

A dissertation submitted to the Department of Environmental Sciences and Policy of
Central European University in partial fulfillment of the
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**“HOW TO RECAFFEINATE CLIMATE CHANGE”:
THE POLITICS OF GENDER AND CLIMATE CHANGE IN POST-
NEOLIBERAL NICARAGUA**

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Budapest

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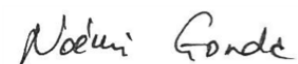
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Noémi GONDA

THE CENTRAL EUROPEAN UNIVERSITY

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In climate change research, there is an important reliance on what are considered scientific facts. The disciplinary divide between environmental and social studies (including feminist studies) has led to insufficient research on the social determinants of climate vulnerability in general, and on gender and climate change in particular. The lack of engagement with climate change from a feminist perspective subsists despite the existence of pertinent theoretical frameworks, and is true even in countries where climate change policies integrate concerns for gender. Consequently, whereas climate vulnerability is increasingly recognized as multidimensional and relational, discussions about necessary social transformations rarely feed into adaptation policies and interventions. Indeed, the latter still too often rely on linear understandings of climate vulnerability and on vulnerability assessments.

The Nicaraguan climate change strategy is unique as it is discursively gendered: it assumes that women are especially apt to implement adaptation. Meanwhile, climate change adaptation interventions in this heavily climate change-affected country, integrate gender on the basis of the perception that women are the most vulnerable. These stereotypical representations of women distract attention from the gendered processes that make rural women and men vulnerable to climate change. In order to explore this contradiction, my investigation aims to understand how the gendering of climate change adaptation politics shapes gendered climate vulnerabilities in contemporary rural Nicaragua.

Building on a feminist political ecology framework, my study describes the environmental, social and cultural practices related to gender and other potentially oppressive factors such as class, age, ethnicity and geographical location, and climate change adaptation. My research is an engaged feminist ethnography that questions the dominant scientific and masculine framing of climate change research by methodologically mobilizing intersectionality, as well as my own emotions and that of my research participants. My research methods are participant observation, focus group discussions, participatory mapping and interviewing in two Nicaraguan rural communities, as well as document analysis.

I show that farmers' climate change adaptation practices are responses to multidimensional vulnerabilities, determined by stressors that do not only relate to climate change, and that in great part reinforce vulnerabilities that emerge from existing gender, ethnic, class and generational inequalities. Additionally, I highlight that the ambivalent process and the unconvincing results of the discursive gendering of climate change politics in Nicaragua do not engage with the gendered processes that make rural women and men vulnerable to climate change. Rather, this discursive gendering feeds into a post-feminist discourse that renders feminism useless. Moreover,

in Nicaragua, the politics of knowledge creation on climate change contribute to constructing smallholder farmers as ignorant and as the culprits of environmental degradation. Finally, I highlight that the subjectivities through which people are brought into relations of power require special attention as climate change adaptation politics have the potential to re(produce) and challenge hegemonic femininities and masculinities. My findings stress the need for shifting the debate from a focus on individual adaptation practices to systems transformation, from the inclusion of women in politics to a feminist response to climate change, from knowledge translation processes to participatory learning on climate change, and from subjugated subjectivities to emancipatory ones. Only then will it be possible to repoliticize the climate change debate.

Keywords: Climate change adaptation, vulnerability, gender, feminist political ecology, intersectionality, practices, politics, knowledges, subjectivities, post-neoliberalism, Nicaragua

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Nosotros iremos hacia el sol de la libertad o hacia la muerte; y si morimos, nuestra causa seguirá viviendo. Otros nos seguirán¹.

Augusto César Sandino

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¹“We push towards the Sun of Liberty or Death. And if we die, our cause will live on. Others will continue”.

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List of Abbreviations

AVSF	Agronomes et Vétérinaires sans Frontières (Agronomists and Vets without Borders)
CAFENICA	Asociación de Pequeños Productores de Café de Nicaragua (Association of Small Coffee Producers of Nicaragua)
CCAD	Comisión Centroamericana de Ambiente y Desarrollo (Central American Commission for Environment and Development)
CGIAR	Consultative Group for International Agricultural Research
CIAT	International Center for Tropical Agriculture
CONACAFE	Consejo Nacional del Café (National Coffee Council)
CONAGAN	Comisión Nacional de Ganaderos (National Commission of Livestock Producers)
COP	Conference of the Parties
COSUDE	Swiss Development and Cooperation Agency
FAO	Food and Agriculture Organization
FONDEAGRO	Fondo de Desarrollo del Agro (Agricultural Development Fund)
FSLN	Frente Sandinista de Liberación Nacional (Sandinista National Liberation Front)
GAD	Gender and Development
GDP	Gross Domestic Product
GED	Gender, Environment and Development
ILO	International Labour Organization
INEC	Instituto Nacional de Estadísticas y Censos (National Institute of Statistics and Census)
INIFOM	Instituto Nicaragüense de Fomento Municipal (Nicaraguan Institute of Municipal Development)
INPRHU	Instituto para la Promoción Humana (Institute for Human Promotion)
INTA	Instituto Nicaragüense de Tecnología Agropecuaria (Nicaraguan Institute of Technology in Agriculture and Husbandry)
IPADE	Instituto para el Desarrollo y la Democracia (Institute for Development and Democracy)
IPCC	Intergovernmental Panel on Climate Change
MAGFOR	Ministerio Agropecuario y Forestal (Ministry of Agriculture, Husbandry and Forestry)
MARENA	Ministerio del Ambiente y de los Recursos Naturales (Ministry of the Environment and of Natural Resources)
NAPA	National Adaptation Program of Action
NGO	Non Governmental Organization
PLC	Partido Liberal Constitucionalista (Liberal Constitutionalist Party)
PND	Plan Nacional de Desarrollo (National Development Plan)
PNDH	Plan Nacional de Desarrollo Humano (National Human Development Plan)
SICA	Sistema de la Integración Centroamericana (Central American Integration System)
SIDA	Swedish International Development Cooperation Agency
TACC	Territorial Approach to Climate Change
TEK	Traditional Ecological Knowledge
UCA	Universidad Centroamericana (Central American University)
UNAG	Unión Nacional de Agricultores y Ganaderos (National Union of Agricultural Producers and Cattle ranchers)
UNDP	United Nations Development Programme
US	United States
WED	Women, Environment and Development
WID	Women in Development

Glossary

<i>A media</i>	Arrangement between two producers: in my research sites, usually the smallholder gives access to his land and provides workforce, and the largeholder provides the animals, the veterinary or chemical products, and funding if necessary. The smallholder has the right to keep the milk and some of the offspring.
<i>Buen vivir</i>	The concept of <i>buen vivir</i> (often translated as good living) can be understood as a worldview that implies harmony and balance with the various dimensions of the human being. Its pillars are harmony with nature, respect for the values and principles of indigenous peoples, satisfaction of basic needs, social justice and equality as responsibilities of the state, and democracy (Caria and Domínguez 2016).
<i>Cacique</i>	Traditional leader of the indigenous community.
<i>Canícula</i>	Short dry period during the rainy season (it is supposed to occur in the month of August).
<i>Contra</i>	Armed group backed and funded by the US in opposition to the Sandinista Government, its revolutionary causes and its army. <i>Contras</i> were active since the triumph of the Sandinista Revolution (1979) until the peace agreements in 1990. They were involved in a civil war against the Sandinista.
<i>Córdoba</i>	The Nicaraguan national currency.
<i>Centavo</i>	The hundredth fraction of a <i>Córdoba</i> , the national currency.
<i>Cuajada</i>	Fresh cheese made usually on the farm with cow milk of the day and salt.
<i>Delegado de la Palabra</i>	Local religious leader in charge of the Catholic community at the level of rural communities where there are no priests and/or that are located far from existing parishes. The <i>delegado de la Palabra</i> (that can be translated as the ‘delegate of the holy word’) conducts religious services, organizes the local Catholic community, and intervenes in situations in which a priest is usually needed (e.g. births, deaths). In Nicaragua, during the 1970s, the Catholic Church was responsible for organizing the peasantry in remote rural communities. It was a complicated task they achieved by wowing together a network of <i>delegados de la Palabra</i> that were selected among the farmers (Envío Team 1984).
<i>Don or Doña</i>	Spanish equivalent of Mr and Mrs. They always precede an adult individual’s name in a formal conversation.
<i>Hacienda</i>	Large farm.
<i>Ladino</i>	A person of mixed racial ancestry: in the context of my research sites, Spanish colonizers’ descendants mixed with indigenous people. It can also refer to an indigenous person who does not identify with herself or himself as such. In Nicaragua, the term is often used interchangeably with <i>mestizo</i> .
<i>Machete</i>	Big cutting instrument used for agricultural work.
<i>Mandador</i>	Foreman generally in charge of the livestock on the farm of a large cattle breeder.

<i>Manzana</i>	Unit used in Nicaragua to measure land area. 1 <i>manzana</i> is equivalent to 0.7 hectare.
<i>Mestizo</i>	Person of mixed ancestry, generally of Spanish and Indigenous. It can also refer to an indigenous person who does not identify with herself or himself as such. In Nicaragua, the term is often used interchangeably with <i>ladino</i> .
<i>Mediana</i>	Synonym of <i>a media</i> (see above).
<i>Miskito</i>	An indigenous group present both in Honduras and Nicaragua.
<i>Tortilla</i>	Flat bread made of maize (and sometimes sorghum) Nicaraguans eat with most their meals.

INTRODUCTION



Picture 1. Río Coco, one of the main rivers of Nicaragua, five kilometers away from my research community in the dry region of Nicaragua. Picture taken during the dry season the dry 2014.



(Photo: Noémi Gonda, 08/04/2014).

Picture 2. Río Rama, one of the main rivers of Nicaragua, passing alongside my research community in the humid region of the country. Picture taken during the dry season 2014.

(Photo: Noémi Gonda, 27/02/2014).

Feminization of nature and naturalization of women in Nicaragua

One of the most pressing issues in the environmental agenda for the coming decades is climate change², and more particularly the need to design effective adaptation strategies in the most climate-vulnerable countries across the Global South (Schipper and Pelling 2006; Adger, Kajfež-Bogataj, et al. 2007). In recent years, researchers have been increasingly studying climate change as well as the determinants of climate vulnerability³(e.g. Brooks, Adger, and Kelly 2005; Smit and Wandel 2006; O'Brien et al. 2007; Mearns and Norton 2010; Cameron 2012; Stern et al. 2013; Tschakert et al. 2013; Ribot 2014; Thornton et al. 2014; Carr and Owusu-Daaku 2015), while in parallel, governments, international institutions and non-governmental organizations (NGOs) worldwide have been elaborating their climate change policies and programs.

² According to the International Panel on Climate Change (IPCC), climate change refers to “a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer” (2014a, 120). Climate change experts usually divide responses to climate change into two categories: mitigation and adaptation. While mitigation intends to reduce greenhouse gas emissions so that climatic changes have less probability to occur in the future, adaptation focuses on developing adequate responses to the already observed and upcoming effects of climate change such as the increase of ecosystem and population vulnerability. Climate change adaptation is defined in the IPCC’s most recent assessment report as “[t]he process of adjustment to actual or expected climate and its effects (2014a, 118). This ability of humans and institutions to adjust to the actual and expected climate and its effects is considered as determined by their adaptive capacity *i.e.* their capacity “to adjust to potential damage, to take advantage of opportunities, or to respond to consequences” (2014a, 118). Both mitigation and adaptation oriented policies include strategies and measures that are specifically designed for so-called developing countries. In effect, in these countries, population vulnerability is considered all the more important that climate change affects mainly rain-fed agriculture and occurs in addition to a series of structural problems such as limited access to resources, to technical support, funding and markets as well as the existence of weak institutions (CCAD and SICA 2010).

³ In 2014, the IPCC described vulnerability as the “propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt” (2014b, 4). This definition includes predisposition as a possible cause for climate vulnerability, which opens the floor to talk about previously acquired ‘pre-conditioning’ factors that may contribute to make people vulnerable. This understanding of vulnerability equals it with the current incapacity of men and women, groups and societies to deal with climate related changes. It is conceived as an existing characteristic of populations or environmental units, largely determined by socio-economic conditions, but changeable (Kelly and Adger 2000, 329). It is interested in enhancing people’s current response capacities, which may be diminished because of pre-existing constraints (Kelly and Adger 2000, 328).

The articulation of concerns for gender⁴ inequality with adaptation to climate is a relatively recent interest. Indeed, it is only in 2001, at the seventh Conference of the Parties in Marrakech, that the need to include a gender perspective in the National Climate Change Adaptation Programs of Action (NAPA) was mentioned for the first time. However, it is only nine years later, in 2010, at the sixteenth Conference of the Parties (COP) in Cancún, that the necessity to design climate change adaptation actions that take into account gender dimensions was emphasized (WEDO and GGCA 2013). Over time, the reports prepared by the Intergovernmental Panel on Climate Change⁵ (IPCC) give greater importance to, and show a more nuanced understanding of the complex interactions between gender inequality and climate vulnerability than these did some years ago (IPCC 2007; IPCC 2014b). Today, academic and practitioner debates on these interactions are mainly interested in the possible negative effects of climate change on existing gender inequality, as well as in the ways in which gender

⁴Gender is defined by the Food and Agriculture Organization (FAO) as follows: “[gender concerns] the relations between men and women, both perceptual and material. Gender is not determined biologically, (...) but is constructed socially. It is a central organizing principle of societies, and often governs the processes of production and reproduction, consumption and distribution (2012). Hence, gender refers to how a person’s biology is interpreted in specific cultural settings (Baden and Reeves 2000, 30). Today, generally, there is a consensus that the ultimate societal goal related to gender is to reach equality, defined by the International Labor Organization (ILO) as “the enjoyment of equal rights, opportunities and treatment by men and women and by boys and girls in all spheres of life. (...) Gender equality implies that all men and women are free to develop their personal abilities and make life choices without the limitations set by stereotypes or prejudices about gender roles or the characteristics of men and women” (2007, 91–92). This definition entails that in the context of climate change, gender equality means equality of opportunities to adapt to the changes, equality of possibilities to access to information, to training and to means to achieve coping measures. Another concept that is widely used in the field is gender equity. For the ILO, it means “fairness of treatment for women and men, according to their respective needs. This may include equal treatment or treatment that is different but considered equivalent in terms of rights, benefits, obligations and opportunities. In the development context, a gender equity goal often requires built-in measures to compensate for the historical and social disadvantages of women” (2007, 92). Gender equity (treating fairly women and men including by having to implement positive discrimination measures) is a means to achieve gender equality. Gender equality remains what represents the ultimate goal, as well as a *sine qua non* condition for a just society that ensures human rights and freedom.

⁵ The most recognized institution that is at the origin of scientific knowledge creation on the climate change. Its periodic reports feed into international and national policies, and are retaken in international negotiations on climate change.

inequality may limit people's capacities to adapt to climatic changes (Denton 2002; FAO, World Bank, and IFAD 2015).

In Nicaragua, the third most climate change-affected country in the world (Harmeling and Eickstein 2012), addressing climate change by supporting rural populations to adapt to its present and foreseen effects, has recently become part of the country's environmental priorities. Indeed, the Nicaraguan government identifies climate change adaptation as one of its key priorities (Campos Cubas et al. 2012; IPCC 2007), shown in the importance given to climate change in the 2012 National Human Development Plan (Nicaraguan Government 2012) compared to its predecessor, the 2003 National Development Plan (Nicaraguan Government 2003).

Introducing climate change as a national priority occurred in a context where the Nicaraguan Sandinista government, in power since 2007, maintains a discourse on the environment that denounces the destructive character of neoliberalism, and calls for a post-neoliberal⁶ era in which humans live in harmony with "Mother Earth" (Nicaraguan Government 2010; Houtard 2011; Nicaraguan Government 2012). This idea was introduced in 2014 in the Political Constitution of Nicaragua by reforming its Article 60, which now states:

Nicaraguans have the right to live in a healthy environment, as well as the obligation to preserve it and conserve it. The supreme and universal common good that conditions [the existence of] all other goods, is mother earth; the latter must be loved, taken care of, and regenerated. The common good of the Earth and of humanity calls us to understand the Earth as a living being and as a subject of dignity. (...) The Nicaraguan nation must adopt production and consumption patterns that guarantee the vitality and integrity of mother earth, social equality in

⁶ In this dissertation, I do not enter in conceptual discussions about post-neoliberalism. I use Rachel Simon-Kumar, Ulrich Brand and Nicola Sekler's definition of post-neoliberalism as related to a rupture from a market-driven form of governance towards a new perspective on social, political and economic transformations (Simon-Kumar 2011; Brand and Sekler 2009). I also use this qualifier because it is how the Nicaraguan Government qualifies its regime. My aim is not to discuss whether Nicaragua is a post-neoliberal country. My intention is to understand the place-based effects of the post-neoliberal discourse on climate change and the environment in rural Nicaragua.

humanity, responsible and solidary consumption, as well as communitarian *buen vivir*⁷⁸⁹” (Nicaraguan Government 2014 the use of capital letters is mirroring their use in the original document in Spanish).

Article 60 of the Nicaraguan constitution reflects a discourse that has been taken up in Nicaraguan policy documents (e.g. Nicaraguan Government 2010; Nicaraguan Government 2012), as well as in official declarations on climate change made by governmental institution workers at the events I attended during my research¹⁰, and in the written media (e.g. Pérez R. 2012; Martínez and Rodríguez 2015). It is a discourse that conceptualizes humans and the environment as mutually constitutive by stating that the “Earth is our own Mother” (Nicaraguan Government 2010, 3). As such, the discourse feminizes Nature by attributing the latter traits that are recognized as feminine. Vulnerability, understood as a weakness, is one of these traits and is explained by the level of Nature's destruction. Respectability is another, because of Nature's capacity to give life. References to these traits are used to justify that the Earth has to be taken care of and respected just as if it were our own Mother.

In addition to the feminization of Nature, another important feature of the Nicaraguan climate change policy discourse is that it naturalizes women. Indeed, most environmental and climate change policies and their related measures in contemporary Nicaragua encourage the participation of women in environmental management and

⁷ The concept of *buen vivir* (often translated as ‘good living’) can be understood as a worldview that implies harmony and balance with the various dimensions of the human being. Its pillars are harmony with nature, respect for the values and principles of indigenous peoples, satisfaction of basic needs, social justice and equality as responsibilities of the state, and democracy (Caria and Domínguez 2016, 19–20).

⁸ Los nicaragüenses tienen derecho de habitar en un ambiente saludable, así como la obligación de su preservación y conservación. El bien común supremo y universal, condición para todos los demás bienes, es la madre tierra; ésta debe ser amada, cuidada y regenerada. El bien común de la Tierra y de la humanidad nos pide que entendamos la Tierra como viva y sujeta de dignidad. (...) La nación nicaragüense debe adoptar patrones de producción y consumo que garanticen la vitalidad y la integridad de la madre tierra, la equidad social en la humanidad, el consumo responsable y solidario y el bien vivir comunitario.

⁹ All translations in the dissertation from Spanish to English are mine.

¹⁰ Among these events are the 5th and 6th National Climate Change fora held in Managua respectively between July 18 and 19 2013, and between September 17 and 18 2014.

give them the priority to participate in environmental protection related actions as compared to men. These policies justify this prioritization with the belief that women have a special and natural connection to nature, and therefore that they are especially apt to fight environmental degradation and climate change.

One example of the feminization of Nature and the naturalization of the aptitudes of women in climate change adaptation strategies can be found in the National Environmental and Climate Change Strategy for the 2010-2015 period. The strategy describes the earth that is to be “loved, respected, protected as our own mother” (Nicaraguan Government 2010, 3). The word ‘mother’ is mentioned twenty-one times in the twenty-seven page-long document, most often as “Mother Earth” with capital letters. Women are referred to in the strategy through the roles that they are traditionally attributed in Nicaraguan society: (environmental) education, water management, fuelwood provision and the use of medicinal plants. The link between the necessary environmental education and women becomes evident as the strategy explains that the goal of environmental education is “life” itself, as if women were not only giving birth to children but also environmental consciousness.

The feminization of nature and the naturalization of women in the Nicaraguan climate change policy discourse are the features of a discursive gendering that contradicts with the mainstream, top-down, masculinist and capitalist approach to climate change, and that puts women’s concerns to the fore. However, feminist activists and gender experts whom I interviewed in Nicaragua harshly criticize this approach by arguing that it avoids tackling key issues related to the causes of gender inequality and environmental degradation. One of my interviewees, a feminist activist who is the director of a Nicaraguan NGO working on gender related topics, explained why the Nicaraguan approach to gender and climate change is not a feminist response

to climate change by stating two main reasons: “in order to address the issue of gender and climate change, one needs to ask how [gender] roles can be transformed, [and] how structural changes can be achieved”¹¹(Interview with feminist activist 01/11/2013). She thus implied that climate change adaptation politics in Nicaragua did not address the transformation of unequal gender roles, nor did they consider structural changes. Hence, while the gendered discourse on climate change in Nicaragua seems to be opening the floor for the inclusion of gender concerns within climate change policies and actions, in reality there are many drawbacks to this discourse. I introduce some of them in the following section.

Intersections between environmentalism and feminism

The fact that women are presented in the Nicaraguan climate change adaptation strategy as the saviors in the face of climate change recognized as a potentially devastating problem to be addressed urgently, reflects a conceptualization of the relationship between gender and the environment that can be found in ecofeminist writings. Ecofeminism is a theory that had its peak of popularity among NGOs and feminist activists in the 1980s. First, it suggests that there are connections between the domination and oppression of women, and the domination and oppression of nature. Second, it purports that in patriarchal¹² thought, women are identified with nature, while men are identified with culture, the latter being superior to the former. Third, it claims that women are particularly apt to end the domination of nature, and finally, it assumes that feminist and environmentalist movements have in common their fight for

¹¹ “Para abordar el tema de género y cambio climático hay que preguntarse como se puede lograr los cambios en los roles [de género], [y] como se pueden lograr cambios estructurales”.

¹² I understand patriarchy as a particular form of gender relations in which masculine dominance is constantly reinforced (Ford and Gregson 1986).

more equality and for less hierarchy, and hence defend common interests (Agarwal 1992).

Ecofeminism and the development approaches that emerged based on it (the Women In Development- WID, as well as later the Women, Environment and Development-WED approaches) call for a greater consideration of women in development as well as in environmental management policy and practice (Baden and Reeves 2000) by directing the attention towards the existing gendered division of labour and (static) gender roles. For example, these approaches call for more attention to the ways in which women's contribution can help alleviate the effects of climate change through their 'traditional' gender roles such as water and fuelwood fetching, as well as home-garden production. Shahrashoub Razavi and Carol Miller (1995) explain the rapid popularity gained by the WID and WED approaches among development and environmental agencies in the 1980s and the 1990s by the fact that it articulated a concern for social justice (including gender justice) with economic efficiency, as well as sustainable environmental management in a triple win relation, and in a manner that was convenient for development institutions at that time.

According to several scholars (e.g. Escobar 1995; Razavi and Miller 1995; Leach 2007), this apparently triple win relation has been revealed to be not only false but often counter-productive in terms of economic development, sustainable environmental management and progress towards gender equality. For Arturo Escobar(1995), development in the above mentioned fashion, in which the main concern is to make women participate in the market to achieve economic growth, and in environmental management to make it more sustainable, has often contributed to increasing women's workload, without giving them a better position in society, or more power in decision-making within their families or communities. In addition,

according to Melissa Leach(2007), like ecofeminism, the WID and WED approaches have the tendency to mix up gender with women, to essentialize women considering them as a homogeneous group, as well as avoiding raising strategic issues for women such as power and property by prioritizing their practical needs¹³. Of course, as Noel Sturgeon explains, the integration of ecofeminist views in development policies was in a certain way useful: before, women were mostly invisible for development strategists (1999, 256). Hence, the main achievement of ecofeminist theories as well as the WID and the WED approaches has been to direct the attention to the fact that if development was to be achieved, attention has to be accorded to women.

In sum, ecofeminism's conceptualization of the relation between gender and climate change, which is also present in the Nicaraguan climate change policy discourse has several inconveniences: first, the assumption that women have a special closeness to nature may reproduce the hierarchical link between nature and culture, women and men, which positions culture and men above nature and women respectively. Second, this conceptualization can essentialize a certain type of women, and in particular poor rural women from the Global South whose livelihoods depend directly on the environment. Third, this conceptualization entails a problematic definition of gender that equals it with women who are constructed essentially through their 'traditional' gender roles. Finally, such conceptualization can contribute to

¹³ Niamh Moore (2008) suggests a more complicated account of ecofeminism that would not see essentialism as its inherent feature. According to Moore, scholars like Leach (2007) make an amalgam between ecofeminism and essentialism and do not recognize the existence of anti-essentialist work in later ecofeminism, nor the work of post-structural ecofeminists such as Sturgeon, who criticized the assumption about the natural connectedness of women with the environment. While I totally acknowledge the necessity to give a more complicated account of ecofeminism and to avoid confounding it with essentialism, in this discussion I focus on the way ecofeminism is mobilized in the Nicaraguan climate change policy discourse, which I argue is done in an essentializing manner. In Chapter 3 and the main conclusion of this dissertation, I go back to the above-mentioned criticism of Moore and discuss the reasons why essentialism may have emerged in the particular context and around the particular issue I analyze in Nicaragua.

reproducing gendered stereotypes in relation to climate change (e.g. women being the saviors).

The problematic construction of women being the saviors in the face of climate change in the Nicaraguan climate change policy discourse intersects with another discourse that constructs women as the main victims of climate change: victimization. This victimizing discourse can be found both in the academic literature, as well as in publications of numerous institutions (such as international organizations and NGOs) that purport to be working on climate change with a gender perspective (see Adger, Agrawala, et al. 2007; Cannon and Müller-Mahn 2010 for examples in the academic literature, and; IUCN 2012; UNDP 2013 for examples among institutional publications). In Nicaragua, the victimizing discourse, mainly reproduced by NGOs and international organizations working on climate change, conveys the idea that rural women are more severely hit by climatic hazards and other stressors than rural men.

Usually, two main justifications underpin this idea. The first justification is that because women are the poorest of the poor and because there exists a direct connection between poverty and climate vulnerability, women are also the main victims among the victims. The second justification puts forward that women are the first victims in case of disasters because they have less access to information (e.g. on approaching hurricanes), knowledge to protect themselves (e.g.: they may be fewer to have a mobile phone or to know how to swim), or concrete means to escape the disaster than men.

This victimizing discourse can be as problematic as the discourse on women being the saviors in the face of climate change. Its conceptualization of the relationship between gender and the environment relates to the theoretical underpinnings of

feminist environmentalism, another theory about gender and the environment¹⁴.

Feminist environmentalism seeks to address the material realities in which women of different classes, ages and ethnicities are rooted and which might affect their response to environmental degradation (Agarwal 1992), such as case climate change. Said differently, it assumes that people's material conditions such as their access to land, information, communication means or training, influence their relationship to the environment (Nightingale 2006). In sum, it assumes that it is because a group of people has less access to some assets than the other, that they become victims. In terms of actions, a feminist environmentalism perspective translates into activities aimed at challenging the structural causes of environmental degradation and gender inequality¹⁵. The latter constitutes the strength of feminist environmentalism: it calls for challenging the structural causes at the intersection of gender inequality and environmental degradation.

Nevertheless, as feminist environmentalism focuses mainly on the material relations between gender and the environment, when this theoretical perspective is applied, it is often technical solutions to climate change that are put forward. Such solutions seek, for example, to facilitate access to water or fuelwood. Sometimes, they seek to help increase income generation, the latter because as it has already been noted, vulnerability is often assimilated to poverty and to women. Since material relations

¹⁴ Feminist environmental was translated into a development approaches in the 1990s and 2000s under the name of Gender and Development (GAD) and Gender, Environment and Development (GED).

