who was one of the main contact persons in Los Pozos for this research project and who traveled to Canada with the delegation, has officially said that her abilities and capacities have been developed during her involvement in this project, and that this has helped her to move forward to run as a future counselor in the next election. As a young woman, this bodes well for her, for other women in the community, and for her community's development. She is now an official candidate for the next council of both Los Pozos and Carasque.

Lessons Learned

As will be evidently seen in the final financial report, both organizations raised a substantial amount of other funding beyond what was contributed by IDRC as well as extensive in-kind support for this research project. The project team learned that the degree of comprehensiveness that the organizations seek to achieve in a project of this nature simply requires a larger budget. Though we were very grateful for this grant, the small budget was one of the greatest limitations in carrying out the research at the level of comprehensiveness that we would want. However, one benefit of this situation was that it required both organizations look for contributing funds, seek collaboration, and garner in-kind support elsewhere, thus amplifying the reach of the project in a different way that we initially anticipated.

The research team was incredibly resourceful and agile at making connections with other entities, projects and people to draw in additional in-kind and monetary support for the project. Since we have all viewed this as a *step one* in a longer, larger, better funded process, even though the research was autonomous and independent of any later project, taking the long view helped us to seek out and identify such opportunities.

The other important lesson learned was that this type of research process that engages human dimensions of an issue like climate change and resilience require more time to observe the impacts and changes, particularly those related with changes in consciousness and awareness about climate change, which in turn supports solid evidence about people, communities and systems.

Finally, we learned that one of the key contributing factors to arriving at these outcomes related to the research team being able to keep an open-mind, remain curious, and keep asking good questions. With this attitude to research, innovations became possible.

viii) Overall Assessment and Recommendations

This small research project is an important step towards a longer inquiry into what approaches to community resilience and adaptation are most useful in facing the challenges of climate change and human development. Many of the methods we used and the aspects included in this project provide key insights into how to engage and include the human dimensions of climate change more fully into adaptation processes. Particularly the use of photo voice to evoke and include local people's own perspectives of climate change, as well as the opportunities created for interpersonal sharing and cross-cultural collaboration through the learning exchanges.

Although not formally linked to any ensuing larger research project, nevertheless the approach taken by the researchers in both organizations was to consider this project a beginning point of a larger action-inquiry. This resulted in the team finding supporting grant monies, in-kind support, as well as engaging in long-term planning for climate research and action in this region throughout this project. In other words, though a small project, it became a point of departure for attracting other interest, energy, and resources to contribute to and deepen this research project and to prepare for future projects of this nature.

The main contribution this research made to development was in terms of raising consciousness on climate change as well as to illuminate the ways local communities are already adapting, which in turn has stimulated more coordinated actions. The multiple stressors that exacerbate the impacts of climate change cannot be understated in agrarian communities living on subsistence agriculture. Their entire way of life is intimately organized in sync with their ecosystems, predictable weather cycles, and traditional land-use practices that their ancestors have used. Climate change disrupts this balance, and requires changes in all aspects of life. The research made the link between climate change and development not just in an academic or technical sense, but in a lived way for local people, through their own perspectives. The ability to relate to complex issues like climate change and development from their own meaning-making systems, worldviews, and cultural values may contribute to their sense of ownership over the next phase of adaptation planning through environmental committees. Participants began to see the many ways they are already adapting, and how those new adaptations also contribute sustainably to their communities' development. Such as, by diversifying their crops, recycling garbage, and reforestation—examples of the efforts taken to respond to the unpredictable weather patterns and climate-related natural disasters—the communities are also addressing food security, public health, and environmental sustainability. It is one thing to take up new practices in a dramatic response to changes in weather patterns, but it is quite another to *intentionally plan* to shift practices to accommodate changes consciously. The project participants shifted to the latter over the course of the project, and, for some, even further with community organizing activities through which they could then solicit greater attention from policymakers.

Our only recommendations to IDRC is that there be a way that the small research grants of this scale (up to \$30,000) that best demonstrates innovation and effectiveness be able to apply for a second phase of funding at a higher scale to be able to elaborate on findings and take the research further.

Again we are most grateful to work with IDRC on such a project. It is an honour and a privilege to collaborate with a Canadian research institution of this caliber and to contribute to the cannon of research works being compiled by IDRC for use elsewhere in the world.