¹⁵For Bina Agarwal (1992), environmental degradation presents three aspects that are particularly gender relevant. The first aspect relates to the pre-existing gender roles that, at least discursively, attribute women from the Global South responsibilities directly related to natural resources management such as water and fuelwood fetching. According to Agarwal, these responsibilities, in a context of increasing scarcity of natural resources put a heavy burden on women, especially on the ones who are head of their households. Second, Agarwal highlights significant gender differences in terms of access to food, education and health care. She explains that women who are disadvantaged in these terms have less capacities, possibilities and power when it comes to negotiating their access to natural resources. Third, Agarwal underlines that women have less access to land, credit, commercialization, technical assistance, and paid labor (1992).

with the environment are negotiated ‘on the ground’, another inconvenience of feminist environmentalism is that it insufficiently addresses the multi-scalar interactions between gender and climate change. Additional inconveniences of feminist environmentalism relate to the fact that the direct link between poverty and climate vulnerability on which its main argument is based, has never been rigorously demonstrated despite its widespread appearance in both the academic and the grey literature¹⁶.

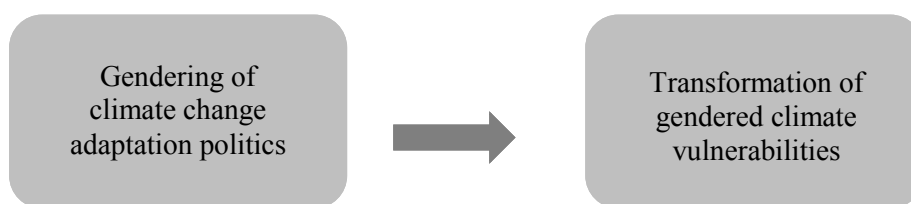
Both the ecofeminist and the feminist environmentalist conceptualizations of the relation between gender and climate change to be found respectively in the Nicaraguan climate change policy discourse and the discourse of NGOs and international organizations working on climate change in Nicaragua are problematic for the reasons I described above. In addition, in both the ecofeminist and the feminist environmentalist conceptualizations, women are constructed in an essentializing way as if they were a homogeneous group whose members share similar aptitudes and/or needs. Therefore, I argue that reducing the understanding of the connections between gender and climate change to discussions on women being the most apt to fight climate

¹⁶For example, Fatma Denton who had been working with several non governmental institutions that have activities on gender and climate change like Oxfam and CGIAR (Consultative Group for International Agricultural Research), stated in a 2002 academic publication that 70 % of the nearly one and a half billion people from the developing world who were at that time living in poverty, were women (2002, 10). This figure comes from a more than 20 years-old UNDP Human Development Report (1995) that is today still widely present in NGO and international organizations communications (see for example the website of the international NGO Concern International 2016; and the twitter account of the World Bank 2016). After important criticisms about how this figure has been calculated (e.g. Chant 2006; Chant 2008), Seema Arora-Jonsson, tried to (unsuccessfully) track the validity and the calculation mode of this data. Arora-Jonsson highlighted that according to her research, women are not always the poorest, neither are women-headed households systematically poorer than the households that are headed by men. Carmen Diana Deere, Gina E. Alvarado and Jennifer Twyman’s study at the level of several countries of Latin America and the Caribbean also resonates with this observation: they showed that ownership within households is more evenly distributed than a headship analysis (that focuses on the sex of the household head) would suggest, thereby questioning the assumption that women are systematically and significantly poorer than men within a household (2012).

change or the most affected by it, is highly problematic and a more complex account of these connections is needed. Such an account, which should feed into climate change adaptation policies and interventions as well as in feminist and environmental activism, would not be interested in discussing who is more apt to fight climate change or who is more vulnerable to it. Rather, it would be interested in analyzing how current intersecting gender and environmental injustices play out in the processes that make rural women and men vulnerable to climate change, and how these processes could be challenged without confounding gender with women, and without reproducing gendered stereotypes.

Climate change adaptation politics in post-neoliberal Nicaragua constitute a unique case to research how current intersecting gender and environmental injustices could be challenged. Indeed, with their gendered climate change discourse, Nicaraguan climate change adaptation politics have the potential to shape gendered climate vulnerabilities. This problem is the departure point for my research and it is schematized on Figure 1.

Figure 1. Representation of the research problem



(Author's design)

By addressing the above schematized research problem in particular by focusing on the arrow that appears on Figure 1, (which is meant to represent the process through which the gendering of climate change politics may transform gendered climate

vulnerabilities), this research contributes to filling the gaps at the intersection of climate change and feminist research that are described in the following section.

Addressing the gaps at the intersection of climate change and feminist research

This research seeks to contribute to addressing three important gaps in research, namely:

- (i) the disciplinary divide between environmental and feminist studies that has led to insufficient research and to problematic interventions on gender and climate change;
- (ii) climate change policies and interventions that already integrate concerns for gender have rarely been studied from a feminist perspective despite the fact that they are more and more common;
- (iii) a feminist political ecology perspective has seldom been used to study climate change, despite the pertinence of this approach.

Concerning the first research gap, feminist scholar Sherylin MacGregor, who has long been working on environmental politics, states that the lack of research on gender and climate change stems in part from gender-blindness in environmental research and a reciprocal environmental issues blindness in feminist research (2010). Moreover, she highlights that ‘scientific facts’ in climate change research are seldom questioned, and social sciences have until recently insufficiently engaged in research on climate change (2010). For these reasons, rural women and men’s gendered experiences of climate change that can influence their climate change adaptation processes have been given insufficient attention to date (some exceptions are Alston and Kent 2008; Buechler 2009; Alston 2010; Dankelman 2010; Tuana 2013; Carr and Thompson 2014; Sultana 2014). To address the above-mentioned double gap in both

feminist research and climate change adaptation research, my dissertation aims to deepen the understanding of the connections between gender and climate change based on empirical observations in rural Nicaragua. These observations are interested in the gendered experiences of Nicaraguan small-scale farmers in relation to the biophysical impacts as well as dominant discursive constructions of climate change. The research seeks to provide recommendations on how the connections between gender and climate change adaptation should be taken into account both at the theoretical and methodological level, as well as in the formulation of climate change policies that successfully ally climate change adaptation and progress towards gender equality in Nicaragua, and other similar countries.

Concerning the second research gap, this study is all the more necessary because feminist scholars who have engaged with climate change have seldom paid attention to climate change politics and interventions that *already* integrate concerns for gender¹⁷. They have in majority called for attention to gender in the predominantly gender-blind climate change debate (e.g. V. Nelson et al. 2002; Lambrou and Piana 2006), or to the analysis of the gendered exclusions climate change may aggravate (e.g. S. Ahmed and Fajber 2009; Alston 2010; Buechler 2009; Denton 2002; Cannon 2002; Tschakert 2012). Some have raised awareness of the reproduction of hegemonic gender stereotypes through masculinist and science oriented climate change discourses (MacGregor 2010; Arora-Jonsson 2011), or have written about how hegemonic gender identities are reinforced in post-disaster reconstruction work (e.g. Bradshaw 2002). I argue that the insufficient focus by feminist scholars and practitioners on climate change politics that *already* integrate gender concerns is a deficiency that needs to be

¹⁷ One exception is the FAO report written by Yianna Lambrou and Sibyl Nelson. The report highlights how gender biases in humanitarian interventions can undermine people's adaptive capacities (2006; discussed in Arora-Jonsson 2011).

urgently addressed. It is all the more important because, as I show in this dissertation, feminist and environmental movements face difficulties in detecting and challenging these dynamics in post-neoliberal climate change politics because the latter include concerns for gender and other oppressions, but not in a feminist critical sense. The treatment of gender dimensions in Nicaraguan climate change politics is therefore illustrative of what can happen to ‘socially sensitive’ (in this case ‘gender sensitive’) climate change politics when they do not address the (gendered) processes that make people vulnerable to climate change.

Concerning the third research gap, with climate change constituting my research topic, my intention is to take the lens of a feminist political ecology framework further than some feminist political ecologists usually do. Indeed, climate change as a research topic has been very challenging for feminist political ecologists especially when it comes to producing ethnographic studies that succeed in bridging scales (Sultana 2014 is one exception). However, connecting what happens at the local level with global environmental changes is necessary to be able to enter into dialogue with the geoscientists of the climate change community. According to Petra Tschakert (2012), political ecology is particularly suitable for research on climate change even though until recently few political ecologists have seriously engaged with the issue. While there are some exceptions such as the writings of urban political ecologist Erik Swyngedouw who is one of the harshest critics of the de-politization of climate change (see for example Swyngedouw 2011; Swyngedouw 2013), Tschakert (2012) explains this reluctance with three main elements. First, she gives as an explanation political ecology’s apparent epistemological opposition to climate change. For her, this is related to the fact that climate change is often presented as positivist science. Nevertheless, if it is seen in a constructivist fashion as I also approach it in this

research, climate change becomes an issue that can be studied as the intersection of climate change adaptation practices, politics, climate knowledges and the subjectivities that are both created and challenged under the effects of climate change and through the process of climate change adaptation. This intersection is imbued by, and embedded in, power relations. Second, Tschakert (2012) explains that some may see methodological and analytical oppositions between measuring climate change's impacts versus acknowledging the multidimensional character of vulnerability drivers. Therefore, the discussion on the pertinence of different study methods in climate change research should start with acknowledging that their very choice is not exempt from values and may (re)produce hierarchizations between different knowledge systems.

Third, Tschakert (2012) explains that there is a discursive opposition between linear causalities (hazards) and multiple social, political, ecological causalities that explain climate change. The early linear explanations that focus on the biophysical effects rather than the social effects of climate change are not politically neutral. To the contrary, they tend to facilitate (or at least allow) social and environmental injustices that may create vulnerabilities and that often result from unequal gender, class, or ethnicity-related power relations. Feminist political ecology's pertinence in studying climate change adaptation lies in its multiscalar perspective, its interest in narratives, power relations, justice, hegemonies and development. In sum, feminist political ecology can become a politicized counter-narrative to the positivist and impact-oriented research on climate change that may reproduce oppressions and hegemonic power relations. It is with this latter objective that I build on the perspective of political ecology in my research.

Research purpose and research questions

In my dissertation, my aim is to fill the above-described research gaps by focussing on the processes represented by the arrow in Figure 1, and by asking the following main research question:

How does the gendering of climate change adaptation politics shape gendered climate vulnerabilities in contemporary rural Nicaragua?

My objective in this dissertation is to indicate the processes (if any) that add up to a problematic construction of gendered climate vulnerabilities in rural Nicaragua. This means that the aim of my research is:

To study Nicaraguan rural women and men's gendered experiences of climate change adaptation in contemporary post-neoliberal Nicaragua, and to assess how climate change politics include concerns for gender and for the processes that contribute to (re)producing (gendered) vulnerabilities.

Feminist ethnography to study the processes that make rural women and men vulnerable to climate change

Studying rural women and men's gendered experiences of climate change adaptation to answer the research question calls for a qualitative case study research that privileges participant observation in the fashion done in feminist ethnography. It requires carefully selecting the study units (rural communities) that, combined together, constitute my case study. Indeed, I need to be able to study as many possible factors of advantages or disadvantages (e.g.: gender, ethnicity, class, age, geographical location) that can play out in the processes that make people vulnerable to climate change in rural Nicaragua. Because power is a central concern in my research, I need to be attentive to how power influences my research methods and how my research itself is

embedded in power. Methodologically, this entails giving a preeminent role to emotions and engagement in the fashion feminist researchers do (e.g. Rose 1997).

In terms of methods, in addition to participant observation, which is central, I used a combination of qualitative methods during the three periods I spent in Nicaragua for my fieldwork: between June and July 2013 (six weeks), October-November 2013 (five weeks), and January and December 2014 (one year). These methods included interviewing, document review, workshops that I organized in order to receive feedback on my preliminary findings, and participatory mapping workshops combined with focus group discussions. By using these methods, I sought to understand how rural women and men experience and understand climate change and how they implement climate change adaptation. Combined together, these methods allowed me to triangulate the information that I got from the different sources. My methods are more fully described in Chapter 1.

Theoretical approach: the feminist political ecology of climate change adaptation

At the theoretical level, addressing the research puzzle requires adopting a perspective able to reflect the complexity of the connections between gender and climate change, while avoiding the drawbacks of ecofeminism and feminist environmentalism. Additionally, this theoretical perspective needs to have an anti-essentialist stance in order to avoid the reproduction of gendered stereotypes in climate change. It must frame my research in such a way that it helps me to study the processes that may contribute to putting rural women and men into situations of climate vulnerability, rather than trying to assess levels of gendered climate vulnerabilities.

Feminist political ecology, focusing on the interplay of scales, inequalities in access to resources and gendered knowledges (Leach 2007) is such a perspective. It

combines the necessary focus on discourses, practices (embedded in material realities, and related to vulnerabilities), knowledge and power relations at different levels and scales. It intends to re-conceptualize the relationship between gender and the environment as a dynamic process, in which not only gender and environment play important roles, but also culture and society are of core significance (Nightingale 2006). In the perspective of feminist political ecology, these elements (gender, the environment, culture and society) are embedded in and construct power relations. In addition, the relations between these (for example the relation between gender and the environment, the environment and society, culture and gender, etc.) are also understood as constructions very much shaped by, and shaping power relations. Thus, feminist political ecology has the potential to focus my research on the processes that contribute to making people vulnerable to climate change, and analyse how these processes reproduce, or are embedded in existing unequal power (including gender) relations.

Despite its intentions to better reflect the complexity of gender and environment relations than ecofeminism and feminist environmentalism, the work done in the name of feminist political ecology has often been oriented towards women and not gender (Nightingale 2006), which can be problematic (MacGregor 2010; Arora-Jonsson 2011). Some of this work is about women and men, studying these two categories as if they were homogeneous, which is also problematic (MacGregor 2010; Arora-Jonsson 2011). Indeed, the reproduction of this dichotomy (women and men as separate homogeneous groups) can lead to the replication of patriarchy (Jaggar 1989; in Sprague and Zimmerman 1989). Similarly, the reproduction of other dichotomies (for example, old and young, poor and rich, indigenous and non-indigenous, people

from dry and people from humid territories) can replicate oppressions. This calls for an intersectional perspective in my theoretical framework.

Intersectionality refers to the fact that “[p]eople are not just men and women with culturally defined roles, but inhabit multiple and fragmented identities that intersect with class, race, ethnicity, sexuality, etc.” (Elmhirst 2011; in Tschakert 2012, 149). These multiple and fragmented identities all contribute to shaping the way rural women and men experience climate change, as well as their relation with processes of climate change adaptation (Kaijser and Kronsell 2014). The differences emerge and are produced out of everyday practices (Nightingale 2011b, 155) in farming, in community or project activities, as well as of using or witnessing the use of climate change adaptation ‘technologies’, among many other things. These differences in experiences can be both symbolic (when for example women’s experiences are influenced by the new identity they are discursively attributed by projects as the most apt to implement activities related to climate change adaptation), and material (when the experiences of particular people are colored by the fact that they live far from water sources). It is important to note that the justification for the use of the intersectional perspective is also the explanation why, while I am interested in gender, I do not only look at gender in my research. Indeed, gender can never be a category that will *by itself* explain oppressions or privileges. As people are never just women or men, no matter if gender intervenes as an oppressive or an advantaging factor, it always works together with others, among them ethnicity, class, age and geographical location. Thus, rather than identifying the categories at play as advantages or disadvantages when it comes to implementing climate change adaptation, it is the understanding of how their intersection can become oppressive and/or advantaging that is central to my preoccupations.

Furthermore, the intersectional perspective allows me in parallel to take into account the oppressive and advantaging forces that are related to the post-colonial context in Nicaragua¹⁸. As Sharlene Mollett and Caroline Faria's study in *Miskito*¹⁹ communities in Honduras shows, the feminist political ecology framework can usefully accommodate a post-colonial intersectional approach to study environmental change (2013). Based on their empirical research interested in the intersection of race and gender, by mobilizing such a perspective, they demonstrate how in the Honduran Miskito context, "patriarchy and racism are mutually imbued in shaping human-environmental relationships" (2013, 177). In my research, similarly to Mollett and Faria's work (2013), the idea is to mobilize an intersectional perspective that helps account for the complexity of several systems of power within the same study including the colonial relations that climate change politics may reproduce in post-colonial Nicaragua²⁰.

To carry out this study on the gendered processes that contribute to making people vulnerable to climate change in post-neoliberal Nicaragua, I need to break my research question down into concrete analytical foci that I can study through Nicaraguan rural women and men's experiences of climate change, which I was able to observe. These analytical foci are 'classical' topics of interest in a political ecology

18 In Nicaragua, post-colonial issues are important to take into account. Indeed, Nicaragua's Pacific and Central region was colonized by the Spaniards (1536 – 1821), while the Atlantic region was occupied by the British (1655-1859). Nicaragua can be considered in this sense a post-colonial country, but post-colonial theory represents more than that. It recognizes that in societies like the Nicaraguan, social subjectivities have been formed in part by the subordinating power of the colonizing. In addition, the theory involves discursive resistance to colonialism, colonialist ideology and current forms of subjects' creation (F. Barker, Hulme, and Iversen 1994). According to Graham Huggan and Helen Tiffin, "it is important to bring together postcolonial and environmental issues so that continuing imperialist modes and colonialist attitudes of social and environmental dominance can be challenged" (2010; in Kaur 2012, 30).

¹⁹An indigenous group present both in Honduras and Nicaragua.

²⁰ Here, I am particularly interested in understanding how patriarchy and racism are embedded in colonial genealogies, including in the approach of development institutions and of the State to gender and ethnicity, and how they contribute to constructing gendered and racialized subjectivities.

approach. Indeed, defined broadly, political ecology is interested in the political basis of environmental problems (Bryant 1998, 80) and was precisely born to re-politicize the environmental ‘question’ by helping to understand the political and economic obstacles to meaningful changes in the fight against environmental degradation (Bryant 1998, 80)²¹. Among the “hallmarks” of the theory (Rocheleau 2008, 718) are its interest in multiple methods, objectives, actors and audiences; the integration of social and biophysical analysis of power; the multi-scalar analytical approach; its concern for empirical observation and data gathering at household and local level; and chains of explanation trying to combine structure and agency (Rocheleau 2008). According to Dianne E. Rocheleau, even the new trends in political ecology maintain the centrality of empirical work, but they do so from several different positions and perspectives. Thus, they situate political ecology at the intersection of feminist post-structural theory, and complexity and network theories: combining concepts such as situated knowledge (Haraway 1988), multiple identities, and sustainable alternative development (Rocheleau 2008). It is inspired by these “hallmarks” of political ecology (Rocheleau 2008) that I define my four analytical foci, and the related research sub- questions.

²¹ With this aim, political ecology brought together two disciplines that have been developed since the 1960s. The first one was radical development geography that stood against Malthusian explanations of ecological crisis and criticized mainstream environmental research for neglecting political economy or the structural reasons for environmental degradation. The second one was ecological anthropology that was interested in environmental topics within anthropology and looked for ways to explain environmental adaptations through the relation between cultural forms and environmental practices (Bryant 1998, 80–81). Political ecology has evolved considerably since Piers M. Blaikie’s foundational book *Political Economy of Soil Erosion in Developing Countries* (1985) but has maintained its interest in power relations and the way they relate to environmental injustices. The first generation of political ecology was influenced by Neo-Marxist thought and generated studies with rich empirical insights, but tended to explain environmental degradation essentially with class struggles, inequalities and capitalist relations of production (Bryant 1998, 82). The second generation of political ecology was influenced by Foucauldian discourse theory, post-structuralism, ecofeminist writings, household and everyday resistance studies, among other theories (Bryant 1998, 82).

The first analytical focus I have in this research is **rural women and men's climate change adaptation practices**. I see them as coping strategies executed 'on the ground' at the local community level. Thus, they constitute responses to climate change that I see as both a physical transformation and a cultural construction. I study these practices to reveal their relation with embodied vulnerabilities, as well as struggles over the meaning of climate change as much as on the material practices of climate change adaptation. The related research sub- question I am asking is:

1. How do gender and other potential factors of oppressions and privileges such as ethnicity, age, class and geographical location shape agricultural and climate change adaptation practices in rural Nicaragua, and how are rural communities (and their members) inserted into the climate change regime through their practices?

The second analytical focus I define is the **(gendered) politics of climate change in Nicaragua**. As Adrian Leftwich writes in the classical book *What is Politics: The Activity and its Study*,

politics comprises all the activities of co-operation and conflict within and between societies, whereby the human species goes about organizing the use, production and reproduction of its biological and social life. These activities are nowhere isolated from other features of life in society, private or public. They everywhere both influence *and* reflect the distribution of power and patterns of decision-making, the structure of social organization, and the systems of culture and ideology in society or groups within it. And all this may further influence and reflect the relations of a society (or a group or institution within one) with both its natural environment and with other societies (or groups and institutions within them) (1984, 64–65 emphasis in original).

For my research, what is important in this definition is that studying climate change politics entails analyzing the origins, forms, distribution and control of power within the activities related to climate change. It includes analyzing climate change policies but also their origins, their differentiated understandings and applications 'on the

ground’, as well as their acceptance or reactions (if any) to them. By having (gendered) politics as one my central preoccupations in this research on climate change, I want to underscore an important assumption in this research that relates to political ecologists’ wish to re-politicize environmental problems: namely that the intersection of climate change and gender is a political issue and not a ‘natural’ problem of societies and their environment. Therefore, they need to be resolved politically. The related research sub-question I am asking is:

2. How do current Nicaraguan post-neoliberal climate change adaptation politics include concerns for gender and other potential factors of oppressions and privileges such as ethnicity, age, class and geographical location?

Knowledge is a classical topic in political ecology research (e.g. Agrawal 1995; Bryant 1998; Forsyth 2004; Escobar 1998; Hulme 2010; Ahlborg and Nightingale 2012; Tuana 2013). Among other reasons, it is so because of the Foucauldian influence on post-structuralist political ecologists (e.g. Escobar 1995) who see power and knowledge as inseparable. As what counts as knowledge, and what does not, or who is considered knowledgeable, and who is not, is the result of the workings of power, it would be counter-productive in my research to study knowledge as content. Rather, I focus on the gendered politics of knowledge-making on climate change in Nicaragua. The related research sub- question I ask is:

3. How is knowledge on climate change adaptation created and translated to the people ‘on the ground’ in Nicaragua? In which ways (if any) do these processes (re)produce or challenge intersectional power relations?

The fourth analytical focus in my research is related to the previous three. It is interested in the subjectivities²² that emerge through “the ways in which people are brought into relations of power” (Nightingale 2011a, 123) in the practice of climate change adaptation, in the frame of climate change adaptation politics, and in the politics of knowledge creation on climate change. The related research sub- question I ask is:

4. How do climate change and the process of climate change adaptation (re)create or challenge existing subjectivities in rural Nicaragua? In which ways (if any), do resistant subjectivities emerge in this process?

Of course, these four analytical foci are interrelated. Climate change adaptation practices constitute the primary lens through which I study climate change adaptation: it is there that I place my primary gaze as a researcher. Climate change adaptation practices are the visible result of climate change adaptation politics, climate change adaptation knowledges²³, complex subjectivities, as well as the resistances to these three elements. Conversely, climate change adaptation practices are also at the core of the emergence of politics, knowledge and subjectivities related to climate change adaptation.

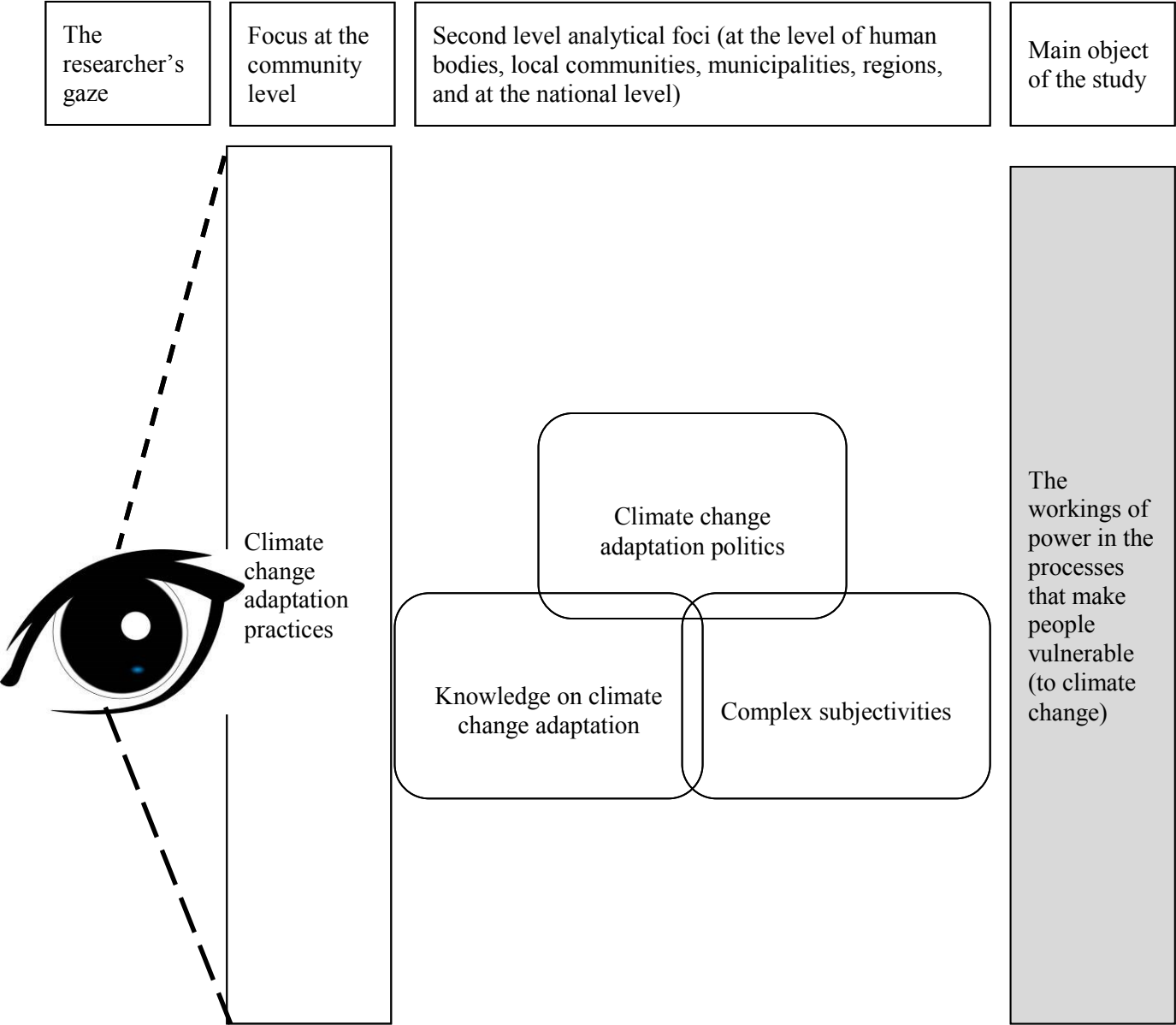
Figure 2 schematizes my research foci and the respective analytical levels at which I study them. The eyeball on the left of the figure represents the researcher’s gaze. Reading the figure from left to right allows going from visualizing my research

²² Throughout my research I use the word subjectivity instead of identity with this this focus on power relations that contribute to constructing them. As Nightingale highlights: “[s]ubjectivity is often conflated with identity, but the two concepts are different in important ways. Subjectivity refers to the ways in which people are brought into relations of power, or subjected, which is part of how identities emerge” (Nightingale 2011a, 123). Thus identity is a sort of fixed image of subjectivity.

²³I purposefully use the term knowledges in plural to highlight the situated character of knowledges on climate change. I build on Donna Haraway’s concept of “situated knowledges” she coined to argue that only by grasping a multiplicity of perspectives on the surrounding world is it possible to get closer to ‘objectivity’ (Haraway 1988).

focus at the community level to the main object of my study: the workings of power in the processes that make people vulnerable.

Figure 2. Research foci and analytical levels



(Source: author's design, picture from <https://pixabay.com/en/eye-human-see-vision-look-eyeball-303653/> under CC0 Public Domain license, consulted 11/05/2016)

The research objectives were defined on the basis of the four research sub-questions. They are intended to break the questions into feasible study objectives that together, contribute to answering these questions. They are presented in Table 11 in

Appendix 1, together with all the elements of the research rationale developed until this point: the main research question, the research aim, the research sub-questions, the concrete research objectives as well as the analytical levels that are mobilized for each of them.

In sum, my research aims to analyze the relationship between climate change adaptation on the one hand, and gender and other potential factors of oppressions and privileges on the other, based on empirical observations in contemporary rural Nicaragua. I am interested in the experiences of Nicaraguan small-scale farmers in relation to the biophysical impacts as well as the dominant discursive constructions of climate change. I am focusing on the factors that may become oppressions and privileges when it comes to the process of climate change adaptation, by analyzing (i) Nicaraguan rural women and men's climate change adaptation **practices**; (ii) Nicaraguan climate change adaptation **politics**; (iii) the process of **knowledge** creation on climate change in Nicaragua, as well as; (iv) the creation of new **subjectivities** under the effects of climate change. With a nested approach that puts rural women and men's experiences of climate change at the center of its preoccupations, my analysis cuts across levels as it looks both at the biophysical and the discursive impacts of climate change (generated at the global, national and regional levels), as well as at the ways in which populations perceive, and adapt to these effects at the local level (local and embodied levels). The research objectives are explored through an engaged, multi-sited feminist ethnography of climate change adaptation conducted between 2013 and 2014 in Nicaragua.

Structure of the dissertation

This dissertation is organized into six chapters. In this Introduction, I have set the broader context in which the research takes place, established the research problem,

and presented the methodological and theoretical approaches, as well as the analytical framework of my research. I have delineated my research aim, the research questions and objectives. I highlighted how this research contributes to filling gaps in knowledge.

In Chapter 1 called “Methodology: Power, emotions and engagement in qualitative case study research on climate change”, I assert that a qualitative case study research is pertinent to study rural women and men’s experiences on climate change. I present my case study, as well as the way in which I study how vulnerabilizing processes unfold in the specific Nicaraguan context through my case study. I demonstrate that special attention to power, emotions and engagement are key to understanding the workings of power in climate change adaptation politics. In addition, I present my research methods, data, and discuss some ethical questions.

In Chapter 2 called “Theoretical framework: Understanding climate vulnerability through intersectional power”, I build on the most recent conceptualizations of climate vulnerability as multidimensional and relational, as well as the work of feminist political ecologists. I show that the (re)production of climate vulnerabilities is best understood through a fourfold focus on climate change adaptation practices, politics, knowledges and the subjectivities at play in the process of adaptation.

In Chapter 3 entitled “Vulnerability as embodied practices”, I discuss particular climate change adaptation practices ‘on the ground’ and analyze whether and to what extent gender and other social factors determine the adaptation practices that are put forward by the farmers. I also discuss the relation between vulnerability and practices by mobilizing a perspective that sees adaptation as relational and multidimensional.

In Chapter 4 called “Gendered marginalizations in post-neoliberal climate change politics”, I demonstrate that the gendering of current environmental and climate change politics reinforce gendered and other types of oppressions in rural Nicaragua, thus impeding the construction of a feminist response to climate change. For this end, I explore Nicaraguan development, environmental, climate change, social and gender politics both during the neoliberal and the post-neoliberal era.

In Chapter 5 called “The making of climate change knowledge”, I unpack and investigate the practices around the development and the translation of climate change knowledge in Nicaragua, a process started during the first decade of this millennium by institutions considered experts in the area: research, governmental and international agencies. I focus on two different levels at which this process occurs: first, I am interested in the practices through which researchers generate knowledge on climate change and the way this knowledge feeds into policies and interventions that have impact in my research communities; second, I analyze the knowledge-translating practices employed by climate change adaptation project practitioners to their rural audiences for them to take measures for climate change adaptation. I show that both processes contribute to creating, and are embedded in unequal power relations.

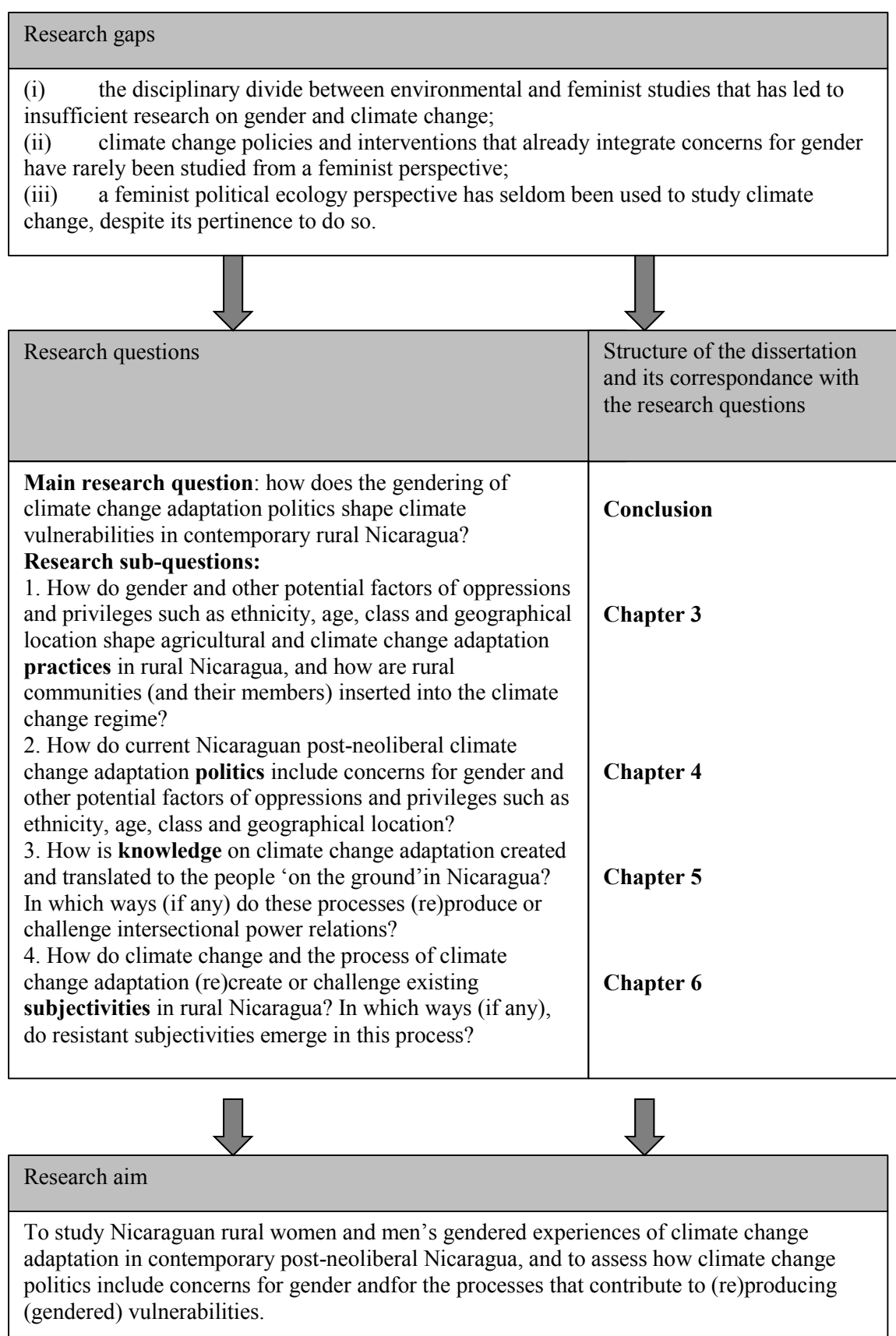
In Chapter 6 entitled “Contested gendered subjectivities in the era of post-neoliberal environmentality”, my aim is to analyze discursive and cultural constructions of hegemonic gendered subjectivities that shape the way climate change is addressed in rural Nicaragua on the one hand, and, how the rural ‘subjects’ of climate change adaptation policies and interventions challenge these hegemonic gendered subjectivities on the other. With this aim, I explore how gendered subjectivities such as the virtuous and vulnerable women and the masculine cattle ranchers susceptible for conversion into cocoa-producers figure in local explorations of

climate change adaptation, while making invisible men who cook, fetch water and fuelwood, or raise children alone. I am also interested in understanding the reasons why some people resist implementing climate change adaptation and whether this resistance is related to their gendered subjectivities. To do so, I focus on those practices of climate change professionals that contribute to reproducing hegemonic gendered subjectivities as well as on the ways these constructions are transformed and challenged by rural women and men in the context of climate change.

In the conclusion of the dissertation, I summarize my research findings, highlight the main contributions of my research and present its implications.

Figure 3 recapitulates the research logic as well as the structure of the dissertation.

Figure 3. Research logic and structure of the dissertation



CHAPTER 1. METHODOLOGY: POWER, EMOTIONS AND ENGAGEMENT IN QUALITATIVE CASE STUDY RESEARCH ON CLIMATE CHANGE



Picture 3. Author interviewing in the community of El Pijibay

(Photo by a research participant, 28/03/2014)

“No feminist should produce knowledge that claims to have universal applicability to all women (and men)” (Rose 1997, 307).

Introduction

The way climate change adaptation strategies are enacted, transformed over time, and/or resisted (both discursively or in practice) illustrates Nicaraguan rural women and men’s experiences of climate change adaptation within their particular relation to the environment. These enactments, modifications and resistances can be studied for example through how rural women and men adopt the practices promoted by climate change adaptation projects. However, to understand the complexity of the adaptation process, it is not enough to just look at, for example, how many cattle ranchers convert to cocoa producers with the conviction that it is better for the environment. Similarly it will not be enough to count the number of households who use the wood-saving cooking stoves promoted by climate change projects under the label of climate change adaptation ‘technologies’.

Together with observing changes and inertia in practices and discourses, it is also important to hear rural women and men’s opinions about these changes and inertia. Observing these practices, and their modifications and hearing the discourses as well as their rationalization by rural women and men can indeed reveal dissonances between discourses and practices, which can uncover adaptation strategies that sometimes are related to other stressors than climate change. For example, to benefit from wood-saving cooking stoves from a climate change adaptation project in El Nancite, one of my research communities, future beneficiaries were asked to destroy their former stoves. This measure was explained by a climate change adaptation project technician by stating that the use of two stoves (the new wood-saving stove and people’s ‘old’ one) would have a counter-productive effect on reducing wood usage and on decreasing smoke emissions. More than counting beneficiaries and

adoption percentages of new stoves, which practitioners usually tend to do (e.g. Benavidez and Olivas, n.d.), it is interesting to understand why some people destroy their old stoves while others do not, despite being advised by the project to do so.

In most cases, the reasons behind the adoption of a climate change adaptation strategy (be it prompted by a project or not), rather than another is intimately connected with different type of stressors, but also personal life stories, subjectivities and their transformations. For these reasons, following Carla Roncoli, Todd Crane and Ben Orlove (2009), I argue that the type of qualitative research undertaken by anthropologists concerned with environmental and social justice (e.g. Escobar 1997) is particularly suitable for my endeavor. Furthermore, in depth case study research is well suited for undertaking qualitative research to understand complex societal issues (Flyvberg 2006) or to “uncover the larger forces shaping conditions in the case” (Small 2009, 20). Precisely, it is to uncover the larger forces that contribute to (re)producing gendered climate vulnerabilities in the specific Nicaraguan context that I use case study research. In addition, case study research allows collecting “multiple readings of a single case and aggregates them into social processes” (Burawoy 1998, 15). The multiple readings I am undertaking is justified in my research by the fact that I want to give voice to the ones who are seldom listened to by the climate change expert community, namely rural women and men. Finally, case study research is well suited for identifying exceptions to something that is admitted as a rule or a general tendency, because of its in-depth approach (Flyvbjerg 2006, 228).

In the first section of this chapter, I explain how and why I chose my case study, how I approach it methodologically, and describe the case itself. In the second section, I discuss my own research process and in particular how I study the workings of power in the processes that make people vulnerable to climate change, which

constitutes my ultimate analytical interest. In particular, I show that attention to emotions can help to highlight how power influences both the research process and my research participants' experiences of climate change. Additionally, I stress that emotions in research on climate change can become a methodological tool that help to make the research engaged with, and critical towards the dominant scientific, masculinist and top-down construction of climate change, thus contributing to the (re)politization of the issue. Finally, the third section presents my research methods, which are a combination of participant observation, interviewing, document review, focus group discussions and participatory mapping. In the last section, I also discuss some ethical questions related to my research methods.

1.1. The case study

1.1.1. The choice of a critical and paradigmatic case study

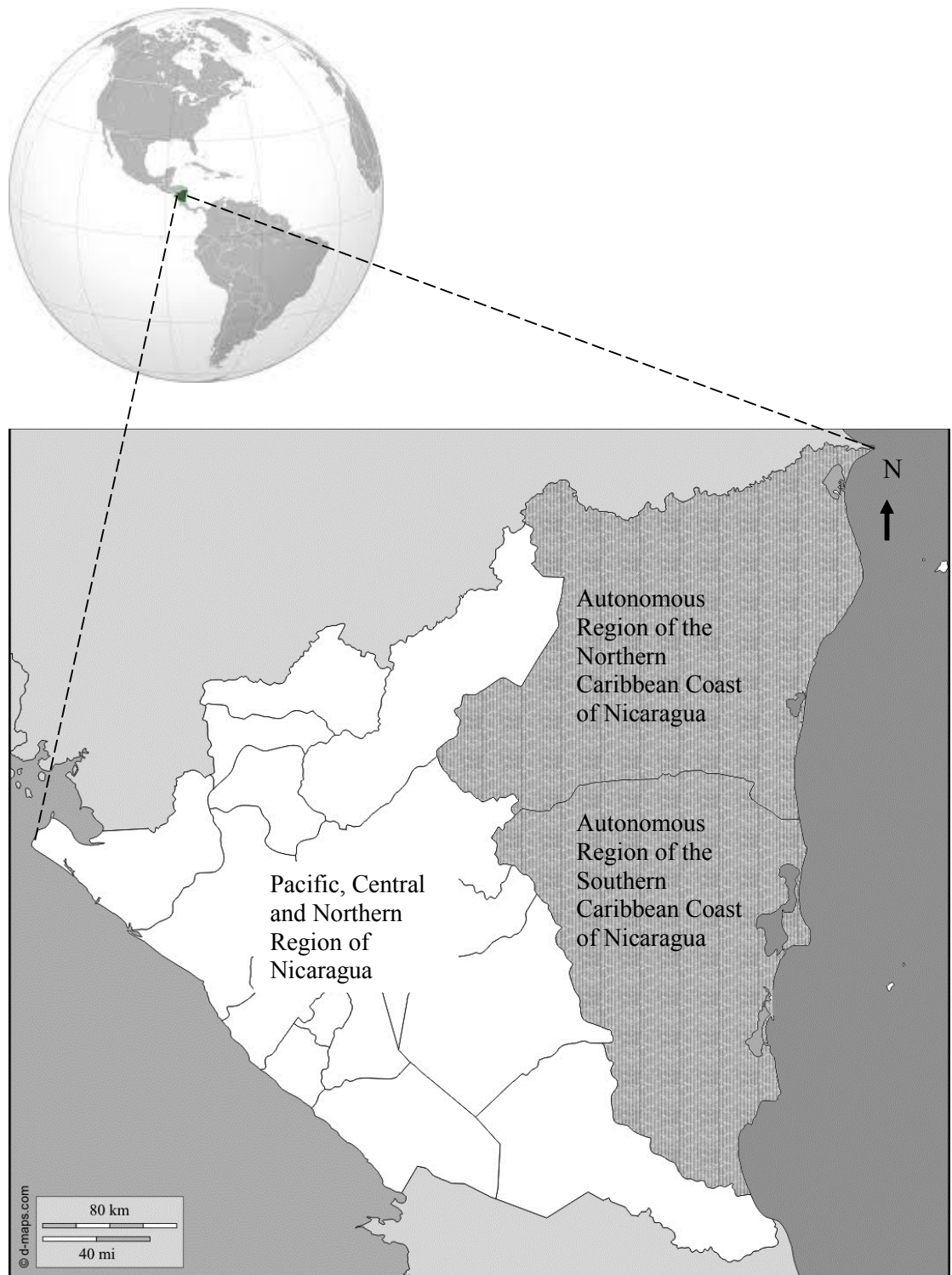
Bent Flyvbjerg (2006) underscores that the choice of the case study is key in the research process and should be led by a clear research strategy. In my situation, this strategy was driven by two important elements. First, I needed a case study that was critical (Flyvbjerg 2006), *i.e.* “likely to either clearly confirm or irrefutably falsify propositions or hypotheses” (Flyvbjerg 2006, 231). I wanted to be able to understand how Nicaraguan climate change politics that integrate concerns for gender contribute to (re)producing gendered climate vulnerabilities, to be able to conclude whether the integration of gender in gender-neutral climate change politics can be satisfactory from a feminist point of view. My strategy was to choose a case that would be in addition paradigmatic (Flyvbjerg 2006) *i.e.* that had the potential to highlight general characteristics of the society that I am studying, similarly to Clifford Geertz's research on Balinese cockfight (1972), which revealed important features of the Balinese society. In my case, studying climate change adaptation politics in a post-

neoliberal context allows me to reveal important features of so-called post-neoliberal societies, especially when it comes to unveiling how gender roles are reshaped or reinforced by these policies and their implementation.

1.1.2. Case study presentation: two embedded units chosen for their differences

My case study is constituted of two field sites: two rural communities in two different regions of Nicaragua: (i) the Pacific, Central and Northern Region, and; (ii) the Autonomous Regions of the Caribbean Coast of Nicaragua, which were selected for their significant differences. The geographical location of Nicaragua within the American continent, as well as the two regions in which my research communities can be found, can be seen on Map 1.

Map 1. Geographical location of Nicaragua within the American continent, as well as of the Pacific, Central and Northern Region and the two Autonomous Regions of the Caribbean Coast of Nicaragua



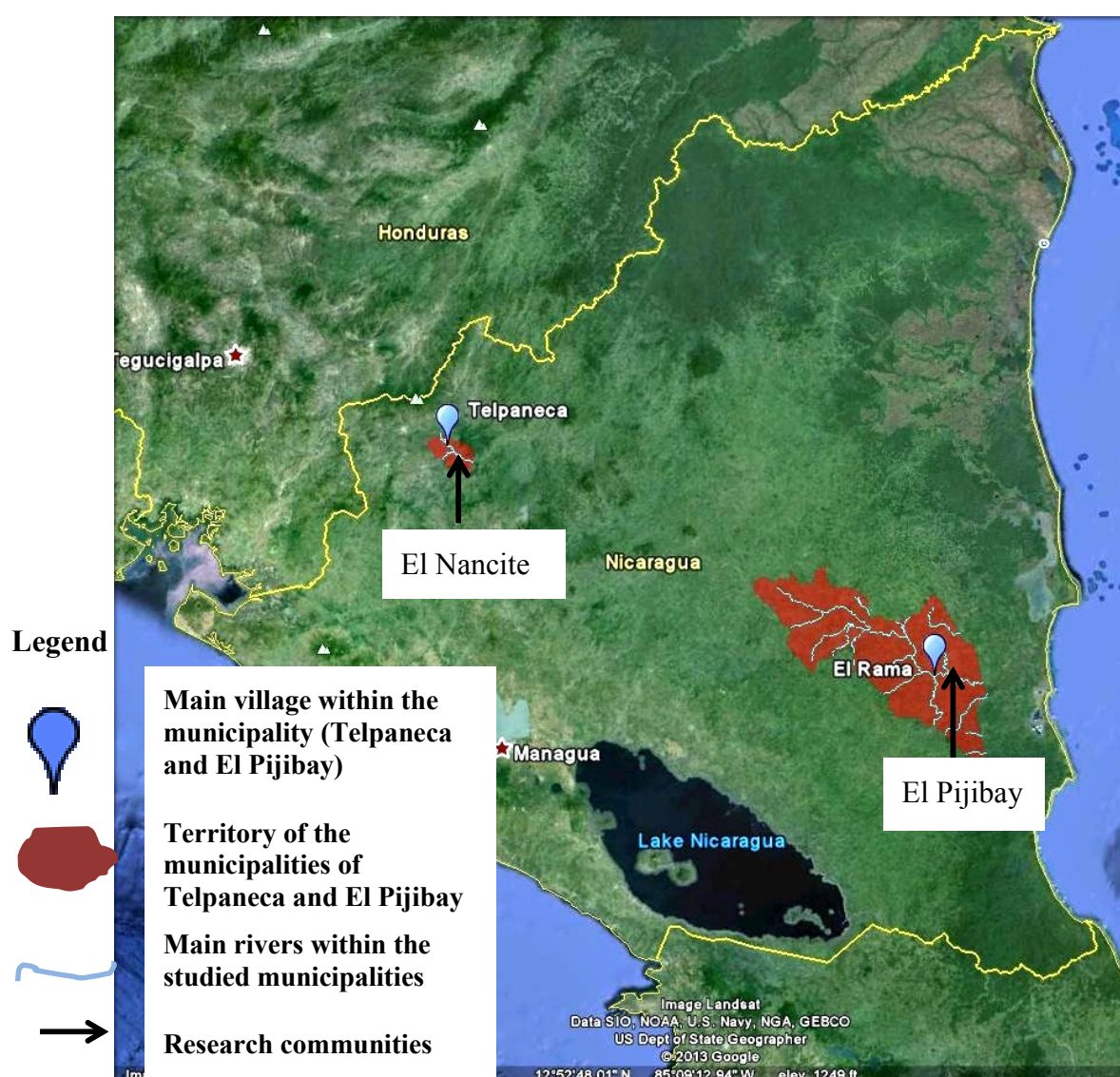
(Author's design using the online maps "Nicaragua within the American Continent" n.d.; and "Nicaragua / República de Nicaragua Boundaries, Departments," n.d.)

Within my Nicaraguan case study, I chose to do field research in two rural communities that constitute the two “embedded units” (Baxter and Jack 2008, 550) within my case study. My choice of the two communities was driven by an effort to look within the case study for critical research units that would help me to “better illuminate the case” (Baxter and Jack 2008, 550). One of the communities I selected for my research is El Nancite²⁴ in the dry region of Nicaragua within the Pacific, Central and Northern region, that since the turn of the decade has been prioritized for interventions on climate change (Campos Cubas et al. 2012), and which has a very strong presence of NGOs. My choice was led by the assumption that it is there that I would most likely witness clearly both the biophysical and the discursive effects of climate change in their full strength. The critical character of the case study became complete with the combination of the analysis of the El Nancite site with that of my second field research site: the community of El Pijibay²⁵ in the humid region of Nicaragua within the Autonomous Region of the Southern Caribbean Coast of Nicaragua, where NGOs barely intervene, and where I did not expect to encounter strong biophysical and discursive effects of climate change. Map 2 shows their geographical location and their respective municipalities.

²⁴The name of the community has been changed. For both communities I gave names of a fruit tree that is widely present in their respective regions. El Nancite is *Byrsonima crassifolia* in Latin, a species of flowering plant native to tropical America, which is valued locally for its small, sweet, yellow fruit, that is very strongly scented.

²⁵ The name of the community has been changed. El Pijibay is *Bactris gasipaes*, a species of palm native to the tropical forests of South and Central America. The tree is appreciated for its sweet fruits but also the heart of the palm, as well as the trunk of the tree that can be used for construction.

Map 2. Geographical location of El Nancite (municipality of Telpaneca) and El Pijibay (municipality of El Rama).



(Author's design with Google Earth and Geocommon files n.d.)

El Nancite consists of 42 families. Its members are mostly small-scale farmers producing maize and beans and some vegetables in small areas of an extremely degraded territory. Some of them own a relatively limited number of animals such as cows, pigs, rabbits and chickens. The landscape of the community has changed considerably in the last fifty years. The pine forests that used to cover the hills have disappeared as a consequence of commercial deforestation activities during the 1970s.

The Green Revolution of the late eighties and early nineties that brought with it the spread of weeding products such as Paraquat has allowed to clear and exploit greater extents of formerly covered land. More recently, cattle-ranching activities primarily from cattle ranchers who do not live in the community, have contributed to even more deforestation and land degradation. In El Nancite, households are relatively close to each other because the agricultural plots are significantly smaller than in El Pijibay. They are also well distributed around the dirt road that unites El Nancite with its two neighboring communities. Picture 4 depicts the landscape of the community of El Nancite.

Picture 4. Landscape of El Nancite respectively in the dry and humid seasons 2014



(Photos: Noémi Gonda, 12/04/2014 and 14/08/2014)

El Pijibay consists of 40 families who have recently (1950s and onwards) settled in the community from the Eastern part of the country. The majority plan to move further and further in the forest even if there is no more available land to exploit. As depicted on Picture 5, the community territory has been massively deforested when most of them arrived in the 1990s, mainly to install pastures. Indeed, the inhabitants of El Pijibay are in majority small and medium cattle ranchers.

Picture 5. Recently deforested and installed pastures in El Pijibay (dry season 2014)



(Photos: Noémi Gonda, 30/03/2014, and 22/02/2014)

By carrying out ethnographic fieldwork in two different albeit complementary communities for my research, I wanted to be able to tell two ‘stories’ about how climate change adaptation plays out in two agro-ecologically, culturally, ethnically and politically different regions. With these two analytical units within my case study, I am not aiming for a comparison; rather, I seek to understand how vulnerabilizing processes unfold in different contexts and contribute to shaping *together* the global politics of climate change in Nicaragua.

In the following paragraphs, I reflect on some of the main characteristics of these two communities, which I find important to take into account when studying the processes that make people vulnerable to climate change. These characteristics are also the justifications for my choice of these communities as the two embedded units of my case study.

1.1.2.1. Political differences: one country, two histories

Nicaragua’s Pacific, Central and Northern region where El Nancite is located, was colonized by the Spaniards for approximately three hundred years (1536 – 1821)

while the Caribbean regions where El Pijibay is located were occupied for two hundred years by the British (1655-1859). The legacy of this parallel history of colonization and occupation is visible both in terms of the spatial organization of the ethnic groups within the country, as well as through the respective administrative structures of the regions. The Pacific, Central and Northern region is mostly occupied by the dominant groups of Spanish speaking *mestizos*²⁶, and Whites, while the Atlantic regions host the greatest proportion of non-Spanish speaking indigenous people and Blacks (Sánchez 2007). This does not mean that there are no indigenous groups in the Pacific, Central and Northern region: they are the descendants of the indigenous groups that were present before the Spanish colonization, and which have been subjugated by the ruling *mestizos* and Whites both during the colonization, and after the independence of the country in 1821. On the Atlantic side of the country, the British occupiers did not establish a colony: rather they allied with some of the ethnic groups of the Caribbean region to guarantee their own control over the occupied territory. Progressively, towards the end of the nineteenth and the beginning of the twentieth century, the territory of the Atlantic Coast was *de facto* allied to Nicaragua as if it was another department of the country (Sánchez 2007) (such as the departments of the Pacific, Central and Northern region that can be seen on Map 8 in Appendix 2). Since then, the government of Nicaragua has been highly centralized and has been ruling from the capital city of Managua. Its political structure is dominated by a strong executive power (whose main figures are President Daniel Ortega and his wife Rosario Murillo since 2007), followed by the legislative power (National Assembly) (Sánchez 2007).

²⁶ Person of mixed ancestry, generally of Spanish and Indigenous.

From the beginning of the twentieth century until the 1930s, the country was marked by the intervention of the United States (US), and by internal conflicts. The conflicts ended with the beginning of a period of thirty-four years of dictatorship by the Somoza dynasty, supported by the US. During the dictatorship, the most fertile lands of the Pacific, Central and Northern region were grabbed by the elites to establish large-scale plantations, while the Caribbean regions served both as an escape valve for smallholder farmers whose lands were turned to plantations, as well as a means to exploit natural resources (González Pérez 1997; in Sánchez 2007). The dictatorship ended in 1979 with the Sandinista revolution's triumph. An anti-imperialist socialist stance characterized the Sandinista government, which implemented, among other policies, a comprehensive agrarian reform and numerous wide-ranging social programs based on grassroots mobilizations and volunteering. The Sandinista revolutionary program was not well received by the inhabitants of the Caribbean regions who were against the program's homogeneous (socialist) view of the population (Schechterman 1993; in Sánchez 2007). A great proportion of these inhabitants allied with the *contras*, - the counter-insurgency army that was against the Sandinista, and that was supported by the US. While the latter is not so typical of the inhabitants of El Pijibay, (several of the men I interviewed such as Don²⁷ Rodolfo, Don Pedro and Don Roque fought with the Sandinista army), it explains in part why the contemporary Sandinista government does not prioritize interventions in this region.

Despite the Sandinista programs' achievements, by the end of the 1980s, Nicaragua was facing economic and social difficulties due to internal and international economic problems and conjunctures, the civil war, as well as the US

²⁷ Spanish equivalent of Mr. It always precedes a male adult individual's name in a formal conversation.

embargo (Brown 1996). The way environmental problems were framed at the time can be illustrated by the responses to hurricane Joan²⁸ which hit the country in 1988 affecting 70 percent of the Nicaraguan population (United Nations 1988). The solutions put forward at that time in order to cope with the impacts of this hurricane revealed a technocratic and material view of the human-environment relations that prioritized rebuilding roads, bridges and houses as well as providing farmers with means of production (Envío Team 1988a; Envío Team 1988b).

After the Sandinistas lost the elections in 1990, Nicaragua entered a neoliberal political era. The negotiations of the country's internal peace included the government's recognition of the ethnic diversity of the Caribbean regions, as well as their right for self-government. Since then, while Nicaragua's government sits in Managua and has executive and legislative power over the entire country, the two Atlantic regions have their autonomous status, and their own regional governments.

In general, the neoliberal period was marked by structural adjustment programs that contributed to deepening social inequalities (Nitlapán - Envío team 1998b; Nitlapán - Envío team 1998a). In this context, hurricane Mitch²⁹, which occurred in 1998, not only contributed to a loss of 27 percent of the 1998 national Gross Domestic Product (GDP) (United Nations 1999) but also "illustrate[d] the continuing environmental damage being wrought by the region's externally driven model of economic development" (Brown and Cloke 2005, 605–606). Because the effects of hurricane Mitch contributed to bringing to light the Nicaraguan society's structural inequalities, it provoked a questioning of the growth-based development

²⁸ Hurricane Joan affected predominantly the Caribbean regions of the country.

²⁹ Hurricane Mitch affected predominantly the Pacific, Central and Northern region of the country.

model and the technocratic view of human-environmental relations (Nitlapán - Envío team 1998b; Nitlapán - Envío team 1998a).

In 2007, Daniel Ortega, former member of the governing board during the Sandinista era, won the presidential elections after sixteen years of successive neoliberal governments. The discursive framing of human-environment relations has undergone significant changes since the beginning of the new Sandinista period that started in 2007 in comparison to that of the neoliberal era. For instance, Nicaragua was the first country to sign the Universal Declaration of the Common Good of Earth and Humanity in 2010, which proposes a shift in the paradigm from modernity to a transition towards the common good: “[t]he new paradigm proposes, as a fundamental option, a balanced social dynamic between individuals, genders and social groups in harmony with nature to promote life and ensure its reproduction” (Houtard 2011, 19).

Thus, choosing El Nancite and El Pijibay as my two research communities, allows me to introduce political and historical aspects in my discussion about the processes that make rural women and men vulnerable to climate change.

*1.1.2.2. Ethnicity: an indigenous and a non-indigenous community*³⁰

Another aspect that led the choice of my research communities was their difference in terms of the ethnic composition of their respective inhabitants. In El Nancite, the inhabitants belong to an indigenous group called *Telpaneca*, settled in the territory long before the Spanish colonization. Only one of the 42 families living in the community is from a non-indigenous origin. The *Telpaneca* people are not recognized officially as indigenous by the central government for several reasons,

³⁰ I call indigenous the people who consider themselves as such (this is also the view in the Nicaraguan census: people are counted as indigenous when they declare themselves as belonging to an ethnic community in Nicaragua) and discuss when external agents (such as project workers) contradict this view and do not consider indigenous the people who consider themselves as such. The term indigenous practice or knowledge then applies for the knowledge held by people who consider themselves or who are considered as indigenous.

among them the ones related to the interests of largeholder cattle ranchers and coffee producers in having access to the lands of the *Telpaneca* People.

On the contrary, El Pijibay is a territory of recent agrarian colonization by non-indigenous people. El Pijibay used to be an agrarian frontier 50 years ago, and most of the families settled there in the 1990s when they arrived from the central department of Chontales, a drier cattle-ranching region which belongs to the Pacific, Central and Northern region of Nicaragua (see Map 8 in Appendix 2 for the geographical location of the department of Chontales). Among their reasons for leaving Chontales were the war during the Sandinista period, and the fact that in their communities of origin, cattle-ranching had become increasingly difficult because of pressure on land, overgrazing and recurrent droughts.

1.1.2.3. Agricultural production systems: staple grains vs. cattle-ranching

The two communities differ significantly in terms of agricultural production systems, which are in direct relation to rural women and men's climate change adaptation options and choices, something that I discuss more in detail in Chapter 3. The history of colonization and the agro-ecological conditions influence the type of production systems that can be found in the two communities. In El Nancite, the majority of the farmers are smallholder staple grain (maize and beans) producers. A large proportion of farmers are farmers without land who sell their labor on other people's land. In El Pijibay, the majority of the producers are smallholder cattle ranchers. Some of them are encouraged to transition to cocoa production by a project. A large proportion of farmers are farmers without land.

1.1.2.4. Presence of organizations and importance of the climate change narrative

To be able to discuss the responsibilities of NGOs in introducing climate change narratives in the communities, I needed to have a research community where such a narrative was present, and where there were many NGOs intervening, and another one where it was absent and that had little presence of NGOs. The presence of NGOs, together with the climate and the agro-ecological conditions, has a direct impact on the importance of the climate change discourse in the communities. In El Nancite, numerous NGO interventions entailed a very present climate change discourse and frequent activities on climate change as the community lies in the ‘Dry Corridor’, considered as the most affected region by climate change in the country. In opposition, the climate change discourse was inexistent in El Pijibay due to significantly less presence of NGOs and governmental institutions because of political reasons but also accessibility issues. This intersected with the fact that climate change is not constructed as a priority under the humid tropical climate of El Pijibay (disaster reduction is more present but in the Northern part of the Autonomous Region which is far from El Pijibay).

In El Nancite, during the period I spent doing field research, there were two projects operating in the community. One was funded by the Canadian development cooperation and functioned in alliance with a Nicaraguan NGO. Its aim was to train youngsters of the community (women and men below 35 years of age) to implement agro-ecological production systems. The other one was a climate change adaptation project executed through a Nicaraguan NGO with UNDP support and with Swiss funding. Five other projects that had recently terminated were widely mentioned by the inhabitants of the community: (i) the municipal government’s project that installed

electricity through solar panels in approximately one third of the households of El Nancite; (ii) Escuela Radiófonica, an organization led by a priest that has been until recently operating in the community for thirty years, building and fixing houses, wells, water reservoirs and encouraging agro-ecological production; (iii) Agronomes et Vétérinaires sans Frontières (AVSF), a French NGO that had a project in the community and its surroundings between 2004 and 2010 in partnership with a local farmers organization, the National Union of Agricultural Producers and Cattle Ranchers (UNAG), and the indigenous government of Telpaneca. The project was targeted towards supporting local small-scale agriculture and the sustainable management of natural resources; (iv) CARE that executed a climate change adaptation project between 2009 and 2011 in the community in partnership with the municipality of Telpaneca, and; (v) Action Contre la Faim (Action Against Hunger), an NGO that supported local agriculture and natural resources management with a project between 2004 and 2007.

My interviews with inhabitants of El Nancite showed that they were used to NGO interventions. The ‘remainders’ of these interventions could be observed in the organizational structure of the community. Indeed, the community had a collective credit system, a community grain storage system, as well as public water sources that all had their respective managing committee constituted and trained by one of the NGOs that had intervened in the community in the previous years. In addition, there were also several committees functioning in El Nancite. When I asked about the different community organizations in El Nancite, my interviewees mentioned 14 that are presented in Table 12 in Appendix 3. I had the chance to witness the functioning of these community organizations in a greater or lesser extent during my stays. Some people in El Nancite still called themselves “promoters” of projects that have been

terminated years ago such as the project of Escuela Radiofónica, and which I do not mention in Table 12 that only lists currently active committees. In general, numerous people were leaders of several of these organizations at the same time. For example, Don Salvador, a man in his early forties, was simultaneously one of the ten leaders of the Cabinet of the Family, Community and Life, the coordinator of the grain storage system, and one of the leaders of the credit system.

In El Pijibay, the situation was significantly different. The only project that intervened in the community during my field research was the one that promoted the introduction of cocoa, executed by a local NGO together with French NGO Agronomes et Vétérinaires sans Frontières, with European funding. This project was itself the continuation of a former project- the first one ever in the community- executed by a local NGO, and which supported sustainable cattle-ranching with European funding between 2007 and 2010³¹. In addition, only the Catholic Church and relatively weak health and school committees functioned in the community, as shown in Table 13 in Appendix 3.

1.1.2.5. Level of organization of the communities

The level of organization of my two research communities seemed to be directly related to the level of interventions of NGOs, the history of the colonization of the community, as well as population density. Most of the inhabitants of El Pijibay settled in the territory of the community in the 1990s: they came from the West pushed by the advancement of the agricultural frontier. While they often came together with their extended families, they did not transpose the organization of their community of origin to El Pijibay. During my stay, the strongest community initiative

³¹This project promoted the installation of electric fences in order to promote its periodic regeneration. The project provided the solar panels for their functioning. In 2014 when I did my field research in the community, nobody used the electric fences anymore. The solar panels were used in the houses.

was the Catholic Church with its local religious leader, the *delegado de la Palabra*³². In El Nancite, the *Telpaneca* indigenous people were already settled in the place before the Spanish colonization. Despite the difficulties they had to face during the colonization, the dictatorship as well as the period of the war, they managed to revive some of their ancestral community decision-making modes such as the Council of the Elderly in the early 2000s.

Due to the agro-ecological conditions and the low population density in El Pijibay, each of the 40 families of the community has its own water source and the households are relatively far from each other, separated by large extensions of pastures. In El Nancite, there are three private water sources used by approximately ten families, while the rest of the 42 families shared the use of three public sources. In El Pijibay, there was no cemetery, contrary to El Nancite, which also shows the difference in the level of community organization.

1.1.2.6. Other livelihood strategies than farming: migrations and their different destinations

Migrations are important in both communities and were important for my research because they constitute adaptation strategies. They were interesting to analyze in two such different contexts. In El Nancite, there are massive temporal and permanent migrations towards Costa Rica and to work in tobacco plantations near the city of Estelí. In El Pijibay, there are massive temporal and permanent migrations to Costa Rica and the buffer zone of the Indio Maíz biosphere reserve (see Map 5 in

³² Local religious leader in charge of the Catholic community at the level of rural communities where there are no priests and/or that are located far from existing parishes. The *delegado de la Palabra* (that can be translated as the ‘delegate of the holy word’) conducts religious services, organizes the local Catholic community, and intervenes in situations in which a priest would be needed (e.g. births, deaths). In Nicaragua, during the 1970s, the Catholic Church was responsible for organizing the peasantry in remote rural communities. It was a complicated task they achieved by wowing together a network of *delegados de la Palabra* that were selected among the farmers (Envío Team 1984).

Chapter 3 for the localization of the Indio Maíz biosphere reserve). There are also increasing permanent migrations to work in palm oil and bamboo plantations that are developing in the close proximity to the city of El Rama.

1.1.2.7. Differing possibilities to access to education

Potential access to education was important in choosing my research communities because I assumed that better possibilities would contribute to better awareness on gender equality and/or climate change related issues. In 2014, only a primary school functioned in El Pijibay with as few as eight children who were taught by the same teacher, no matter what their levels were. There was a constant fear among parents that the school would be closed because of a lack of sufficient students. In addition, the teacher was not from El Pijibay and was often missing since she did not like staying in the community during the week. According to some parents, she was among those who wanted to close the school in El Pijibay. El Nancite had a kindergarten, primary school with three teachers, and ran the two first years of secondary school with several teachers, some of them locals and some of them coming from the city of Telpaneca.

1.1.2.8. Accessibility of the community

Accessibility was also an important criterion in my choice because I assumed that NGOs and information would be more present in a community that is reachable by pick-up, and where there is radio and mobile phone signal such as El Nancite, than in El Pijibay where this was not the case (cell phone signal was reachable from some specific places in El Pijibay though). There is no public transportation to El Nancite but NGO workers get there by pick-up in an hour and half-long ride away from the nearby city of Somoto, where some of them have a regional office (see Map 9 in Appendix 4 for the geographical location of the main cities of Nicaragua). Generally,

people have to walk two and a half hours (mostly uphill) to get to the road where they can take a bus to the city of Telpaneca or towards the Panamerican road that takes them to bigger cities in Northern Nicaragua such as Ocotal, Somoto or Estelí, or even to the capital city of Managua. Including the two and a half hour walk from the community, it can take up to 7 hours to get to Managua. To get to El Pijibay, one needs to take a motorboat from the city of El Rama, which is a seven-hour bus-ride away from Managua. The boat-ride takes about an hour until the quay of El Pijibay that lies on the farm of one of the two cattle ranchers of the community. NGO workers seldom visit this community because they do not like to walk. Sometimes they take their motorbikes on the motorboat but it is not easy to do, and during the humid season, flooding often impedes riding a motorbike in the community.

1.1.2.9. Differences in the local manifestations of gender inequalities

Finally, my choice of the research communities was led by the willingness to find differences in how gender inequality could manifest in two rural, albeit very different communities. In Nicaragua, recent governmental efforts to challenge the manifestations of gender inequality are visible in official statistics whose input data are provided by the Nicaraguan government. For example, in 2011, UNDP reported that only 30.8 percent of Nicaraguan women over 25 years-old had at least some secondary education, while this figure was 44.7 percent for men (UNDP 2011). In 2015, the corresponding figures were 39.4 percent in the female population and 38.3 percent in the male population (UNDP 2015). While this could be interpreted as a significant progress towards gender equality, there is harsh criticism against both the data provided by the Nicaraguan government (Lacombe 2014a) and the modes of calculation of progress towards gender equality (Deere, Alvarado, and Twyman 2012). Therefore, despite the prestigious ranking of Nicaragua reflected through the Global

Gender Gap Index (World Economic Forum 2014), feminist scholars (e.g. Cupples 2004; Kampwirth 2008; Babb 2012; Lacombe 2014a), and workers from different institutions I interviewed (and whose opinion I discuss more in depth further) agree on the fact that Nicaragua remains a highly gender unequal country.

Gender inequality had more visible manifestations in El Pijibay than in El Nancite. For example, in El Nancite, I did not observe any significant gender difference in school attendance, including the first years of secondary school. Among women in their twenties who married and had children early, I met several who re-took their education some years after becoming mothers (it was the case for example of Doña Rosa, Doña Francisca and Doña Sandra). In El Pijibay, it was common that unlike their brothers, once girls had finished primary school, they would discontinue their studies. My observations also showed that they had their first child earlier than in El Nancite. In El Nancite, there was not only more access to education (the ones who wanted to continue secondary school could go to Telpaneca, which was easier, cheaper and safer than to reach Julio Buitrago, a community down the river from El Pijibay where there was a secondary school), women also have easier access to contraceptive pills. In El Pijibay this was not possible (despite an initiative led by Doña³³ Nerina, a the community member who wanted to organize the women of her community to facilitate their collective access to contraception). Table 1 summarizes the main characteristics of the two communities that are significant for my case study and that led my choice of the research communities.

³³ Spanish equivalent of Mrs. It always precedes a female adult individual's name in a formal conversation.

Table 1. Brief characterization of the two communities of inquiry

Community	El Nancite	El Pijibay
Situation and history of the community	Municipality of Telpaneca, department of Madriz within the Pacific, Central and Northern region of Nicaragua directly dependent of the central government	Community of El Pijibay, municipality of El Rama, Atlantic Autonomous Region of the Autonomous Region of the Southern Caribbean Coast (administratively the autonomous region has a special status in relation to the central government)
Climate	Dry tropical	Humid tropical
Ethnicity	Majority indigenous (<i>Telpaneca</i>)	Majority non-indigenous
Dominant production systems	Smallholder staple grain (maize and beans) production.	Small and medium holder cattle-ranching.
Presence of institutions	+	-
Importance of the climate change narrative	+	-
Level of organization of the community	+	-
Importance of migrations	<p>+</p> <p>Destination: Costa Rica and tobacco plantations in the city of Estelí</p>	<p>+</p> <p>Destination: Costa Rica, the buffer zone of the Indio Maíz biosphere reserve, palm oil and bamboo plantations in the close region of the community</p>
Access to education	+	-
Accessibility	+	-
Possibilities for women to access to education and birth control	+	-
Local language	Spanish	Spanish

(Author's design)

To fully grasp how vulnerabilizing processes play out in these two contexts that I chose for their differences, I needed to observe and participate in them. For this reason, participant observation, explained in the following section, constituted my main research method.

1.1.3. “Being there”: the centrality of participant observation in case study research

This research is first and foremost interested in Nicaraguan rural women and men’s experiences of climate change adaptation and in particular their experiences of the processes that contribute to making them vulnerable to climate change. I argue that in the different contexts I presented in 1.1.2., these experiences can be best captured through ethnographic research. Indeed, ethnography focuses on examining how power and resistance emerge in social situations (Burawoy 1991). As Roncoli, Crane and Orlove in their book chapter on anthropological research on climate change stress, ethnographic research can be particularly suitable for research on climate change as it allows for focusing on “systems of meanings and relationships that mediate human engagements with natural phenomena and processes” (2009, 87). Central to ethnographic research is the fieldwork, *i.e.* the research practice of “being there” (Roncoli, Crane, and Orlove 2009, 88). It allows “for a slower accumulation of evidence and for key insights to arise unexpectedly, during experiences that allow glimpses of how the world is experienced by local peoples” (Roncoli, Crane, and Orlove 2009, 88).

While interviewing, focus group discussions, mapping and document analysis are also important, it is this practice of “being there” (Roncoli, Crane, and Orlove 2009, 88) that is central to my research. My participation in the everyday lives of the families in the community and listening to many personal life stories helped me to “illuminate cognitive, symbolic, and even linguistic aspects of climate change, as well as behavioral responses and power dynamics at both micro- and macro-scales” (Roncoli, Crane, and Orlove 2009, 103–104). I lived this participation as a process of

learning about my research participants, about myself, as well as about climate change adaptation in general.

This learning process was best facilitated through participant observation, a research method defined as the involvement in the daily activities of the people and systematic recording of these observations (Lofland and Lofland 1995; in Nygren 2004). In my case, living in the communities meant participating in everyday activities such as water and firewood fetching, cooking, feeding the animals, milking the cows, pruning the cocoa trees, watering the plantations, or attending to project training sessions, but it also meant doing my own research activities: going for interviews in people's houses, at the water sources or the fields, and taking a couple of hours per day to write up my fieldnotes. The pictures below represent some of the activities I participated in during my field research in the communities.

Picture 6. Participation in daily activities in El Pijibay: separating corn kernels and banging on recently harvested and dried beans to separate the grains from the pod



(Photos taken by research participants, 23/02/2014 and 29/03/2014)

Picture 7. Participation in daily activities in El Nancite: fuelwood fetching and watering in the plot of one of the agro-ecology project beneficiaries



(Photos taken by research participants, 11/04/2014 and 23/04/2014)

My participant observation was meant to access information that cannot be grasped solely through interviewing or by reading project documents or reports. This information had to do with people's social position, relation to one another and the differences between what they say and what they do (Lofland and Lofland 1995; in Nygren 2004). For example, in El Pijibay, my interviewees would not talk about deforestation as a current problem and few people would admit that they are themselves deforesting. However, my visits on the plots that showed signs of recent deforestation (such as the one captured on Picture 5), the nearly continuous sound of the chainsaw or my observation that most households owned a chainsaw suggested the contrary: that deforestation was a current activity in which local inhabitants were actively participating. The reason why they were not telling me about it was a puzzle I needed to solve.

In the following section, I turn to the process of my research on climate change adaptation in rural Nicaragua and discuss some of its core constitutive

features: intersectionality, power, emotions and engagement, which are part of my methodological approach.

1.2. Intersectionality, power, emotions and engagement in feminist case study research

My approach to the study of climate change adaptation in Nicaragua is a feminist approach. Following feminist epistemology, I see knowledge (that of my research participants but also the knowledge I am creating) as embodied, always partial, situated and determined historically, locally and personally (Haraway 1988; Rose 1997). From this feminist understanding, four important methodological consequences emerge. They are: (i) the intersectional methodological approach; (ii) the need to see my research process as a power process; (iii) the necessity to highlight the subjectivities involved in knowledge production without marginalizing emotions (Anderson and Smith 2001), and; (iv) the need to do politically engaged research. I elaborate on these in the following sub-sections.

1.2.1. Studying the workings of power in intersectional research

There is no defined methodology for doing intersectional research. However, intersectional research has some conceptual characteristics (Hancock 2007) that I used in my methodological approach. Ange-Marie Hancock compared these characteristics with the ones that describe research that is done with a multiple approach. In Table 2, I highlight what these characteristics entail in terms of methodological consequence.

Table 2. Characteristics of an intersectional research approach in comparison to a multiple research approach

	Multiple approach	Intersectional approach	Methodological consequences for my intersectional research
Number of categories addressed	More than one	More than one	Studying several categories such as gender, ethnicity, class, age and geographical location.
Relationship between categories	Categories matter equally in a predetermined relationship to each other	Categories matter equally; the relationship between categories is an open empirical question	No presumption that gender is more important than any other category. The relative importance of the categories emerge from, and may change in specific social situations.
Conceptualization of the categories	Static at the individual or institutional level	Dynamic interaction between individual and institutional factors	The discursive constructions of femininities, masculinities and/or indigeneity influence individual subjectivities.
Makeup of each category	Uniform	Diverse; members often differ in politically significant ways	Groups sharing the same gender or ethnicity are not considered as homogeneous.
Levels of analysis considered as feasible in a single analysis	Individual <i>and</i> institutional	Individual integrated with institutional	Nested approach (people's experiences are at the center; these experiences must be considered as not separable from politics, or knowledge systems).

(Adapted from Hancock 2007, 64)

The intersectional approach in my research is mobilized to describe the power structures intersectionality creates. Following the characteristics of such research enounced by Hancock and presented in Table 2, the intersectional approach has five main consequences for my research. First, it means studying at the same time (and not separately) how several categories such as gender, ethnicity, class, age and geographical location play out in the processes that make people vulnerable to climate change. Second, it means apprehending the importance of gender, ethnicity, age, class or geographical location as constantly changing in the processes that make people

vulnerable to climate change. Third, it entails seeing the interaction between individual and institutional factors as dynamic: *i.e.* understanding that factors such as gender or ethnicity are not just related to being a woman or a man, indigenous or not indigenous. For example, it means acknowledging that institutions (including the local society) contribute to constructing femininities and masculinities, as well as indigeneity. Fourth, it requires adopting an anti-essentialist stance by rejecting the idea of the existence of homogeneous groups such as ‘the Poor’, ‘Women’, the ‘victims’ or the ‘adapted’ to climate change. It also means rejecting dichotomies between poor and rich or women and men for example. Fifth, it necessitates an analysis that looks at the individual and the institutional levels as co-constructive. Related to the latter, it is important for my research to understand how climate change policies construct their subjects (at the institutional level), but also to understand how these subjects get recognition and accept or resist their constructions (at the embodied, individual, and local levels). For example, what is of particular interest for my research is understanding how subjectivities are enacted and resisted: these enactments and resistances can be, for example, detected through the terms people speak about themselves (e.g. poor, indigenous, single mother). Life stories are useful to understand their transformation in time. Participant observation in turn helps to observe how people enact subjectivities, for example when they negotiate benefits with the climate change project facilitator based on the subjectivity the climate change project attributes them. Thus, the intersectional approach I adopt is one way of studying the power processes that contribute to making people vulnerable to climate change on my research sites.

In the following section, I turn to the process of my research on climate change and discuss another of its important features that needs particular attention: power in the researcher-research participant relation.

1.2.2. Power in the researcher-research participant relation

In ethnography, the knowledge created through research is best understood when seen as the result of social relation and interaction between researcher and research participants. It is a process in which intersubjective knowledge production takes place (van Stapele 2014). The first important feature of such an intersubjective knowledge production process is that power relationships and power differences influence it (van Stapele 2014). Power manifested in my research in the terms research participants used when they talked with me, and what they told me. For example, a gender specialist at the United Nations Development Program (UNDP) who I interviewed in Managua on November 6, 2013 started our discussion by explaining that in Nicaragua, the Women's Ministry had a gender policy that was supposed to guarantee that all Ministries "institutionalize the topic of gender" (paraphrase from notes from the interview with a gender expert at UNDP in Nicaragua, 06/11/2013). She started our discussion with this statement without me having asked any question. As she knew that the interview was going to be on gender and climate change (that is what I had told her previously on the phone), she felt that beginning by stating the governmental framework that UNDP was supporting would give the official background to the interview she supposed I was interested in.

However, my research aim with her was different. This difference relates to the second important aspect of the intersubjective knowledge production process: the fact that researchers have a research aim that can influence the outcome of the research. In the case of the interview with this gender expert, I was interested in her

personal opinion, *inter alia*, whom she considered as the most vulnerable to climate change and on which arguments she based her opinion (see Interview guide in Appendix 5). The fact that she had agreed to give me the interview gave me the power to ask the questions I wanted. However, she chose not to respond to my questions and limited herself to giving me data and information that I could find in public documents instead of giving me her personal opinion in which I was interested. This relates to the third important aspect I want to highlight concerning the process of intersubjective knowledge production: namely that research participants also have their own agenda with the researcher and decide what they want to share or silence (Mills 1997, 20; Ong 1995, 353; in van Stapele 2014). In general, both my research agenda and that of the research participants shape the outcome of the research.

The fourth important aspect of this process relates to another way researchers exercise their power: interpretive authority. Interpretive authority is best illustrated by the 1991 classical piece of Katherine Borland entitled *This is not what I said* in which she analyzed her own grandmother's life through the lens of a feminist struggle. The grandmother, after having read the paper, did not recognize herself in the interpretation. What the granddaughter analyzed as a feminist struggle was a life strategy that did not have anything to do with feminist principles, as understood by the grandmother (Borland 1991). The question of interpretive authority relates directly to the question of validity in research. Indeed, qualitative research "is not about establishing the "truth" of "facts" that exist "out there" (Merrick 1999, 28). As Elizabeth Merrick asks, "if there is no single interpretive truth, how is 'interpretive authority' (Hoshmand 1997) to be established?" (1999). One way to ensure validity in my research relates to what feminist geographers (e.g. England 1994; Rose 1997) have been long insisting on: namely that there is a need to be sensitive to power

relations in fieldwork and that field research must be seen as a dialectical process influenced both by the researcher, the research participants, and the context in which the research is developed. These power relations and this dialectical process need to be clearly spelled out, which is what I am precisely doing here and in the rest of the dissertation.

The fact that emotions are usually marginalized in research, especially when research deals with a topic predominantly constructed as ‘scientific’ such as climate change, is also reflective of the workings of power in the politics of knowledge production. By integrating emotions in my research methodology, I aim to spell out some unequal power relations in which my research is embedded.

1.2.3. Emotions in the researcher-research participant relation

Knowledge cannot be presented separate from the process through which it is made (Stanley and Wise 2000; in Davids 2014). Reflecting on my research encounters allows highlighting the situated character of these encounters, but also exploring the role of emotions both in my research and in my research participants’ embodied experiences of climate change. Following Sara Ahmed’s definition, I see emotions as embodied experiences of social relations (2004b). At the beginning of my fieldwork, the fact that I felt emotional about my interviews was difficult to tolerate. I was not sure how I could overcome emotions, especially the contradictory ones that I had, and be able to present a ‘rational’ research outcome, as I thought I was expected to do. What I felt is an emotional ambivalence that has been described by Jessica Fields as a common feature of feminist ethnography. She highlights:

Our impulse is to resolve the contradiction, to achieve a consistency across our emotional states, to come down on the side of attraction or repulsion, love or hate. (...) [However,] we might come to understand this ambivalence as itself constitutive of feminist ethnography (2013, 497–498).

One of the first interviews I did in El Pijibay was with Doña Esperanza (24/03/2014), a woman in her forties. Once installed on a plastic chair in her humble home, with her eight-year old daughter on her side and her alcoholic husband watching us from the door frame, I introduced my research and myself, and asked her whether she agreed to answer my questions. I told her that I was curious to know her personal story to better understand the people of the community: therefore, I was interested in where she was born, whether her parents had a farm, how and when she got to El Pijibay, among other things. In the second minute of the interview when she started talking about her childhood, Doña Esperanza recounted that her mother died when she was seven years old. Without a blink, she explained that her father, motivated by jealousy, cut her mother's head with a *machete*³⁴ in front of Doña Esperanza and her brothers and sisters who were also children at that time (Interview with Doña Esperanza, El Pijibay, 24/03/2014). Doña Esperanza's interview is just one of the many that shocked me, made me unable to speak or move on with the interview and gave me nightmares even months after I heard them. It is one of the many interviews that I cannot get out of my head even while writing the thesis, long after I have seen Doña Esperanza.

There were other situations when I felt deep compassion, especially in situations that involved vulnerable women. In some occasions, I did not manage to refrain from telling my opinion. It was the case with the parents of Leila, a twelve year-old intelligent little girl who had just finished primary school as the best student of her year when I arrived to El Pijibay. Despite her good academic results, her parents did not want her to go to secondary school. While they supported their two older sons' secondary studies, they explained to me that they decided that Leila would

³⁴Big cutting instrument used for agricultural work.

not continue studying because she was a girl. I tried to convince them that Leila should go to school since she constantly expressed that she wanted to. Her parents were strict: she was needed at home because she was the only female child: she had to do the laundry (I once accompanied her to wash her father and brothers' clothes at the river) and fetch water (fieldnotes and several interviews with Leila's father and mother in El Pijibay, 24/02/2014 and 30/06/2014).

I also advised a desperate fourteen year-old girl to escape from her eighteen year-old husband at El Pijibay. She regretted that she married against the will of her parents and that she had to quit school to do so. She was not well treated by her husband and she missed her life with her mother who would take care of her. She did not dare leaving because she was afraid of losing her honor. I told her that it was better to lose her honor than her young life to domestic violence, a view that sometimes does not match the patriarchal understanding of honor (fieldnotes).

Sometimes, I also felt a mix of empathy and pity for people. It happened, for example, when Doña Rita from El Nancite told me about the lives of the women in the community when she was young, some sixty years ago (Doña Rita did not remember her age and she could not get hold of her identity card the day I interviewed her to check it). She told me how she would hide every time she gave birth (she gave birth eight times). Despite the fact that midwives already existed in the community, she felt ashamed that somebody would see her naked body; therefore she did not ask anybody's help for delivering her children (Interview with Doña Rita, El Nancite, 26/04/2014).

I also experienced hate against injustices. In El Pijibay, I stayed with a family who had a two year-old granddaughter, Crystal, with severe health issues. The young mother had been working in a palm oil plantation close to El Pijibay while she was

pregnant. She was obliged to do so to help her parents who were barely managing to unite both ends on the family farm and to be able to pay her studies and that of her younger brother. Crystal's severe illness is probably related to her mother's work on the palm oil plantation during her pregnancy. Indeed, not only was she obliged to handle toxic products despite her pregnancy, and would have been fired if she would have refused to do so, but at that time she did wear protection because the company did not provide it to its workers (fieldnotes).

The examples above are meant to show how my emotions influenced the research process and the research outcome. However, emotions were also an integral part of my research participants' embodied experiences of climate change. For me, they are as important to highlight than spelling out my own emotions that influenced the research process. For example, when I asked Don Adalberto about his memories on hurricane Joan in El Pijibay in 1988, he told me that when the hurricane happened, he had recently buried on his own agricultural land one of his young daughters who died unexpectedly. The hurricane's high-speed winds wrenched the coffin from the soil and took it hundreds of meters away. After the intensity of the hurricane had decreased, he managed to find the broken coffin, but the corpse of his daughter had disappeared forever, something he extensively elaborated on (Interview with Don Adalberto, El Pijibay, 27/02/2014). For me, it was evident that Don Adalberto's experience of hurricane Joan was marked by the sorrow of having not only lost her daughter to a disease, but also her daughter's body to the hurricane.

Emotions in research, especially on 'problems' constructed as eminently scientific such as climate change, are usually greatly marginalized both when it comes to talking about the research process, and the research outcome. As Kay Anderson

and Susan J. Smith in their editorial on “Emotional geographies” in the journal *Transactions of the Institute of British Geographers* wrote:

This marginalization of emotion has been part of a gender politics of research in which detachment, objectivity and rationality have been valued, and implicitly masculinized, while engagement, subjectivity, passion and desire have been devalued and frequently feminized (2001, 7).

Therefore, highlighting the emotions that I felt while doing my field research, as well as the emotions that I perceived in the stories recounted by my research participants is meant to correct this imbalance. In my research, I want to recognize emotions “as a way of knowing” (Anderson and Smith 2001, 8). They are part of the research process. My role as a researcher is not to overcome or hide these emotions to make my research seem more objective, detached or rational, rather it is to show that they influence and are part of the research process. My research experience is marked by the emotions that I felt towards some of my interviewees and their life stories. The shift in my own subjectivity from the initially envisaged ‘rational’ to the rapidly embraced ‘emotional’ researcher has contributed to changing power relations between the research ‘authorities’ that I assumed would dismiss my research (my professors or the academic community) if it was explicitly emotional, as well as between my research participants and myself. Similarly, my role as a researcher is not to overcome or hide the emotions that mediate rural women and men’s experiences of climate change to make them seem more rational. Rather, it is to show how emotions influence their own experiences of climate change as well.

1.2.4. Positionality

In line with my earlier discussion on why I adopt an intersectional approach in relation to my research and research participants, I do not wish to reduce the discussion on my positionality to a simplistic account of how identity features such as my skin color, religion, sexuality, age and marital status that are supposed to describe

me could have influenced the research outcome. This is the reason why I do not want to write a section on ‘who I am’ in this dissertation: indeed, I do not think that my skin color, my religious beliefs, my marital status, my experiences as an activist or as a former NGO worker in Nicaragua could fully explain the standpoint from which I am speaking and how my research participants see me. Rather, I build on Nicole Laliberté and Caroline Schurr’s stance on reflexivity and positionality:

we must think of reflexivity and positionality as processes: processes that constantly interrogate relationships of power around and through research (2015, 3).

To grasp positionality as processes and give an idea about which features of my fragmented identity may have prompted my research participants to react in certain specific ways to my research, I briefly reflect on an ethnographic moment that occurred during my field research. It happened during my first stay in El Nancite in February 2014. During this stay, while I started to do some interviews, I did my best to meet as many people as I could in the community so I could introduce myself and my research. I knew that some people could remember me from the times I worked with the French NGO Agronomes et Vétérinaires Sans Frontières between 2006 and 2010 even though I had never attended project activities in El Nancite. Indeed, I had met some of the inhabitants at events organized in the neighbouring community of Los Ranchos and in the city of Telpaneca. I explained to the people in El Nancite that after some years spent working, I quit my job because I wanted to study again. I told them that I was doing a study to understand how rural women and men of the communities lived and which difficulties they faced. I explained them that I was staying in the community because I was interested in their lives, opinions and everyday activities I wanted to try out myself, whenever it was possible.

During this first stay in El Nancite, I learnt that the newly elected members of the indigenous government of Telpaneca would officially take up their new role after a ceremony to be held on a Saturday. The inhabitants of El Nancite were invited to the ceremony, and the indigenous government would send a pick-up to the community at 6 o'clock in the morning for those who would like to attend the event that was to start at approximately ten o'clock in the cultural house of Telpaneca. I was motivated because I knew that the ceremony would be a good occasion to hear the official political program of the newly elected indigenous government and also because I heard that many people from different institutions would attend: among them members of the municipal government and different NGOs with whom I was hoping to be able to establish a first contact and organize interviews. Finally, I was eager to go because I had not seen the indigenous leaders of Telpaneca since 2010. I was a good friend with the former president (2006-2010) of the indigenous community, and had a very good relationship with the person who took up this responsibility between 2010 and 2014. In 2014, the new president was the same person who had been the president between 2006 and 2010.

After a shaky and dusty trip we spent squeezed in the back part of a pick-up, approximately thirty members of El Nancite, of other neighboring communities and me arrived in the city of Telpaneca half an hour after the ceremony had started. The former government members had already finished their speech and gave the floor for the new members to speak. When we entered the crowded room that had at least a hundred attendants, the newly elected president was speaking and acknowledging the support of the different institutions to the indigenous government of Telpaneca. I tried to be discrete as I entered and stood in the back corner of the room together with the

other late arrivals. Once he finished his sentence, the newly elected president of the indigenous government pointed towards me and said:

And we would like to acknowledge those who have always supported us in our struggles to make our rights recognized. Among them Noémi Gonda from Agronomes et Vétérinaires Sans Frontières whom I would like to invite to the table of honour, here in front (Paraphrase from fieldnotes).

The newly elected president of the indigenous community of Telpaneca referred to the joint activist work we did to defend their rights on land (including the opposition to a World Bank land registering project) while I was an NGO worker. I knew that this declaration would construct me in a specific way in the eyes of those who did not know me. I immediately knew that this ‘entrée’ of mine was going to be a major impediment for me to get interviews with members of the municipal government as they are in conflict with the indigenous government in relation to land issues. In spite of my efforts, I did not manage to interview the mayor despite my insistence (she cancelled our first appointment and then gave me another one she cancelled on the spot arguing that she had to leave urgently, while referring me to a member of the technical staff who gave me the interview instead of her). Concerning the municipal authority of Telpaneca, in addition to the interview with this municipal technician I only managed to have a very short and executive discussion with the secretary of the Sandinista party whose office is in the municipality.

After the ceremony however, contrary to the municipal representatives who seemed to be influenced, the inhabitants of El Nancite did not seem to change their position towards me and not consider me as a person genuinely eager to learn from them or who has a specific political stance. For example, Doña Leonor with whom I stayed in El Nancite would explain to her visitors who would inquire about me that I was living with her to learn about how the inhabitants of the community lived and

farmed. She would also highlight that I would eat her food and go to the river to bathe (fieldnotes) and spend my days talking to people. When my interlocutors in El Nancite would ask about me, they would be interested in how I live in my country, why I did not have children at my age, and other personal topics. I felt that they did not identify me with a current or a past NGO worker. For example, I never got requests about helping them to formulate a project, which I used to get when I used to work with the NGO. Rather, I got requests about helping children to do their homework and about helping in establishing the annual financial balance of the community grain storage system after its members spent several days trying to unsuccessfully consolidate it). Indeed, even if I was a foreigner, NGO workers do not behave as I was: they do not sleep in the houses of the people in a hamac, they do not bathe and wash their clothes in the river, they do not walk long distances, fetch water and wood, attend the local church and community meetings and eat the same food the local people eat.

1.2.5. Reflexivity

As Laliberté and Schurr discuss it in their work on feminist methodologies, attention to emotions in fieldwork reinvigorates a feminist practice of reflexivity.

To attend to emotions within research is to attend to the evershifting social landscapes in which we and the knowledge we produce is embedded (2015, 3).

For Laliberté and Shurr, attending to emotions is also a technique to study the politics of knowledge production and the power dynamics in which researchers and their research is embedded (2015). These power dynamics usually confine emotions in fieldnotes or the acknowledgment part of the dissertation (Laliberté and Schurr 2015). Giving emotions a central place both in my methodological approach and in my empirical analysis is intended to become a political stance: I want to highlight the complexity of the workings of power in both the research process and the process I

study. Attending to our emotional actions and reactions in the field can offer insights on how the researcher and the research process is entangled in larger power structures (Laliberté and Schurr 2015) and in the politics of knowledge production that may reproduce gendered and other types of oppressions. These power structures and politics work at different levels. Their workings started in the very moment of my topic definition when I assumed that to apply for a PhD at the Environmental Sciences and Policy Department of my university, I needed to frame my research in terms of its relation to climate change³⁵. It follows through the fact that in the field I am studying, it is usually geoscientists and not environmental humanists who define the main research questions. These research questions usually do not inquire about the emotions that may influence climate change researchers' research outcomes, or rural women and men's experiences of climate change. Thus, one of the reasons why I spell out emotions in my research process is to be reflexive about my research process.

1.2.5. Towards engagement in feminist research on climate change

My objective with talking about my emotions in the research process is not to reflect on the reasons why the stories of Doña Esperanza, Don Adalberto, Leila or Crystal were particularly moving for me. Rather, like Ahmed, I apprehend emotions

³⁵ When I applied for the PhD program at the Department of Environmental Sciences and Policy of Central European University, my broader research interest was to study development in rural areas from a feminist perspective. Nevertheless, I decided to frame my application in terms of adaptation to climate change. My research topic formulation bore the influence of the effect on me of a governmentality (Foucault 1983; Butler 1997) project in the academia. Indeed, despite the fact that nobody ever suggested it to me, it made me assume that to be accepted in the PhD program on Environmental Sciences and Policy, I needed to frame my research project in terms of its relation to climate change. I complied with what I supposed was the dominant discourse in the environmental field, that of the urgency of the 'problem' of climate change. I did not mind doing so because I knew I could stretch the meaning of climate change in such a way I would be able to talk about rural populations and the processes that make them vulnerable. This anecdote around my PhD application is meant to introduce the idea that power relations are not only likely to shape the process of climate change adaptation 'on the ground', but that my research process is also embedded in power since the moment in which my research topic and my research orientation were designed.

as something that moves my research towards being more than a picture of the ‘reality’. Emotions help me to think about my research in terms of its contribution to processes of social change (S. Ahmed 2004a; in Laliberté and Schurr 2015). In this sense, reflecting on emotional entanglements in research is not just to spell out positionality and reflexivity. Indeed, I also use emotions to understand the world and imagine something better (Laliberté and Schurr 2015). Emotions then become part of a wider feminist practice that aspires to contribute to social change (Laliberté and Schurr 2015). In my case this practice materializes in questioning climate change’s dominant scientific and masculinist framing, Western-centrism, and material orientation. I do so, for example, by putting people’s embodied experiences of climate change at the center of my climate change research and argue that these experiences cannot be fully grasped by only looking at climate change’s biophysical features or by doing vulnerability assessments. Don Adalberto’s story is illustrative of this. In the same interview in which he recounted what happened to the corpse of his recently buried daughter during hurricane Joan, he told me that he did not have significant material losses as a consequence of the hurricane. Still, for the already mentioned reason, he remembers hurricane Joan as a deeply traumatizing experience that certainly changed the way he thinks about hurricanes.

The emotions provoked by the terrifying story of Doña Esperanza, the sadness in Leila’s eyes when I observed her watching some of her former classmates going to school while she had to stay at home, or having accompanied little Crystal together with her mother and grandmother to the hospital in Managua, strengthened my belief in that environmental and social injustices need to be denounced and fought. This research is a feminist study that seeks to denounce how climate change (through both its biophysical and discursive impacts) may hide or (re)produce these injustices.

Sometimes it is its biophysical impacts that render already vulnerable people even more vulnerable. Sometimes, climate change hides or (re)produces injustices through the implementation of climate change adaptation programs as I discuss it in the empirical chapters. Occasionally, the way climate vulnerability is framed implies obscuring the politically and socially contentious character of the question: “why are some people vulnerable?” (Ribot 2014, 670). Some perspectives on climate change hide the need of tackling other injustices like land-grabbing by palm oil plantations, work conditions on these plantations and the lack of support for smallholder farming, while the expansion of plantations benefit from generous governmental support and foreign investment. As Jesse Ribot put it, the contentious character of these issues should not stop our research inquiries. Rather, “[i]t should be fodder for public debate-enabling democratic process around risk and response” (Ribot 2014, 670).

In sum, my feminist study of climate change is much more than just a study of climate change that puts gender relations at the core of its focus. It is a powerful methodology to challenge particular objectivities (Haraway, 1991), as well as hegemonic, masculinist and oppressive constructions of climate change. By bringing intersectionality, power and emotions at the heart of the research methodology, it seeks to contribute to (re)politicizing the climate change debate by denouncing and fighting the social and environmental injustices it (re)produces. By highlighting the workings of power and the role of emotions in my research on climate change adaptation in Nicaragua, my ethnography helps re-negotiate the significance of climate change adaptation at the intersection of science, lived experiences of changes, and subjectivities. It entails (re)politicizing the climate change debate by turning the focus on the vulnerabilizing processes that (re)create social and environmental injustices. This means listening to women and men, smallholder and largeholder

farmers, indigenous and non-indigenous, old and young people, and also being aware of the frames that make me recognize them as such. It also entails an indispensable shift from an interest in women seen as a homogeneous group to a focus on subjectivities and power relations.

With the approach described above, this research was conducted as a case study examining how climate change adaptation practices, politics, knowledges and the subjectivities at play in the adaptation processes may shape gendered climate vulnerabilities on two research sites that I have described previously. In the following section, I turn to the research methods I use.

1.3. Research methods

1.3.1. Data collection

I carried out fieldwork in three different periods. In June-July 2013, I did a six-week long pilot study to identify my research sites, formulate my research questions, test my interview guides, and make some important contacts for my research. In October- November 2013, I went to Nicaragua for five weeks to do a preliminary study on gender and climate change in Nicaragua with the support of the French NGO Agronomes et Vétérinaires Sans Frontières and UNDP in Nicaragua. The study, published in September 2014 in Spanish (Gonda 2014), was based on qualitative interviews mostly with climate change, development and gender specialists. The aim of the study was to grasp how climate change was conceptualized as a (gendered) problem in Nicaragua. The information I gathered during this study has been re-analyzed and integrated in this dissertation, something I formally agreed on with AVSF and UNDP³⁶. Afterwards, I spent twelve months between January and

³⁶My involvement in this publication certainly shaped to some extent my relationship both with AVSF and the UNDP. However, I was always presented and recognized as a PhD student in this process (including the people I interviewed during the period in which I was gathering the information

December 2014 in Nicaragua. The research activities of these twelve months included participant observations, participatory mapping sessions combined with focus group discussions, the organization and facilitation of two national seminars on gender and climate change, interviews, document reviews, as well as several presentations of my preliminary findings to a diversity of public. The chronology of the research activities and their outcomes are presented in Table 14 in Appendix 5.

1.3.1.1. Participant observation: the central research method

I consider participant observation to be the central method in my research, and have described in detail the rationale for this in 1.1.3. Table 15 in Appendix 6 shows the 38 most important events I did participant observation at during my field research. These events range from national fora on climate change, community meetings, to expert debates.

I combined participant observation with a range of different qualitative methods that had different purposes. Together, they allowed me to fulfill my research aim, *i.e.* the understanding of rural women and men's experiences of climate change. Before describing these additional qualitative methods, Table 3 is intended to summarize the totality of my research methods.

that fed into their publication), not as a consultant or an NGO worker. In the events that were organized in relation to the AVSF and UNDP publication, my attendance was always in my quality of a PhD student from Central European University.

Table 3. Summary of the research methods

Research method	Number of participants	Place	Sampling method	For detailed information see:
Participant observation	38 main events	Events I participated in upon invitation	Upon invitation to events (sometimes I asked to be invited) and upon presence in communities	Appendix 6
Interviews	108 interviewees	Research communities, Managua and other big cities in Nicaragua	Snowball sampling in research communities, selection of informants upon recommendation.	Appendices 7 and 8
Analysis of secondary sources	3 national policy documents, and 19 project documents		The three most important national policy documents on climate change adaptation were analyzed. The selection of the 19 project documents for analysis was made upon the fact that they mentioned gender and/or women. They were selected among 52 project documents to which I had access. These 52 documents represent the majority of the existing projects on climate change adaptation in Nicaragua.	Appendix 9
Participatory mapping and focus group discussion	2 workshops	1 workshop in El Nancite 1 workshop in El Pijibay	The participants were selected by the climate change project in El Nancite and by me in El Pijibay (people who I had interviewed previously).	The methodology of the workshops can be found in (Gonda and Pommier 2004).
Events to reconstitute preliminary research findings	1 event in each community 3 events with institutions	1 in El Nancite, 1 in El Pijibay, Estelí, 1 in Somoto, 1 in Managua	The participants were suggested by the organizers of the events	Table 4 presented further

Research method	Number of participants	Place	Sampling method	For detailed information see:
National fora on gender and climate change I co-organized	2 events I co-organized with UNDP and AVSF, each of them with approximately 30 participants	2 workshops in Esteli (one in February, one in September 2014)	The participants were suggested by UNDP, AVSF and me.	The topics discussed in these workshops resulted in a publication (Gonda 2014)

1.3.1.2. Qualitative interviews

108 people (two –thirds of them being inhabitants of the communities of inquiry) were interviewed with the aim of collecting life stories, and experiences of adaptation. I sought to understand how rural women and men perceive climate change and what they know about climate change and climate change adaptation. Concerning the sampling of my interviewees in the communities, I followed a snowball sampling method and repeated the interviews until triangulation of the information. As usual in qualitative research, I did not seek representativeness, rather my aim was to understand the existing variations in the issue that is being studied (Maxwell 1992). I did more interviews than necessary for the triangulation of the information because towards the end of my fieldwork, community inhabitants who I had not interviewed previously, asked me to do so, possibly, because they wanted their views to be considered. As Louise K. Barribal and Alison While highlight(1994), semi-structured interviews are particularly suitable to grasp people’s perceptions on complex and sometimes sensitive issues. They are flexible enough to allow respondents with a variety of identities, subjectivities and perceptions, to freely articulate their opinions.

I interviewed 38 different inhabitants in El Nancite (two of these interviews were collective and some of the people were interviewed two or three times). Among the interviewees, there were 19 women and 19 men. Their ages ranged between 22 and approximately 75 years-old. Graph 1 in Appendix 10 shows the classification of

the interviewees by age range and gender. In El Pijibay, I interviewed 34 different inhabitants (two of these interviews were collective and some of the people were interviewed two or three times). Among the interviewees, 14 were women and 20 were men. Their ages ranged between 18 and 87 years. Graph 2 in Appendix 10 shows the classification of the interviewees by age range and gender. The detailed list of the interviewees together with their pseudonyms, age, gender, community, date and place of the interview(s) can be found in Table 18 (interviews in El Nancite), Table 19 (interviews in El Pijibay), and Table 20 (interviews outside the research communities) in Appendix 8. The interviews in the communities were open discussions with some triggering questions aimed at understanding how my interviewees rationalized the changes in their lives and their surrounding environment.

With the other category of interviewees (the ones who were not inhabitants of the research communities), I did semi-structured interviews following the interview guide presented in Appendix 7. In total, I interviewed 36 people working with different organizations, as well as independent researchers and activists. Graph 3 in Appendix 10 shows their profiles and the number of interviewees for each identified type of profile. More detail about the profile of the institutional interviewees can be found in Table 20.

1.3.1.3. Review of secondary sources

I also reviewed numerous secondary sources such as policy and program documents. They were selected based on territorial specificity (the Central American Region, Nicaragua, and the two regions where my fieldwork took place in Nicaragua). They included most of the accessible documentation on the topic released by the Nicaraguan government and its related institutions, by NGOs, and the documents

released by the different institutions that have influence in the study communities.

Three important policy documents were used:

- (i) The National Environmental and Climate Change Adaptation Strategy for the 2010- 2015 period (Nicaraguan Government 2010) ;
- (ii) The National Human Development Strategy for the 2012 -2016 period (Nicaraguan Government 2012), and;
- (iii) The National Adaptation Plan to Climate Change and Climate Variability in the Agriculture, Husbandry, Forestry and Fisheries sector in Nicaragua (Nicaraguan Government 2013).

In addition I reviewed in detail 19 climate change adaptation project documents, which I selected based on the fact that they mentioned gender and /or women in their documents. The selection process was made out of 52 documents to which I had access. The 19 projects I studied are listed in Table 21 in Appendix 9.

In the case in which particular media had an influence in the communities like the radio, I also studied their narrative.

1.3.1.4. Participatory mapping and focus group discussion

Furthermore, I did a participatory mapping workshop coupled with a focus group discussion in El Pijibay and in El Nancite to understand the different perceptions of climate change of rural women and men. It is a technique that facilitates dialogue among people with different perceptions or interests over a territorial issue. It is a method that permits constructing knowledge ‘from below’(Rocheleau 1995). Indeed, as Rocheleau stresses, visual inquiry methods are particularly valid for the elucidation of different realities of different people (Rocheleau 1995). In addition, participatory mapping tools have already proven to be pertinent in the Nicaraguan context for encouraging dialogue over agricultural and

natural resources management related issues (e.g. Gonda and Pommier 2004; Gonda and Pommier 2008). In my research, it allowed for a collective discussion on environmental changes according to the perceptions of farmers.

In general, interviews and discussions were recorded and transcribed every time it was possible. Fieldnotes were taken systematically when I was in the communities and written by hand because there was no electricity that would allow me to use a computer. Also, as the trips to the communities were long and difficult, I did not want to risk losing my computer to a robbery, or a fall in the river. Leaving the computer at home was also a necessity as I had to walk a lot to get to the community and I did not want to carry too much weight.

1.3.1.5. Periodical sharing of my preliminary observations in order to receive feedback

Periodical sharing of the observations and preliminary conclusions were organized in the communities and outside to get the feedback from the research participants, which I tried to reflect in my analysis. One restitution of my preliminary findings was organized in each community during my last visit in each one. In addition, the following three research finding restitution events were organized:

Table 4. Events organized in Nicaragua to present the preliminary research findings

Organizing institution	Place	Participants	Date
UNDP Nicaragua	Estelí	Climate change project staff members (3 participants)	16/09/2014
INPRHU Nicaragua	Somoto	People from several communities and organizations with which IPADE is collaborating with on climate change adaptation related issues (26 participants)	20/11/2014
Gender and Climate Change National Network	Managua	12 participants from NGOs , international organizations and universities	11/12/2014

1.3.1.6. National fora on gender and climate change

As the debate on gender and climate change was not significantly present when I started my field research, I thought that one way to make my research useful for the Nicaraguan academic, and NGO community was to start a debate on the topic that could be enriched with my preliminary research findings. This debate and the two national events that I co-organized on the topic led to the creation of an informal network on gender and climate change.

1.3.2. Key informants

Some people became key informants for my research. They were people with whom I established a relation of trust and with whom I held innumerable informal discussions. In both my research communities, my key informants were members of the local families I stayed with. In El Pijibay, I often exchanged with Don Pedro and Doña Nerina who were the grandfather and the grandmother of Crystal, the little girl dealing with illness whose situation I described in Section 2 of this chapter. They would help me solve some of the puzzles I had such as the fact that nobody talked about deforestation despite the fact that most of the inhabitants of El Pijibay were doing it. Don Pedro and Doña Nerina's daughter, the mother of Crystal, Christell became my research assistant and guide in El Pijibay. Due to the large extent of the community and the considerable distance between households, it was difficult for me to get from one to another on my own. Christell was truly helpful, not only because she was studying at the university in El Rama and had good analytical capacities, but also because she was very much interested in my research and the stories the people of her community would share with me. In El Nancite, my key informant was Doña Leonor, the sixty year-old single woman who was living alone and with whom I stayed in the community. While she was a bit less talkative than the members of the

family with whom I stayed with in El Pijibay, she had great advice when it came to elucidating some issues I heard about in the community but could not make sense of.

In addition to the ones I had in the communities, I had three other key informants outside the communities who I could ask questions or from whom I could request help. Two were part of the staff of the French NGO Agronomes et Vétérinaires Sans Frontières that provided logistical support for my research. They were the gender program officer (a woman) and the climate change program officer (a man). Initially, they helped me to establish key contacts for my interviews and shared important documents and insights on the question with me. They arranged invitations to national fora and seminars on climate change to which I would not have had access to by myself. Their opinions appeared to be extremely precious when it came to discussing my preliminary observations.

Finally, I also benefitted from regular feedback from a young woman who had been working for six years in El Nancite and the surrounding communities as an agricultural project facilitator. I knew her since 2004 as she had been working in one of AVSF's projects during the period in which I was the coordinator of the NGO. Not only did she know the context of the community, but she also knew the families, the projects that had been executed in the community in the past, as well as the power dynamics in the community. Discussions with her revealed to be precious to understand some power dynamics around the climate change adaptation project in El Nancite.

1.3.3. Data analysis

To analyze the data I collected via interviews and my observations transcribed in fieldnotes, I broadly used the tools of critical frame analysis, a discourse analytical approach that allows focusing on the multiplicity of meanings and the sense people

give to environmental change (Fletcher 2009) . In my research, following Mieke Verloo and Emanuela Lombardo's guiding questions to study gender mainstreaming in the European Union, I focused on the discursive definitions, causalities, consequences and solutions to climate change that are put forward (2007) especially when they are related to climate change, discursively or otherwise. I asked the same (albeit slightly adapted) questions in relation to each of my analytical foci: climate change adaptation practices, politics, knowledge, and the subjectivities that are created.

This approach implied asking the questions presented in Table 5.

Table 5. Guiding questions for the analysis of the data.

	Guiding questions (Verloo and Lombardo 2007)	Practices	Politics	Knowledge	Subjectivities
Diagnosis	How is climate change defined in the narratives? What is identified as ‘wrong’ in the situation in terms of the human, social, environmental and material impacts of climate change? How is this diagnosis gendered, racialized or how does it integrate other intersectional factors?	How are practices framed as climate change adaptation practices and to which climate change related problems do they seek to give a response? How are these responses gendered, racialized or how do they integrate other intersectional factors?	How are climate change adaptation politics constructed? In these politics, what is identified as ‘wrong’ in the situation in terms of the human, social, environmental and material impacts of climate change? How is this diagnosis gendered, racialized or how does it integrate other intersectional factors?	How is knowledge on climate change adaptation created? What is considered as ‘sound’ knowledge on climate change? How is the process of knowledge creation gendered, racialized or how does it integrate other intersectional factors?	How are the subjects of climate change adaptation defined? Who are the ‘good’ and the ‘bad’ subjects? How is the process of subjectivation gendered, racialized or how does it integrate other intersectional factors?
Attribution of causality	Who/what is/are responsible for the negative impacts of climate change according to the discourses? How is this attribution of causality gendered, racialized or how does it integrate other intersectional factors?	Which practices are considered as ‘bad’? How is this attribution of causality gendered, racialized or how does it integrate other intersectional factors?	How do politics define the responsables for the negative impacts of climate change? How is this attribution of causality gendered, racialized or how does it integrate other intersectional factors?	Who are considered as the ‘ ignorants ’ on climate change? How is this attribution of causality gendered, racialized or how does it integrate other intersectional factors?	Which population groups are identified as responsible for the negative impacts of climate change? How is this attribution of causality gendered, racialized or how does it integrate other intersectional factors?

	Guiding questions (Verloo and Lombardo 2007)	Practices	Politics	Knowledge	Subjectivities
Prognosis	What should be done according to the discourses? What are the coping mechanisms that are put forward in order to deal with climate change's impacts? How is the prognosis gendered, racialized or how does it integrate other intersectional factors?	What practices are considered as solutions to climate change? How is the prognosis gendered, racialized or how does it integrate other intersectional factors?	How do politics define the solutions to climate change? How is the prognosis gendered, racialized or how does it integrate other intersectional factors?	How do different actors conceptualize the type of climate change knowledge that is needed? How is the prognosis gendered, racialized or how does it integrate other intersectional factors?	What type of subjects are needed in order to cope with the effects of climate change? How is the prognosis gendered, racialized or how does it integrate other intersectional factors?
Call for action	Who should do something according to the discourses? Specifically what are the roles given to different actors? How is this call for action gendered, racialized or how does it integrate other intersectional factors?	Who are the people implementing climate change adaptation practices ? How is this call for action gendered, racialized or how does it integrate other intersectional factors?	Who should do something according to politics and what should they do? How is this call for action gendered, racialized or how does it integrate other intersectional factors?	Who is supposed to have knowledge on climate change adaptation and how should these knowledge-holders use this knowledge? How is this call for action gendered, racialized or how does it integrate other intersectional factors?	What role(s) should the subjects of climate change politics have in the fight against the effects of climate change? How is this call for action gendered, racialized or how does it integrate other intersectional factors?

(Adapted from Verloo and Lombardo 2007)

The responses I got through the interviews with independent researchers and activists as well as staff members of organizations were coded along the lines of these questions. I thus coded:

- the interviewees' understanding of some key concepts (diagnosis);
- my interviewees' perceptions of climate change and its consequences (diagnosis and prognosis);
- the most perceived effects of climate change by my interviewees (diagnosis, attribution of causality);
- the solutions given by the interviewees to climate change (prognosis and call for action);
- the climate change adaptation actions to be taken according to my interviewees, as well as;
- the understanding of gender by the interviewees (intersectional aspects).

The main results of this coding were analyzed in Excel and are presented in Tables 22, 23, 24, 25, 26 and 27 in Appendix 11.

The interviews with community inhabitants and my fieldnotes were classified along the same guiding questions after having been coded through the computerized program NVivo through open-coding. As the interviews were discussions about my interviewees' lives, I coded them along the topics that emerged. In total, 100 coding nodes emerged from the analysis. Some nodes constitute partial responses for several guiding questions. Table 28 in Appendix 12 presents the nodes and their relations with the guiding questions (the nodes are preceded by a hyphen). The nodes were used both to detect patterns in the interviews, as well as exceptions to the 'rules'.

1.3.4. Ethical issues

1.3.4.1. Anonymity

The name of the communities has been changed. For both communities I gave names of a fruit tree that is widely present in their respective regions. El Nancite is *Byrsonima crassifolia* in Latin, a species of flowering plant native to tropical America, which is valued locally for its small, sweet, yellow fruit that is very strongly scented. El Pijibay is *Bactris gasipaes*, a species of palm native to the tropical forests of South and Central America. The tree is appreciated for its sweet fruits but also the heart of the palm, as well as the trunk of the tree that can be used for construction.

Picture 8. The fruits of Nancite and Pijibay trees after which I named my research communities



(Photo of Nancite to the left: from frutamex.com.mx (consulted 27/02/2016); Photo of Pijibay to the right by Noémi Gonda, 26/03/2014)

This anonymization was necessary to make it difficult to find my research participants, and protect their lives. I did not change the name of the municipalities (Telpaneca and El Rama) in which the communities are located to provide geographical and historical context. However, I assumed that because numerous communities constitute both the municipality of Telpaneca and El Rama (37 rural communities for the municipality Telpaneca, and 98 communities for the municipality

El Rama), it would be difficult to find out which exact community I am depicting. For this same reason, their location on the maps presented in this dissertation is not exact within the municipality.

Equally, the names of my research participants have been changed. I chose most of the pseudonyms among common names in the studied region. In a few cases, some research participants suggested their own pseudonyms when I told them that in my research their opinions would appear anonymized. None of the people I talk about in the dissertation are composite people: their stories and opinions reflect real women and men's opinions. In cases where I felt that the research participant's story or opinion could put her or him in danger, I decided not to include it in the dissertation. This is something that constitutes one of my research limitations. Indeed, the use of the intersectional perspective would have required from me to analyze sexuality as a potentially advantaging or disadvantaging factor in the vulnerabilizing processes that I am studying. However, the few cases in relation to which I would have been able to talk about sexuality in these terms are so particular and easily recognizable for somebody who knows the communities that I decided not to use them to protect these research participants. This is a compromise I made between research validity (not using composite people to make my argument), and the necessity to highlight sexual minorities' specific difficulties in the context of climate change.

Concerning my interviewees outside the community, I usually asked these people how they would like to be described, and respected their choices (for example, as a feminist activist from somewhere). However, I chose not to display their real names.

1.3.4.2. Consent

At the beginning of each interview I explained my research objectives and asked the consent of my research participants to use their opinions, life stories and occasionally their words in my research. I recorded these moments in which they gave me their consent. In relation to the question of sexuality, even though I got the consent of the people I interviewed to use their entire story (including the part in which we discussed sexuality), I decided not to use that part because my sense of ethics told me that it would have not been correct.

Conclusion

Power can be found in the analytical and methodological choices that I make for my research, my relation with research participants, key informants, or the authority I exercise when I interpret my data. Power cannot be separated from my research: it is an intrinsic part of it, which needs to be discussed and embraced. In this chapter, I first presented why a qualitative case study research that privileges participant observation is particularly useful for studying the workings of power in the processes that make people vulnerable to climate change. I also presented some of the main characteristics of the sites that constitute my case study and that could potentially become factors of advantages or disadvantages in the vulnerabilizing processes. Second, I illustrated how power influences my research and how my research is embedded in power. I showed that an intersectional ethnography that gives a preeminent role to emotions and engagement in the fashion feminist scholars practice it (e.g. Rose 1997) is the best way to investigate power in climate change adaptation. In the following chapter, I present my theoretical approach to my research problem by first discussing the shortcomings of current theoretical understandings of the processes that make people vulnerable to climate change, and second, by

presenting my own, original approach that puts intersectional power at the center of its concerns.

CHAPTER 2. THEORETICAL FRAMEWORK: UNDERSTANDING CLIMATE VULNERABILITY THROUGH INTERSECTIONAL POWER



Picture 9. Traditional Nicaraguan dance performed in front of the members of the organizing committee at the opening ceremony of a national workshop on the integration of the gender perspective in climate change adaptation interventions

(Photo: Noémi Gonda, 30/09/2014).

Introduction

Significant and rapid evolutions have marked the theoretical and conceptual understandings of climate vulnerability in climate change adaptation scholarship and practice since the first assessment reports of the Intergovernmental Panel on Climate Change. In this chapter, I explain how I theoretically and conceptually approach the (gendered) processes that may contribute to making rural women and men vulnerable to climate change. To do this, I first recall the most recent evolutions in the conceptualization of climate vulnerability in Section 1. I explain how I understand climate vulnerability in my research in Section 2. Then I present how I theoretically and conceptually approach the processes that may contribute to making people vulnerable to climate change in Section 3.

2.1. A significant shift in the vulnerability paradigm

The concept that is supposed to reflect the possible consequences of the effects of climate change on particular people, societies, environments, regions, countries, or other specific human, societal, or ecological units is the concept of vulnerability. Rooted in hazard studies, disaster risk reduction, and work on food security and sustainable livelihoods, studying vulnerability entails looking at drivers of systemic changes with a special attention to “values, agency, assets, and power as the most critical actor-oriented determinants of change” (Tschakert and Tuana 2013, 77). Adaptation seeks to reduce vulnerability to present and future changes by reducing their impacts, both direct and indirect (O’Brien 2012, 668). Within the concept of vulnerability, factors such as gender, class, age, ethnicity and geographical location matter, but in different ways depending on how climate vulnerability and climate change adaptation are conceptualized.

In this section, I focus on the conceptualizations used by the Intergovernmental Panel on Climate Change³⁷, first because the IPCC is recognized as the ‘scientific authority’ in the field of climate change and their reports are widely referred to by governments and policy makers. Second, the IPCC’s reports reflect the advances in the field from early impact studies to multidimensional vulnerabilities and intersecting inequalities based on the available literature (2014c). Thus, the literature on climate vulnerability and adaptation available until 2006 have fed into the IPCC’s Fourth Assessment Report (2007). The scholarship has evolved since, which is reflected in publications up to 2013, summarized in the IPCC’s Fifth Assessment Report (2014b). I highlight how these conceptualizations evolved in the way they reflect the gender, class, age, ethnicity and geographical location-related power processes through which vulnerabilities are produced, recreated and possibly challenged in climate change adaptation.

2.1.1. Shortcomings of the earlier approaches to vulnerability

In its report published in 2007, the Intergovernmental Panel on Climate Change defined vulnerability to climate change as “the degree to which geophysical, biological and socio-economic systems are susceptible to, and unable to cope with, adverse impacts of climate change” (IPCC 2007, 783). The 2007 definition showed that the IPCC was essentially concerned with assessments of the “global warming problem” as well as of the potential that human and ecological systems have to adapt to the changes (Kelly and Adger 2000, 329). The IPCC’s 2007 conceptualization of vulnerability relates to what P. Mick Kelly and W. Neil Adger call “outcome

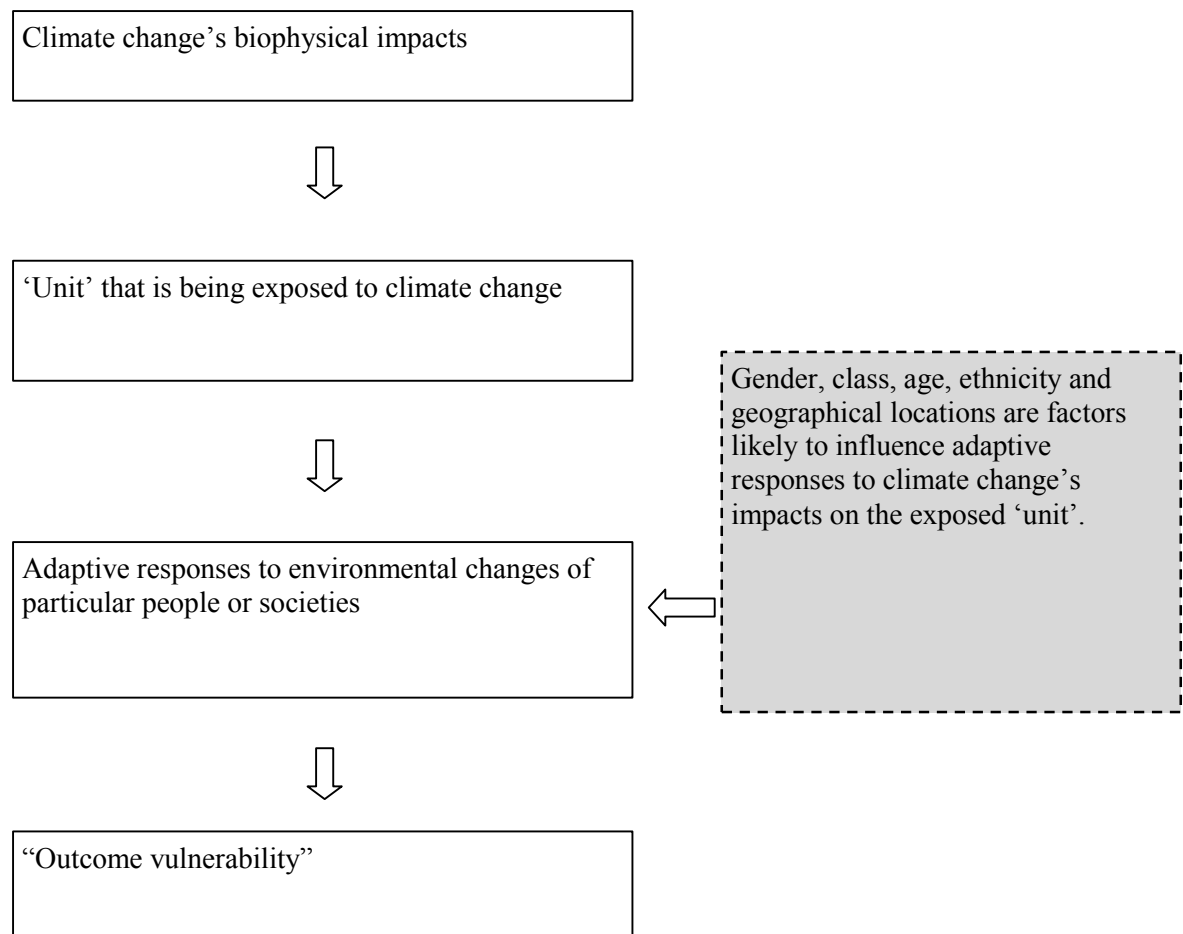
³⁷ The IPCC is a scientific and intergovernmental body. Thousands of scientists from all over the world contribute to the work of the IPCC. Its membership is open to all member countries of the United Nations and World Meteorological Organization.

vulnerability³⁸ (2000). In this approach, the degree of vulnerability to climate change equals the harm that climate change is susceptible to make, for example, to a particular population, minus the adaptive actions that this population will implement and which will contribute to reducing the final harm (O'Brien 2012, 75).

Concerning gender, Chapter 17 of the IPCC's fourth assessment report accorded half a page to the "gender aspects of vulnerability and adaptive capacity" (Adger, Kajfež-Bogataj, et al. 2007, 730). It stated that women may be more severely affected by climate change because of their gender roles, and that they may suffer more harm in natural hazards due to gender inequalities. It stressed that by enhancing women's access to paid labor, information, means of production and property rights is important to increase their capacities to adapt (Adger, Kajfež-Bogataj, et al. 2007). Hence, in this approach, gender inequality was seen as an impediment to maximizing adaptive actions. Similarly, low adaptive capacity was associated with other population groups considered as vulnerable, such as the elderly and indigenous people. Indeed, the 2007 document stated that: "[t]he specific vulnerabilities of communities with climate-related risks, such as the elderly and the poor or indigenous communities, are typically much higher than for the population as a whole" (IPCC 2007, 791). As shown in Figure 4, the "outcome vulnerability" approach intended to give a linear explanation of the projected effects of climate change (even if adaptation might rely on a multitude of factors).

³⁸ Also called "end-point approach".

Figure 4. The “outcome approach” to vulnerability



(From O'Brien et al. 2007, 75 my positioning of gender and other potential factors of privileges and oppressions in the framework)

In this framing, also qualified as a “scientific” approach, and which was the state of the field by 2007, the focus was on measurements: establishing ‘scenarios’, ‘downscaling’ them to local contexts and promoting adaptive actions for populations who appear in the studies as the most vulnerable due to disadvantages understood as immutable identity factors. Among these disadvantages, the most commonly cited were gender, class, race, ethnicity, and age. In this framing, the center of attention was on ecological systems (nature) (O'Brien et al. 2007) and ‘nature’ and ‘society’ were mostly seen as two separate entities (Castree 2001; in O'Brien et al. 2007). Concerns for gender and other potential factors of disadvantages or privileges for

adaptation were limited to assess the extent to which women and men, indigenous and non-indigenous, old and young, smallholder and largeholder farmers, farmers from the dry or the humid region of the country are (differently) affected by climate change, and to develop indicators that ‘faithfully’ reflect their capacities to adapt (MacGregor 2010). In this framing, the suggested solutions for climate change were predominantly technical. This technical and dichotomist view is masculine as the framing of the problem is tied to environmental modernization and environmental security fields which require, among other aspects, “technical, diplomatic, and military solutions, [which are] entirely consistent with hegemonic (hyper)masculinity”(MacGregor 2010, 231). The fact that in this framing the environment is seen as a ‘manageable’ entity, separate from the human society appears to be “worrying” for MacGregor, as it reflects more neoliberal than feminist or green values (MacGregor 2010, 231).

In sum, the shortcomings of earlier conceptualizations of vulnerability were several: vulnerability assessments used to receive more attention than the processes that make people vulnerable; vulnerability was seen as the result of linear processes in which gender and other social factors could only intervene to weaken adaptive responses, and; the earlier conceptualizations related to a masculine framing of climate change. Together with other feminist scholars (e.g. Nightingale 2006; Elmhirst 2011; Tschakert 2012), I argue that the earlier conceptualizations of vulnerability did not sufficiently open up the space to talk about how potential factors of advantages and disadvantages like gender, ethnicity, age can be mutually constitutive with the environment, and thus how their intersection can intervene in processes that make people vulnerable to environmental changes. The earlier conceptualizations of vulnerability also hampered the fact that climate vulnerabilities

may not only result from the biophysical effects of climate change but also from its discourses, and the process of climate change adaptation itself.

2.1.2. Towards a better understanding of relational and multidimensional vulnerability in the human-security framing

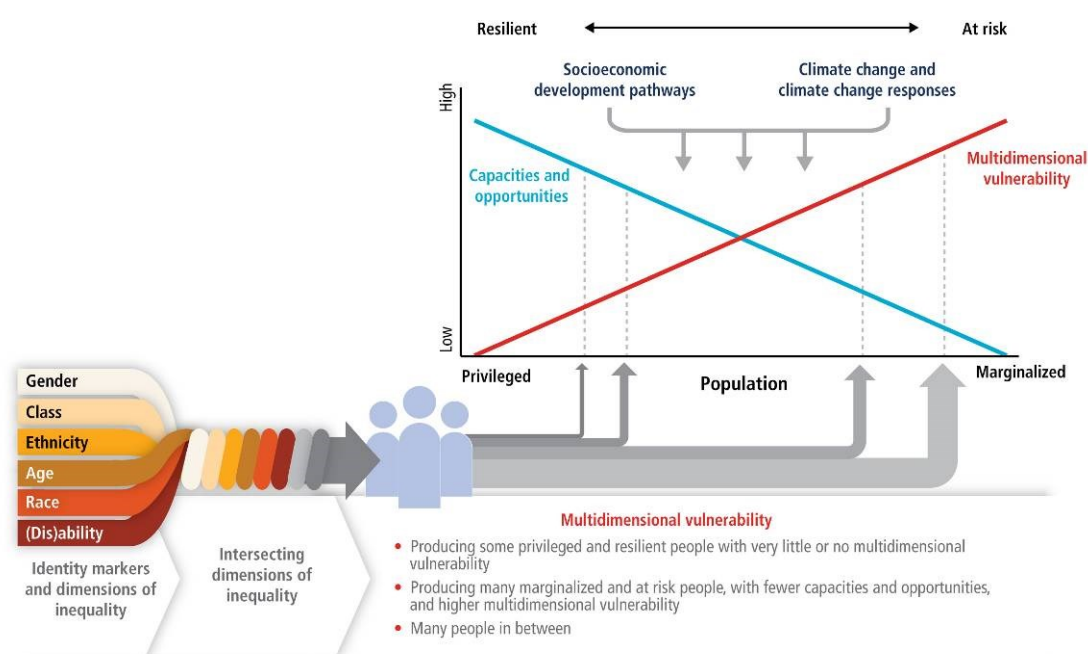
In the fifth IPCC report published in 2014, the definition of vulnerability has been significantly modified in comparison to the 2007 one. In 2014, the IPCC's new definition describes vulnerability as the "propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements including sensitivity or susceptibility to harm and lack of capacity to cope and adapt" (2014b, 4). This new definition includes predisposition as a possible cause for climate vulnerability, which opens the floor to talk about all kinds of previously acquired factors that may contribute to making people vulnerable. Additionally, the 2014 report highlights that climate vulnerability can not only result from climate change related risks, but that vulnerability is most of the times multidimensional, which challenges the earlier linear explanations. It states:

Differences in vulnerability and exposure arise from non-climatic factors and from multidimensional inequalities often produced by uneven development processes. (...) These differences shape differential risks from climate change. (...) People who are socially, economically, culturally, politically, institutionally, or otherwise marginalized are especially vulnerable to climate change and also to some adaptation (...) responses. (...) This heightened vulnerability is rarely due to a single cause. Rather, it is the product of intersecting social processes that result in inequalities in socioeconomic status and income, as well as in exposure. Such social processes include, for example, discrimination on the basis of gender, class, ethnicity, age and (dis)ability (IPCC 2014c, 6).

In Chapter 13 of the IPCC's Fifth Report, the multidimensional character of climate vulnerability (schematized on Figure 5) is understood through its relation to existing, context-dependent inequality, that requires an intersectional lens:

Mounting inequality is not just a side effect of weather and climate but of the interaction of related impacts with multiple deprivations at the context-specific intersections of gender, age, race, class, caste, indigeneity, and (dis)ability, embedded in uneven power structures, also known as intersectionality (Nightingale 2011b; Kaijser and Kronsell 2014; in Olsson et al. 2014).

Figure 5. Multidimensional vulnerability as presented in the IPCC's Fifth Assessment Report



(Olsson et al. 2014, 807)

This new conceptualization shows that in Chapter 14 of the 2014 IPCC report, the framing of climate change adaptation has “moved further from a focus on biophysical vulnerability to the wider social and economic drivers of vulnerability and people’s ability to respond” (Noble et al. 2014, 836). It is also notable that the 2014 definition of vulnerability does not put any limitations on who or what can be vulnerable: the 2007 report’s “geophysical, biological and socio-economic systems” (IPCC 2007, 783) have indeed disappeared from the definition, thereby opening the

floor to a less system-oriented understanding of ‘units’ in comparison to when they were depicted through the neutral term of ‘systems’. In particular, it opens the floor to talk in parallel about “values, agency, assets and power” (Tschakert and Tuana 2013, 76) that may influence climate vulnerability. Another important aspect in the 2014 report is that it recognizes that adaptation actions can potentially contribute to creating and reproducing vulnerabilities, and that they can interact with exposure to risks and existing vulnerabilities (IPCC 2014c, 8).

This framing of vulnerability and adaptation is related to the human-security approach to climate change (O’Brien et al. 2007). According to Karen O’Brien and colleagues, “[h]uman security may involve more than food security or economic performance, and could include (...) sense of belonging, respect, social and cultural heritage, equality and distribution of wealth, dispersed settlement, (...) and control over one’s own destiny” (O’Brien et al. 2007, 77). Indeed, a human security approach is aimed at increasing human freedom and fulfillment (Ogata and Sen 2003; in Tschakert 2012) and is meant to challenge climate change in a way that is intertwined with processes targeted towards development, poverty reduction, and enhancing people’s livelihoods. This framing accords particular importance to vulnerable people’s agency, experiences and knowledges, as well as to specific political, economic, cultural and social contexts that may reinforce climate vulnerabilities. It stresses the importance of solidarity because it assumes that vulnerabilities may be interdependent between spaces and scales (Tschakert 2012):

Human security has been accorded an entire chapter in the IPCC’s Fifth Assessment Report, which identifies climate change’s principal threats on human security as follows:

Climate change threatens human security because it undermines livelihoods, compromises culture, and individual identity, increases migration that people would rather have avoided, and because it can undermine the ability of states to provide the conditions necessary for human security. Changes in climate may influence some or all of the factors at the same time. Situations of acute insecurity, such as famine, conflict, and sociopolitical instability, almost always emerge from the interaction of multiple factors. For many populations that are already socially marginalized, resource dependent, and have limited capital assets, human security will be progressively undermined as the climate changes (Adger et al. 2014, 762).

Tschakert and Mario Machado in a 2012 article in which they review several approaches to research and policies on gender justice and equity in the context of climate change adaptation (among them human-security), mourn that researchers and practitioners who are increasingly able to identify the social factors that create differentiated adaptive capacities, still have difficulties to address and challenge them (2012). They explain these difficulties with the insufficient attention given to aspects such as “interconnectedness” and “mutual fragility”, even within the human-security framework. They also stress that human security needs to become “a transformative³⁹ framework that works against deep-seated power structures that inhibit the security of all people” (Tschakert and Machado 2012, 285).

Tschakert and Tuana(2013) explain that interconnectedness would need more focus at three levels:(i) the relationality between human security and environmental security that is often obscured by anthropocentric views of human security in which humans are considered as the main beneficiaries of the framework; (ii) the relationality between humans and the environment, often omitted due to the existing conceptual divide between the social and the natural, which in most accounts of human-security relegates environmental security issues behind concerns about human

³⁹ As Tschakert et al. highlight, “*transformation* conveys something more radical than mere change or even transition to a new world where climate change effects are a reality”(2013, 346 italics in original). Transformation is key to address the root causes of vulnerability and to define pathways towards sustainable futures (Pelling 2011; O’Brien 2012; in Tschakert et al. 2013).

flourishing, rather than looking at “socionatural flourishing” (Tschakert and Tuana 2013, 93) as a whole, and; (iii) the relationality between close and distant others, and between powerful and powerless, who are likely to influence or suffer from the interconnection of flourishing life in one place and vulnerability in the other because of the relational character of space (Massey 2005; Massey 2007; in Tschakert and Tuana 2013). The latter aspect of relationality is mentioned in Chapter 14 of the 2014 IPCC report in which the authors relate the lack of attention to the relational character of vulnerability with maladaptation⁴⁰: “[m]aladaptation is a cause of increasing concern to adaptation planners, where intervention in one location or sector could increase the vulnerability of another location or sector, or increase the vulnerability of the target group to future climate change” (Noble et al. 2014, 837).

With such an understanding based on the human-security framing but taken further by Tschakert and Tuana under the label of socionatural security characterized by a relational and multidimensional understanding of vulnerability, vulnerability becomes something that is not obligatorily negative. Indeed, through the relational and multidimensional ontology, it is conceived as the ability to affect or to be affected (Butler 2010; Tschakert and Tuana 2013). Additionally, vulnerability is conceived as situated, which entails that the climate change adaptation debate includes “subjective identities and affective relationships, through gender, class and ethnicity, for example, that shed a light on the multiple, complex and contested rationalities in ecological decision-making processes” (Cote and Nightingale 2012: 483-484).

Therefore, what needs to be understood is the workings of the ‘vulnerabilizing’ processes and the interactions between them, as well as the way in which the

⁴⁰Maladaptation is defined in Chapter 14 of the IPCC’s Fifth Assessment Report as referring to “actions, or inaction that may lead to increased risk of adverse climate-related outcomes, increased vulnerability to climate change, or diminished welfare, now or in the future” (Noble et al. 2014, 857).

injustices that put people in precarious positions operate and may sustain themselves or are sustained by others in time, space and sometimes across scales (Cuomo 2011). Thus, rather than seeing climate change adaptation as a “technical adjustment to biophysical change *by* society”, what is needed is to understand it as “part of the dynamics *of* societies” (Eriksen, Nightingale, and Eakin 2015, 2 italics in original) and “as *both* process and outcome” (Matyas and Pelling 2015, 54 my italics). The understanding of the vulnerabilizing processes requires the novel conceptual approach described earlier “that reflect[s] the shifts from impact assessment to understanding conditions for transformative change” (Tschakert et al. 2013, 340). Within these conditions are the ones that facilitate challenging vulnerability to the effects of climate change and other stressors, no matter whether this vulnerability is previously acquired or whether it is constantly shifting (including vulnerability that changes across seasons, geographical locations or that depends on the framing of the climate change problem). Concerning the latter, Chapter 15 of the IPCC’s Fifth Assessment Report highlights that “[t]he importance of climate change adaptation is also influenced by how the issue is framed” (Mimura et al. 2014, 882).

Despite the transformative potential of the socionatural security framework, if relationality and the multidimensional character of vulnerability are not sufficiently discussed within it, it can be easily instrumentalized and its use can become counter-productive for environmental and social justice concerns. If not analyzed through the lens of existing unequal power relations that sustain each other across space and time, environmental and social vulnerabilities may become addressed as another technical problem within climate change adaptation. In a context in which climate change is presented as a mostly neutral and apolitical concept (Swyngedouw 2013), this is a call

for more attention in climate vulnerability studies to what is maybe the core notion in political ecology: the workings of power.

In my research, this means looking at the workings of power in the processes that make people vulnerable to climate change. These processes can be linked with the biophysical effects of climate change but also with the discursive ones or, as highlighted by Tschakert and her colleagues (2013), they can be related to the methodologies or objectives conveyed for example by vulnerability assessment exercises themselves that are often practiced on the ground. Among other deficiencies, the latter typically fail to capture the fluctuating character of vulnerability in time and upon specific conjuncture, especially when the assessment relies on fixed vulnerability indicators (Tschakert et al. 2013).

In the following section, starting from a relational and multidimensional understanding of climate vulnerability, whose pertinence I highlighted in this section, I build on the work of earlier political ecologists (e.g. Bryant 1998; Escobar 1996; Watts 2000) to conceptualize power in a context in which environmental vulnerabilities tend to be constantly (re)produced (Taylor 2013), and on the work of feminist political ecologists (e.g. Arora-Jonsson 2011; Di Chiro 2008; Ge, Resurreccion, and Elmhirst 2011; MacGregor 2010; Mollett and Faria 2013; Nightingale 2011b; Tschakert 2012) to break down my theoretical framework for the study of the processes through which climate vulnerabilities are (re)produced and eventually challenged in rural Nicaragua. I will show that these processes are best understood in the Nicaraguan context through a fourfold analysis of climate change adaptation practices, politics, climate change knowledges, and the subjectivities at play in the process of climate change adaptation. By doing so, I reinforce the claim of Siri H. Eriksen, Andrea J. Nightingale and Hallie Eakin for a reframing of climate

change adaptation as a socio-political process that involves “struggles over authority, knowledges and subjectivities” (2015, 9). Indeed, this framing helps understand how intersectional power mediates climate change adaptation processes by supporting, or blocking them, or doing both simultaneously.

2.2. Power in the feminist political ecology of climate change adaptation

The theoretical framework of this dissertation is based on a feminist political ecology perspective which intends to reconceptualize the relationship between gender and the environment as a dynamic process, in which not only gender and environment play important roles, but also culture and society are of core significance (Nightingale 2006). All these elements (gender, the environment, culture and society) are embedded in and construct power relations. Even more important is the observation that the relations between these (for example the relation between gender and the environment, the environment and society, culture and gender, etc.) are also constructions very much shaped by, and that shape power relations.

Since Dianne Rocheleau and colleagues’ landmark work (Rocheleau, Thomas-Slayter, and Wangari 1996), feminist political ecology has evolved considerably. The early feminist political ecology focused on three themes: “gendered environmental knowledges, gendered environmental rights and responsibilities, and gendered environmental politics and grass- roots activism” (Elmhirst 2011, 129). Since then, three factors have modified the field of feminist political ecology, giving birth to what Rebecca Elmhirst calls new feminist political ecology (2011). First, new feminist political ecology bears the influence of poststructuralist and performative approaches in feminist theory that have concentrated feminist scholars’ attention on the transformative role of gender instead of static gender roles. It has also given an

increased attention to the effects of (gendered) discourses (Elmhirst 2011). The latter has very much to do with the (re)creation of gendered subjects and subjectivities performative (climate change) politics can produce. This perspective also opens the space to talk about resistant subjectivities, as I will show in the empirical chapters, for example through cases of women who do not want to be seen as vulnerable anymore, who do not fetch water and wood anymore, or men who assume roles ‘traditionally’ attributed to women as part of their (gendered) climate change adaptation strategies. Thus, the transformation or the reinforcement of ‘traditional’ gender roles and relations, as well as the subjectivities related to these, can be seen as the manifestation of power struggles both at the level of the climate change adaptation ‘practice’ and its discourses.

Second, new feminist political ecology takes into account the existence of new forms of intervention and environmental governance linked to specific political contexts and increased mobilities of rural populations (Nightingale 2006). These new forms of intervention and environmental governance come with their own discourses on the environment, which in the Nicaraguan context reveal discursive struggles on various fronts. For example, the global gendered post-neoliberal discourse on the environment intersects in Nicaragua with the ones that promote market-based solutions to environmental degradation such as payment for ecological services, or the one that sees women’s participation in environmental management and poverty reduction as “smart economics” to use the words of former World Bank director Robert Zoellick (2011).

Third, new feminist political ecology intends to acknowledge the consequences of mainstreaming gender in development and natural resources management (Elmhirst 2011). Gender mainstreaming is an organizational strategy

that intends to integrate gender concerns at all levels of policies and actions through capacity building, accountability and implementation of gender specific tools and budget lines (Baden and Reeves 2000). While gender mainstreaming has been adopted widely (for example in the United Nations system, the European Union and many NGOs), it has limitations: it confines the responsibility of dealing with gender ‘issues’ within institutions, and promotes a top-down approach, often disconnected from the realities of the primary stakeholders that are usually marked by household inequalities and sometimes oppressive gender relations (Kabeer 2003). Therefore in my research, I consider it crucial to acknowledge the risks entailed by the ‘institutionalization’ of gender in climate change policies and programs. This is even more important when institutions are seen as neutral entities that represent the ‘general’ interest, thereby obscuring the existence of potentially conflicting standpoints within them, and the power struggles around their existence and interventions.

My approach to power is an intersectional approach, which is desperately needed in climate change research (Tschakert and Tuana 2013; Adger et al. 2014; Kaijser and Kronsell 2014) to avoid reproducing stereotypes. As Nightingale stresses, the operation of intersectional power is continuous with sometimes unexpected consequences on the creation of new subjectivities and bodies. It occurs in multiple dimensions under the interaction of a multiplicity of axes of privilege and oppressions (2011b) such as gender, class, age, ethnicity, and geographical location. In this understanding, power becomes intersectional power that speaks directly to patriarchy because it looks at how intersectional subjectivities of gender, race, class, ethnicity produce and sometimes reinforce unequal power relations.

A focus on intersectional power helps describe describing the power structures intersectionality creates such as when marital status (for example being single) intersects with gender (for example being a woman) in specific empowering and disempowering ways that happen sometimes at the same time. Intersectional power cannot be apprehended solely through repression (as earlier power theorists understood it, e.g. Lukes 1974), or through discussions limited to understanding who is empowered and who is not (which is another dichotomy that needs to be denounced). Intersectional power is a multidimensional process that sometimes has unintended and contradictory effects on subjectivities, something feminist scholar bell hooks (2000) has also elaborated upon by showing, for example, how white women can be privileged because of their race and oppressed because of their gender. Intersectional power is always productive (of subjects and subjectivities, including resistant ones) and operates as an ensemble of strategies emanating from multiple points. Some of these power strategies are aimed at regulating people's conduct, others support or block resistance (Foucault 1983). As Natalie Osborne in her article on intersectionality formulates it, intersectional power

creates intersectional identities and lived experiences determined by multiple, sometimes conflicting, axes of identity. Where 'patriarchy' is understood as the force shaping and perpetuating gendered oppression, (...) [intersectional power] is understood as the structure shaping intersectional oppression. Ergo for a conceptual framework to comprehensively and clearly incorporate an understanding of the multifaceted nature of privilege and marginality, both are best employed" (2015, 140)⁴¹.

Thus, with this focus on the forces that shape different kinds of oppressions and privileges based among other factors on gender, age, class ethnicity and geographical location, my aim is to understand the complex workings of power in (i) rural women and men's climate change adaptation practices; (ii) Nicaraguan climate

⁴¹ In her article, Natalie Osborne calls intersectional power "kyriarchy" (2015).

change politics; (iii) the process of knowledge creation on climate change, and; (iv) the (re)creation of, or the challenge to subjectivities under the effects of climate change. With climate change constituting my research topic, my intention is to take the lens of a new feminist political ecology framework further than new feminist political ecologists have done so far. Indeed, climate change as a research topic has been very challenging for feminist political ecologists especially when it comes to producing ethnographic studies that succeed in bridging scales (Sultana 2014 is one exception). However, connecting what happens at the local level with global environmental change is necessary to be able to fully grasp the relational character of climate vulnerability.

This perspective requires a fourfold analytical focus that emerges from a Foucauldian understanding of power (Foucault 1983) that is interested in studying power *in action* rather than discussing its inherent nature. Thus, this focus on power *in action* (or on the *workings of power* as I call it in my research) within climate change adaptation implies discussions on how politics shape access to resources for adaptation, how certain knowledges on adaptation are given more authority than others, and how subjects emerge from the exercise of power (Eriksen et al. 2015). In the following section, I discuss in detail the analytical foci this perspective requires: (i) climate change adaptation practices; (ii) climate change adaptation politics; (iii) climate change adaptation knowledges, and; (iv) the subjectivities climate change adaptation processes create or challenge.

2.3. Studying the workings of intersectional power in the (re)production of climate vulnerabilities

2.3.1. Vulnerability and climate change adaptation practices

While positivist science likes to picture climate change in terms of the changing composition of the atmosphere, as geographer Mike Hulme stresses it, it is not only the alteration of the climate system that matters, but also “the *idea* of climate change [that] is penetrating and changing society in novel ways” (2008, 5 italics in original). Consequently, there is a need to understand climate change as both a physical transformation and cultural object (Hulme 2008). As Hulme puts it, this understanding entails seeing climate change “as a mutating hybrid entity in which strained lines between the natural and the cultural are dissolving” (2008, 5). In this understanding, climate change adaptation practices can be seen as coping strategies that constitute a response to something that is both a physical transformation and/or a cultural construction. Seen through this perspective, climate change practices can reveal struggles over the meaning of climate change as much as on the material practices of climate change adaptation.

The way climate change adaptation strategies are enacted and/or resisted (both discursively and in practice) illustrates Nicaraguan rural women and men’s understanding of climate change as well as of their own vulnerabilities within their particular relation to the environment. This enactment and resistance will manifest, for example, in why and how rural women and men decide to change their production strategies, or adopt the practices promoted by climate change adaptation projects. In my research, climate change adaptation practices constitute the primary lens through which I study climate change adaptation (see Figure 2). I understand them as embodied practices of complex subjectivities through which (climate change

adaptation) politics are exercised and/or resisted. Additionally, I consider them as a set of practices through which rural women and men both exert and produce their knowledge on climate change adaptation. As Beth A. Bee demonstrated in her ethnographic research in rural Mexico, “women [and men]’s environmental knowledge, and therefore risk perception, is constructed through their daily activities and everyday lives, which are largely an outcome of the performance of gender” (2016, 72). By doing so, she showed “how gender, environmental knowledge, risk perception and thus, adaptation are constituted by and embedded in social power relations” (Bee 2016, 72).

Thus, it is these daily, embodied, mundane practices that allow me to first approach the workings of power in climate change adaptation processes. Indeed, “the feminist lens of the ‘everyday’ directs attention to embodiment, difference, and inequality, [and helps revealing] the mundane decision making in climate governance that affect individuals in varying, embodied ways”(Bee, Rice, and Trauger 2015, 339). These embodied practices are related to politics, knowledges, and subjectivities. Indeed, adaptation practices are the visible result of climate change adaptation politics, climate change adaptation knowledges and complex subjectivities. Conversely, they are also at the core of the emergence of politics, knowledges, and subjectivities related to climate change adaptation.

2.3.2 Vulnerability and climate change adaptation politics

In this sub-section, I first show that understanding climate change adaptation as social reproduction allows for talking about intersectional power in climate change adaptation politics. Second, I turn to the concept of politics itself and by building on Judith Butler and Michel Foucault’s work, I discuss them as performative in order to link them with subjectivation processes.

2.3.2.1. *Power in climate change adaptation politics*

Despite the paradigmatic shift from a “scientific” approach to a “human-security” framework and more recently to a socionatural security framework that builds on Erik Swyngedouw’s concept of socionature, in practice there is a strong boundary between what counts as environmental politics and what counts as social politics. Despite the gendered climate change discourse in Nicaragua, the two ‘fields’ of climate change and gender are also divided. At an event on gender and climate change I attended in February, 2014⁴², organized to promote their encounter, both gender and climate change specialists were invited. Among the participants, all but one climate change specialist were men, while all gender specialists were women (fieldnotes). The gender difference was the manifestation of the epistemological divide between these two fields of ‘expertise’, reinforced by the fact that climate change is often considered by climate change project practitioners as a scientific problem (‘hard’) in need of technological solutions, while gender is seen as a social (‘soft’), and long-term issue. Feminist scholar and activist Giovanna Di Chiro reasserts this observation formulating it in the following terms in her 2008 article on coalition politics, social reproduction and environmental justice:

Defining what counts as an environmental problem and what doesn’t invites certain alliances and inhibits others, and the environmental movement has shot itself in the foot by adopting the definitional frontiers that delegate different issues as either inside or outside the environmental ‘frame’ (2008, 279).

In the Nicaraguan context, the reproduction of this boundary between the realms of climate change adaptation and social politics (including gender politics) occurs under a post-neoliberal regime that adopts (arguably unconsciously) an

⁴² The event was organized in Estelí together with the French NGO Agronomes et Vétérinaires Sans Frontières and supported by the UNDP in Nicaragua. It was conducted as part of a small research project I was involved in, and that culminated in the publication of a document on gender and climate change adaptation in Nicaragua (Gonda 2014).

ecofeminist discourse that simultaneously naturalizes women and feminizes nature. The ecofeminist discourse in Nicaraguan climate change politics contributes to hiding the divide between climate change politics and gender politics behind the gendered, apparently socially sensitive discourse on climate change. Therefore, the division and the consequent hierarchy established between the ‘urgent problem’ of climate change and a ‘less urgent’ long-term social issue like gender equality, becomes more difficult to detect than it would be in a context in which climate change politics would be gender-blind.

In sum, the Nicaraguan government’s strategy to hide the divide between climate change and gender politics behind the ecofeminist discourse contributes to reinforcing the divide. In order not to reproduce this divide, I purposefully do not draw a distinction between politics surrounding development, the environment, climate change adaptation, agriculture, social and gender issues in this dissertation. Rather, I understand them as an ensemble of policies, interventions and everyday practices revolving around the feminist concept of social reproduction. In this definition I build on Di Chiro’s understanding of social reproduction as

the intersecting complex of political-economic, socio-cultural, and material-environmental processes required to maintain everyday life and to sustain human cultures and communities on a daily basis and intergenerationally (2008, 281).

This understanding has also the advantage of including reproductive issues⁴³ ‘traditionally’ attributed to women, such as firewood and water fetching, cooking,

⁴³ Without entering in discussions close to the hearts of feminist economists (e.g. Folbre 1986; Benería 1995; Daly 2002; Molyneux 2002), the distinction between productive and reproductive work I build on in this chapter is important to note. Productive labor is the “paid labour that produces goods and services such as food, clothing, and shelter for sale in the market” (D. K. Barker 2005, 2196) or for local consumption in the case of farmers living in communities in rural Nicaragua. Reproductive labor is far more than just giving birth and taking care of children. Also called care work, it concerns “cooking, cleaning, caring for children, partners, the infirm, and the elderly” (D. K. Barker 2005, 2196). In the Nicaraguan society, it is currently mostly assumed by women and considered as part of their ‘traditional’ gender roles.

doing the laundry and taking care of the children and the elderly, among environmental issues. For example, cooking is an environmental issue because it uses food produced locally that is cooked with wood fetched in the territory of the community. Laundry is done with water fetched from local sources that suffer from increasing droughts related to climate change. Taking care of the children and the elderly is also an environmental issue when understood through the lens of social reproduction: it has to do with the dynamics of rural societies in which the elderly are recognized as knowledge holders on the environment, and children are the future workforce for agricultural production and natural resources management. Evidently, all environmental issues such as local water, forest or agricultural management are related to climate change: these practices can be considered as adaptive actions to the current and future changing climate. Finally, this broad understanding of climate change adaptation politics as politics that are about social reproduction is all the more necessary for my research as my case studies are rural communities whose inhabitants not only base their livelihoods on the environment, but in most cases, they also have a special connection to the land (in case of the inhabitants of El Pijibay) or to the territory (in case of the inhabitants of El Nancite). Thus, similarly to Bee in her 2016 piece on power, perception and climate change adaptation, I do not use the concept of climate change adaptation to refer to a change in behavior. Rather, I see it “as an inseparable part of everyday life, encompassing and embedded in the complex relationship between material practices, social relations of power, and environmental contexts” (Bee 2016, 71).

To detect the workings of intersectional power in climate change politics understood in the context of my research as politics that are about social reproduction, it is also necessary to apprehend these politics as performative.

2.3.2.2. *The performative politics of climate change adaptation*

Feminist scholar Butler sees politics as performative building on two main arguments (1997) I also use in my study of climate change adaptation politics in Nicaragua. First, building on French philosopher Louis Althusser's work (1971), for Butler politics become performative through the act of 'interpellating'. 'Interpellating' refers to the fact that politics call people to act in certain ways (in Nicaragua they call women to be environmentalist), which turns these people into the subjects of a certain ideology (for example the subjects of the ecofeminist ideology in the Nicaraguan case). For Juanita Sundberg who draws on feminist and post-structural scholarship in her research in Northern Guatemala, this approach entails viewing the identities that are created in the frame of politics as multiple and fluid (Gibson-Graham 1996; in Sundberg 2004), as well as relational *i.e.* constituted in the interaction with others (Laclau and Mouffe 1985; Fuss 1989; D. M. Nelson 1999; in Sundberg 2004).

The second argument on performative politics used by Butler is that of Foucault that allows the performatively constituted subjects to engage in insurrectionary acts (Butler 1997; in Youdell 2006, 518), or in "counter-conducts" – "struggles against the processes implemented for conducting others" (Death 2011, 425), as Carl Death defines the phenomenon. Moreover, the performance of climate change adaptation politics and the connected emerging counter-conducts contribute to bringing into being or strengthen the discursive existence of climate change and of its related institutions, similarly to what is described in Nancy Lee Peluso and Peter Vandergeest's study in which they show how insurgency and counterinsurgency in Indonesia, Malaysia and Thailand brought national forestry into being together with state forestry institutions (Haraway 1991; Sundberg 2011; in Peluso and Vandergeest 2001).

For Foucault, there is no discourse without counter-discourses and regimes of truth are the result of discursive struggles (Foucault 1998), in this case between a myriad of intersecting discourses and daily practices that constitute climate change adaptation politics. Indeed, Foucault's approach to discourses, power and knowledges allows us to see how gender and other types of oppressions acquire a function of 'delimiting' the world, something that might generate resistance. Discourses, power and knowledges contribute to legitimizing perceptions and everyday practices (Foucault 1972; in Mills 1997) related to climate change adaptation through the discursive structures and systems of intelligibility climate change adaptation politics engender. Addressed in this manner, discourses on gender and climate change have the potential to shape the understanding of rural women and men, as well as to influence their adaptation related practices. The vulnerability discourse held by the climate change projects, and present in general in Nicaraguan climate change politics, not only designates its subjects, but it also compels them to act as vulnerable, and prompts others to recognize these subjects as such. In this sense, climate change adaptation politics can create the climate vulnerabilities (and the vulnerables) they talk about.

However, the relation between politics and its subjects, while always existent, is not always linear. Climate change adaptation politics may create their compliant subjects as well as their resistant subjectivities. As Eriksen *et al.* put it:

[Subjectivities] serve to bring people into relationships with policies, programs, authorities across scales and each other based upon new definitions of what capacities they possess and what vulnerabilities they face. Subjectivity also highlights how people internalize and resist such subjection and its relationship to their actions. Whether you see yourself as vulnerable, or capable of altering practices to become less vulnerable, for example, may determine whether you consciously engage in adaptation. Similarly, the idea that climate change is affecting our lives may seem disempowering and resisted if seen as ‘imposed’ by central government or outside development agencies. This is particularly relevant given the labeling of groups such as women, indigenous peoples, or developing countries as ‘vulnerable’ or lacking ‘climate resilience’. In other words, new kinds of subjectivities are emerging in relation to climate change and the analytical task is to demonstrate their contradictory effects in order to more clearly track how power and politics operate within climate change adaptation (2015, 7).

To track how power and politics operate within climate change adaptation, the third important topic to focus on is knowledges.

2.3.3. Vulnerability and climate change adaptation knowledges

Another important aspect of the Foucauldian take on discourses to the already mentioned ones is that it is “in discourse that power and knowledge are joined together” (Foucault 1998, 1:100; in Feindt and Oels 2005, 164). By separating what is knowledge in climate change adaptation from what is not, discourses on climate change have the potential to empower and disempower subjects. In this sub-section, I first discuss how feminist theory informs my approach to intersectional power in the study of climate change knowledges. Second, I show why, to be able to study the workings of power in the processes that make people vulnerable to climate change, I need to deviate my attention from the content of knowledge. Instead, I analyze the processes of knowledge creation on climate change adaptation, and study the processes through which knowledges are ‘translated’ for people ‘on the ground’.

2.3.3.1. Feminist theory in the study of climate change adaptation knowledges

Together with many of my interlocutors both from academia and the practice of climate change adaptation, I initially thought that my research was going to give an account of the ‘local’ (or ‘traditional’ or ‘indigenous’) knowledge on climate change as much as I would be able to describe the ‘state’ of the ‘scientific’ knowledge on climate change adaptation in Nicaragua. Back then, I did not realize that my own approach to climate change knowledge in my research was influenced by the dominant view in this field. This dominant view accords primary importance to scientific knowledge constructed as ‘objective’ and ‘neutral’. While it is increasingly interested in ‘local’ (or ‘indigenous’ or ‘traditional’) knowledge, it is mostly for using it in otherwise top-down approaches (Nadasdy 1999). Paul Nadasdy in his own research on traditional ecological knowledge (TEK) in the Canadian Arctic mourns that most literature focuses on the importance of using TEK rather than on understanding how it is used and by whom. In addition, he denounces the fact that while numerous scholars (and I add practitioners) advocate for the integration of TEK with science, very few do it (Nadasdy 1999). Based on his empirical work, Nadasdy argues that integrating TEK with science and incorporating it into existing bureaucratic management structures will result neither in substantially improved management practices, nor in local empowerment due to the process of integration itself. This process usually compartmentalizes TEK in the same fashion scientific knowledge is divided into disciplines and distillates TEK in such a way that only the information useful for scientists is kept (Nadasdy 1999; Nadasdy 2005).

The observations above highlight the need for more attention to: (i) the power relations that influence the process of knowledge (co)production itself, and to; (ii) the

rearrangements (if any) in power relations that result from this process of knowledge (co)production. This includes analyzing what counts as knowledge and why, who decides what counts as knowledge, who counts for potential knowledge-holder and with which justifications. Together with other feminist theorists who discussed topics related to environmental and scientific knowledges (e.g. Haraway 1988; Nightingale 2003; Slocum 2004; Code 2008), I argue that these power relations are best disclosed when feminist theory informs the understanding of climate change adaptation knowledges. As feminist scholar Tuana underscores, the feminist perspective is particularly pertinent in the study of climate change as “what we know and do not know [in the issue of climate change] is inextricably interlinked with issues of justice” (2013, 14). For example, in Nicaragua, the discursive invisibilization of some massive destroyers of natural resources is enmeshed with ethnicity, class, and sometimes gender related privileges. It tends to be hidden behind the masculinist construction of climate change as a problem in need of technological solutions (MacGregor 2010) as well as other ‘unjust’ discourses such as the blaming of smallholder farmers for massive deforestation.

In the knowledge making, knowledge categorizing, knowledge spreading or knowledge translating practices in the field of climate change, intersectional power emerges through particular positionalities. Positionality is a feminist concept that refers to historically and culturally specific identities constructed through social (power) relations. Thus, positionality can be understood as the crystallizing points of oppressions or privileges related to gender, class, ethnicity, age or geographical situation. Positionality may become determinant in the practices that create, categorize, spread or translate knowledge on climate change. For Haraway, knowledge claims should be made only through the “politics and epistemologies of

location, positioning and situating” (1988, 589). This is obviously not happening when climate change researchers or climate change practitioners present climate change as a global problem on which everybody should agree and which is in need of technological solutions. Then, the task of feminist research becomes to unveil intersectional power in the knowledge claims that are made on climate change. This uncovering can be done by discussing both the positionality and the lack of acknowledgment of the positionality from which knowledge claims on climate change are made.

2.3.3.2 Power in the knowledge making and knowledge translating processes

The question of positionality or situatedness in relation to climate change knowledges is crucial (Nightingale 2003; Cote and Nightingale 2012; Tschakert and Tuana 2013) not only for those who are supposed to have knowledge (for example the ‘ancestral’ knowledge of the farmers, the ‘scientific’ knowledge of the scientists) but also for those who have the power to ‘differentiate’ ‘valuable’ knowledge from ‘invaluable’, and thus can intervene in the creation of categories of (‘knowledgeable’ and less ‘knowledgeable’) subjects for climate change politics. Following Melissa Leach and James Fairhead’s work that builds on feminist scholarship (Haraway 1988), my aim in my research is to “displace the focus somewhat from the content and epistemology of knowledge, to the historical and institutional relations in which such knowledge develops and is represented” (Leach and Fairhead 2002, 302). Indeed, not only is knowledge always situated, the interpretation of knowledge is also situated. Of course, this does not mean that knowledge does not exist *per se*. For example, farmers in Nicaragua can endlessly talk about how the singing of a bird, the blossoming of a tree, or the appearance of a certain type of insect can announce the arrival of the rainy

season. This knowledge that varies according to their agro-ecological conditions, their gender, their origin, beliefs, ethnicity and the type of crops that they grow is acquired through their experiences as well as that of their ancestors. The value that researchers and climate change practitioners give to these knowledges is what will 'legitimize' it or render it useless in the climate change discourse. For example, religious ceremonies before the planting season may be qualified as part of the local folklore by an outsider. They can also be treated as a knowledge-spreading occasion during which farmers exchange their views on when, what and how to plant according to their observations and experience of the climate. Qualifying something as (scientific) knowledge or relegating it to the status of 'folklore' associated with culture reproduces a hierarchy between scientific and 'indigenous' knowledge, as well as between knowledge that comes from outside the community and the one that is generated 'inside'.

Finally the reinforcement of the very dichotomy between 'scientific' and 'traditional', as well as knowledge 'from outside' and knowledge 'from inside' is also a manifestation of the workings of power. The communities in which I did my research are neither ethnically homogeneous, nor totally isolated from the rest of the world (its inhabitants travel, people come to visit, most people have access to radio, projects intervene in them). The way efforts to 'rescue' traditional indigenous knowledge on climate change are deployed by some climate change projects in Nicaragua excludes the majority of local knowledges in this type of communities with the argument that they are not 'pure' as they bear the influence of 'external' knowledges (even if the latter have often been imposed by previous projects on local populations).

Due to the reasons enounced above, in my research, I approach climate change adaptation knowledges as power/knowledge (Foucault 1972) that are always situated and embodied. I consider them as much influenced by rural women and men's own practices as by the narratives and the practices of climate change adaptation interventions, the media, informal discussions on the topic, the PhD researcher who does research on climate change in the community (in this case, me), the material context in which people live, their worldviews and (religious) beliefs as well as their unique albeit multiple subjectivities and experiences. As what counts as knowledge and what does not or who is considered knowledgeable is the result of the workings of power relations, it would be counter-productive for me to enter into discussions about knowledge as content. Therefore, I argue that the attention needs to be put on the politics of knowledge-making on climate change in Nicaragua. I analyze this through two processes in which I look for the (re)production of intersectional power. The first process relates to the practices around the development of climate change adaptation knowledge. The second relates to the 'translation' of the climate change information for the people 'on the ground'. These two processes of knowledge creation and knowledge translation are important to look at because they are moments in which processes that make people vulnerable get reinforced or challenged. Indeed, they are linked with the legitimization or exclusion of certain types of knowledges about climate change.

2.3.4. Climate vulnerability and the subjectivities created or challenged by climate change adaptation

One of the challenges in my research is to analyze how climate change adaptation politics, understood as performative politics that are about social reproduction, and the processes of knowledge creation and translation on climate

change support the creation of subjects and subjectivities. Additionally, I want to ask how the subjectivation processes may contribute to making people vulnerable or to the contrary, how they may help challenging people's vulnerabilities.

2.3.4.1. The creation of (climate vulnerable) subjects

When focusing on the subjects of climate change adaptation politics, I find important to look at the type of subjects climate change adaptation politics create for climate change adaptation in rural Nicaragua, and the type of environment they produce for these subjects. This process of subject creation and the creation of the environment with specific attributes occur under the effect of intersectional power that works as a web of force relations “made up of local centers of power around which specific discourses, strategies of power and techniques for the appropriation of knowledge cluster” (Foucault 1998, 1:92–93; in Feindt and Oels 2005). Hence, this process becomes a site of discursive struggles about the environment and the people called upon to protect it. This discursive struggle may reflect or challenge existing power hierarchies. The struggles are especially visible in the local understandings of the ‘losers’ and the ‘winners’ in the face of climate change and the local interpretations of climate vulnerabilities. For example, some of my interviewees talked about the ‘widespread’ categories when I asked them whom they considered as the most vulnerable to climate change in Nicaragua. They mentioned for example the poor, women, or indigenous people. A nationally recognized climate change expert in Nicaragua understood it in a drastically different manner. In his opinion, rich farmers were more vulnerable because they had more to lose than poor ones in case of droughts for example. This type of discursive struggles about vulnerability relate to the manifestations of the workings of intersectional power and its potential to

generate oppressions and advantages related to gender, ethnicity, class, age and geographical locations, in which I am particularly interested.

2.3.4.2. *Subjectivation and resistant subjectivities*

For Butler, subjectivation is broadly understood as the “making of the subject” (1997). It is “a kind of power that not only unilaterally acts on a given individual as a form of domination, but also *activates* or forms the subject” (Butler 1997, 84 italics in original). Subjectivation occurs, for example, through the discourse of climate change adaptation politics when it creates the figures of the environmentalist woman or the culprit smallholder farmer. Some subjects comply with the discourse and try to become what they are ‘supposed’ to be, while others resist or strategically use the discourse to become ‘something’ else, sometimes outside the discourse. In the process of subject creation in climate change adaptation politics, a particularly interesting aspect relates to self-conceptualizations (of one’s own vulnerability in the face of climate change for example) as they can be analyzed as strategies of “governing the self” (Foucault 1982; in Feindt and Oels 2005) that become also part of the everyday enactments of climate change adaptation politics. Hence, subjectivities are always “in the making” (Sundberg 2004): to study them, one needs to be “attentive to how disciplining discourses and practices are invoked, enacted, (re)configured, subverted, and transformed by individuals” (Sundberg 2004, 46–47).

The subjectivities that emerge through “the ways in which people are brought into relations of power” (Nightingale 2011a, 123) in the frame of climate change adaptation politics can be studied by focusing on two important aspects. The first aspect relates to the subjects (for example the already mentioned environmentalist women or the culprit smallholder farmers) climate change adaptation politics create. Related to this, it appears interesting to analyze the ‘recognition’ (and the ‘non-

recognition) (Fraser 2001) of these subjects by other ‘players’ in climate change adaptation politics such as the government, the projects, and the researchers, among other ones. This recognition occurs, for example, when some types of indigenous people become recognized as valuable knowledge-holders on climate change adaptation. This is key because it reveals the frames (embedded in power relations such as patriarchy and racism) at work behind the definition of the ‘problem’ and the ‘solutions’ for climate change adaptation.

The second important focus should be on the moments in which the norms that influence the constitution of subjects are broken. As Butler claims, these norms must not be understood as operating in a deterministic way. She states:

[n]ormative schemes are interrupted by one another, they emerge and fade depending on broader operations of power, and very often come up against spectral versions of what it is they claim to know: thus, there are “subjects” who are not quite recognizable as subjects (Butler 2010, 4).

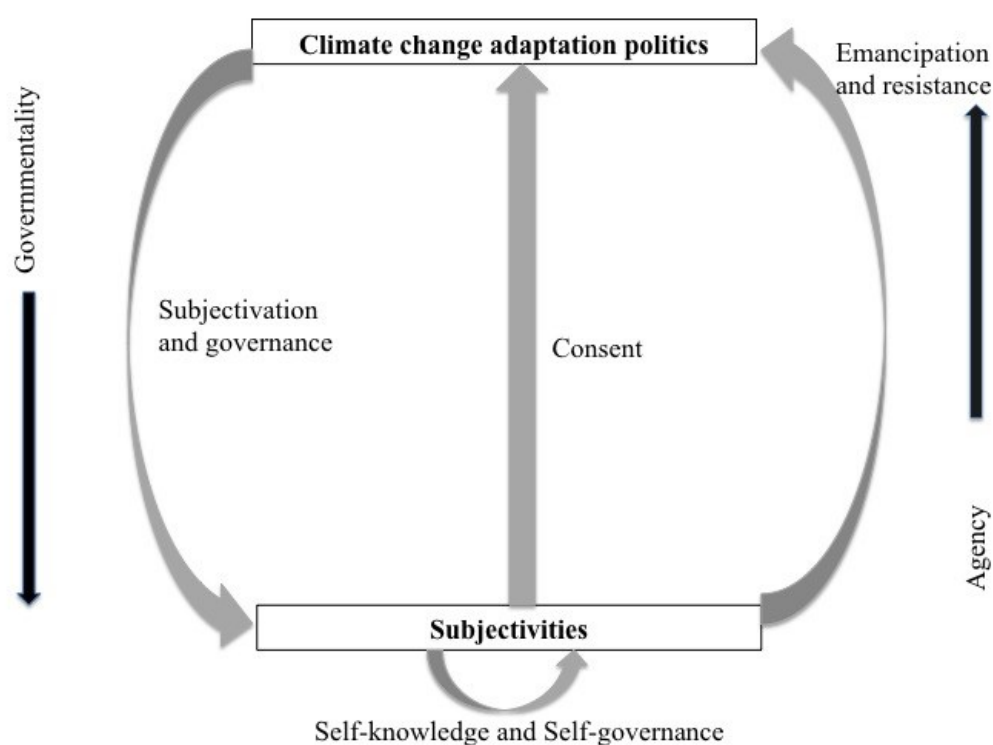
Therefore, in addition to analyzing the subjects and the operation of the norms that create the subjects, it is crucial to analyze the moment in which the norms get broken and resistant subjectivities or counter-conducts (Death 2011) appear. In my research, detecting the contestation of these technologies of power that construct and reinforce hegemonic gendered and intersectional subjectivities is crucial. It is all the more important as these contestations can constitute an explanation for why climate change adaptation projects sometimes fail in reaching their objectives. Additionally, they can show how climate change adaptation projects reproduce injustices. They also give an idea of how gender and other power relations are transforming, even in the context of climate change, and which transformations may be worth building on and encouraging to promote the emergence of emancipatory subjectivities (Manuel-Navarrete and Pelling 2015). Most importantly, they need to be given attention

because they have the potential to become desperately needed counter-narratives that can contribute to (re)politicizing the climate change adaptation debate.

2.3.5. Relationality between the four analytical foci

The outcome of the gendering of Nicaraguan climate change politics, which constitutes my main research question, depends upon the power dynamics underlying the adaptation practices and politics that are implemented, as well as the knowledges and the subjectivities that are mobilized. The model elaborated by Manuel-Navarrete and Pelling to schematize the power dynamics underlying social –ecological change (see Figure 6) is useful to summarize the relationality between my research foci. Concretely, the model shows how they can together sustain certain power dynamics underlying socio-ecological change.

Figure 6. Heuristic model of power dynamics underlying socio-ecological change



(Adapted from Manuel-Navarrete and Pelling 2015, 561)

Climate change adaptation politics (called “authority” in Manuel-Navarrete and Pelling’s original model) make subjects act in certain ways. For example, through governmentality understood as “the conduct of the conduct”(Foucault 1983), in Nicaragua climate change adaptation politics prompt women to become environmentalists and victims. Subjectivities in a certain time and space are determined by self-knowledge and self-governance: self-knowledge is for example the embodiment (conscious or unconscious) of the masculine sense of self related to *machismo*, or of one’s ethnic belonging. Self-governance concerns the behaviors and/or the practices that emerge from how the person wants to govern herself (for example as a victim of climate change). When the subject knows and /or governs herself as she is supposed to according to the authority (that works through climate change adaptation politics) by enacting indigenusness or vulnerability as she is supposed to, she reinforces these politics (this is called “consent” on Figure 6). Emancipatory subjectivities, can challenge authority and contribute to shifting politics: they are key in the construction of a feminist response to climate change.

Conclusion

In the first section of this chapter, I presented the major conceptual evolutions in the understanding of vulnerability from earlier linear explanations to the recent relational and multidimensional understanding of vulnerability. I have highlighted that in order to study the processes that make rural women and men vulnerable to climate change, I need to adopt a perspective that sees vulnerability as relational and multidimensional (Tschakert and Tuana 2013). Indeed, this perspective opens up the possibility for a transformational approach to climate change adaptation (Tschakert 2012; Tschakert and Tuana 2013). In Section 2, I have demonstrated that in the context of my research, this perspective needs to put intersectional power at the heart

of its preoccupations to enable me to analyze the power related processes that contribute to making people vulnerable to climate change in post-neoliberal Nicaragua. Said differently, it requires understanding climate vulnerabilities through the intersectional power processes that contribute to (re)creating these vulnerabilities, and how they are related to other vulnerabilizing processes. In my research, I adopt this perspective with the objective of contributing to (re)politicizing the climate change debate. The feminist political ecology perspective plays an important role in drawing more attention to intersectional power into the climate change debate. Applied to my research through a Foucauldian approach, the feminist political ecology framework entails attention to four analytical foci: (i) climate change adaptation practices; (ii) climate change adaptation politics; (iii) climate change adaptation knowledges, and; (iv) the subjectivities climate change adaptation processes create or challenge. Indeed, the politics of climate change adaptation, as well as the process of knowledge production and knowledge translation discussed in Section 3 of this chapter have effects on people's subjectivities (also discussed in Section 3). The performative politics of climate change adaptation creates its discursive subjects rural women and men conform to or resist. The recognition or the invisibilization of some types of knowledges and knowledge-holders on climate change adaptation has also its consequences on rural women and men's subjectivities and practices.

In the following four empirical chapters, I present my empirical findings related to these four analytical foci. Chapter 3 focuses on climate change adaptation practices.

CHAPTER 3. VULNERABILITY AS SITUATED

ADAPTATION PRACTICES



Picture 10. Rain gauge or pluviometer installed by a climate change adaptation project in El Nancite

(Photo: Noémi Gonda 13/08/2014)

I first visited the rural communities of the so-called 'Dry Corridor' of Nicaragua in 2006. At that time I used to work for Agronomes et Vétérinaires Sans Frontières, an NGO supporting small-scale indigenous farmers of the region in their struggle to defend their land rights and to make land produce. At that time a program officer from an international institution describing this region as a "virtual desert", thus referring to the dryness and the degraded character of the landscape. She expressed that she did not understand why agricultural projects would be implemented in this territory where barely anything grew. In her view, the only realistic survival strategy for the local people was to leave the territory. Nonetheless, the indigenous people in the Pacific, Center and Northern region of Nicaragua, including the ones from the community of El Nancite, my first research site, want to stay on their ancestral lands. Abandoning their place is not an adaptation strategy they consider attractive, despite increasingly recurrent droughts and the growing scarcity of the natural resources on which their livelihoods depend.

On the other side of the country, in the Autonomous Region of the Southern Caribbean Coast of Nicaragua, a reverse situation can be observed. Recently settled inhabitants of freshly created rural communities plan to move further and further in the forest even if there is no more available land to conquer. "I may not be here next time you come back", stated Don Pedro, the farmer whose family I used to stay with in the community of El Pijibay while doing my field research in that region. He and his family have been living there for twenty years, and have invested in land and cattle. Replacing his cattle-ranching activities with agro-forestry systems is not appealing for Don Pedro despite the fact an NGO has recently trained him on their advantages for environmental conservation, climate change adaptation and mitigation. Rather, it is now time for him to move and cut another piece of forest to establish pastures.

(Source: fieldnotes)

Introduction

Practices constitute the primary lens through which I study adaptation to environmental changes in general, and climate change in particular. As Bee states: “[a]ttention to (...) everyday material practices provides insights on how subjects produce particular relationships with their environment and how broader relations of power, like gender, shape these relationships” (2016, 74). In this chapter, in line with Cote and Nightingale (2012) as well as Tschakert and Tuana’s (2013) argument, I want to show that in the context of my research communities, a situated understanding of vulnerability and adaptation practices helps to grasp the reasons why and how rural women and men respond (or not) to environmental and other changes. My aim is to include in the climate change adaptation practice debate “subjective identities and affective relationships, through gender, class and ethnicity, for example, that shed a light on the multiple, complex and contested rationalities in ecological decision-making processes” (Cote and Nightingale 2012: 483-484). In particular, by analyzing some of the agricultural and natural resources management practices inhabitants of El Pijibay and El Nancite have implemented in response to environmental and social changes in the past and today, my intention is to substantiate empirically the relational and multidimensional character of (climate) vulnerability. With such an understanding of vulnerability as well as the processes that make people vulnerable to climate change on the ground, I want to answer my first research sub-question, namely: **How do gender and other potential factors of oppressions and privileges such as ethnicity, age, class and geographical location shape agricultural and climate change adaptation practices in rural Nicaragua, and how are rural communities (and their members) inserted into the climate change regime through their practices?**

In the first section of this chapter, I put environmental changes and the way the inhabitants of El Pijibay adapted to them in a historical perspective. I highlight how talking about migrations as an adaptation strategy to environmental changes is key in El Pijibay both in the past and currently. I conclude the section on El Pijibay by highlighting the main stressors that affect the livelihoods of its inhabitants, thereby empirically justifying the need to see vulnerability as multidimensional and relational. In Section 2, I conduct a similar analysis for El Nancite. I highlight how migrations constitute a strategy to stay in place in the El Nancite context in which agricultural production is barely possible. I conclude the section on El Nancite by also highlighting the main stressors that affect the livelihoods of its inhabitants, thereby empirically justifying the need to see vulnerability as multidimensional and relational, and to include the concept of transformation in the debate on climate change adaptation. In Section 3, I bring together the analysis of the evolution of the adaptation practices in El Pijibay and in El Nancite to answer my first research sub-question recalled above.

3.1. El Pijibay: the colonization of the agrarian frontier as an adaptation practice

To arrive to the community of El Pijibay in the municipality of El Rama in the Autonomous Region of the Southern Caribbean Coast of Nicaragua, the trip down the majestic river Rama takes nearly an hour. The motorboat stops every four or five minutes at small artisanal quays to unload people laden with provisions such as sugar, rice, cooking oil, soap and medicines. They are coming back from the city of El Rama where they did their shopping with the money they earned from having sold their weekly production of *cuajada* (fresh cheese), cassava and plantain. Picture 11 shows a typical scene at the main quay of El Pijibay of a day in which there is market at El

Rama: a pig is being loaded in the boat at El Pijibay's quay. Its owner will sell it at El Rama's market. Picture 12 presents the arrival at El Rama of a boat laden with people from El Pijibay and its surrounding communities, who come to sell their weekly production on the market at El Rama.

Picture 11. Loading of a pig on the boat at El Pijibay's quay in order to sell it at El Rama's market



(Photo: Noémi Gonda, 01/04/2014)

Picture 12. Arrival of the boat coming from El Pijibay and its surrounding communities on a Tuesday morning, day of the municipal market in El Rama.



(Photo: Noémi Gonda, 01/07/2014)

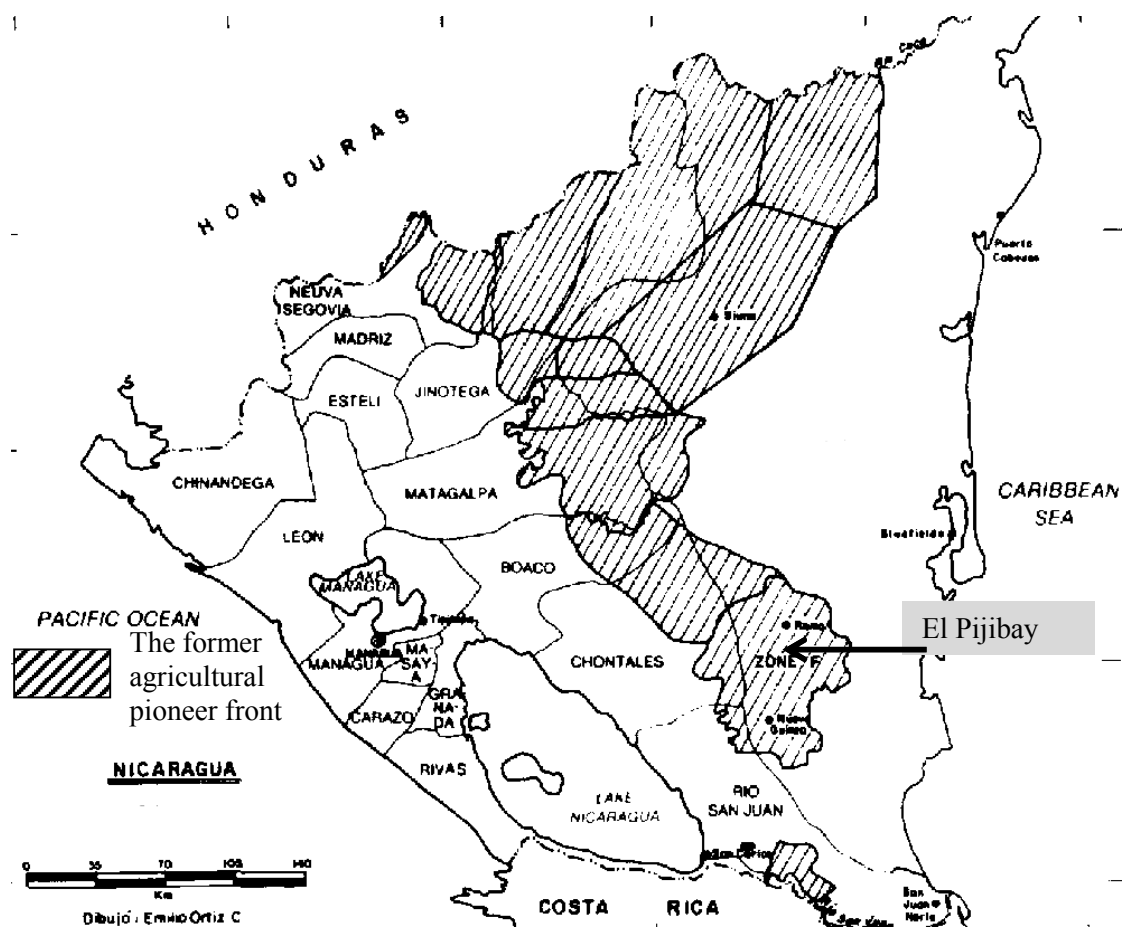
On our way back from the weekly market, after an hour-long boat ride, and after my companions and I get down at El Pijibay's quay situated on the property of one of the two large cattle ranchers who own land in this community, we have to walk another 40 minutes crossing pastures to get to the house of the family I am staying with. There are no cars here, people walk or ride horses. The vegetation is dense and green. The houses are distant from each other: one can walk for a long time before encountering anybody since it is mainly a cattle-raising region where producers own relatively large areas of land⁴⁴.

None of the 40 families currently living here is originally from this community. They are all part of a relatively recent movement of settlements that pushed farmers from the Pacific, Central and Northern region of Nicaragua towards the East: the so-called agrarian colonization of the Caribbean region of Nicaragua.

⁴⁴ Fifteen hectares counts for a small farm in El Pijibay while in El Nancite, the majority owns only 1 to 3 hectares.

Thus, El Pijibay lies in the territory of the former agricultural pioneer front, defined by Christophe Maldidier as “the interface and rather vague frontier between forests and the expanding area given to agriculture” (2004, 185). This frontier, shown on Map 3, represents the movement of farmers coming from an already exploited land through agriculture, husbandry or forestry, migrating towards mountainous and forest areas to establish new productive settlements (Rueda Estrada 2013).

Map 3. Geographical location of El Pijibay within the former agricultural pioneer front



(Author's design using map by Ortiz C. 1983)

The municipality of El Rama, where El Pijibay is situated, and which has currently a territorial extension of 3,907 km² (INIFOM 2014) and a humid tropical climate, received an influx of peasants from Nicaragua's drier regions. These peasants migrated in search of new, ideally more productive lands. In the following sub-

sections, I describe the three main episodes that were significant in this process and highlight that even when women told me about how they arrived to the community, the stories about the colonization of El Pijibay were about their husbands, ex-husbands, fathers, brothers or sons. Hence, El Pijibay's history is a history about men who want to become cattle ranchers even if in some cases women had to temporarily support the livelihood of the family so men could start building their cattle farms.

3.1.1. Multidimensional and relational vulnerability in El Pijibay over the last 70 years

3.1.1.1. First wave of colonization: 1945-1974

During the 1945-1974 period, due to the rapid growth of agricultural sectors such as cotton, sugarcane, coffee and meat, the lands of the Pacific, Central and Northern region of Nicaragua became more and more dedicated to producing for export (Nicaraguan Institute of Municipal Development 2015). With the aim of gaining more control over the territory, supporting the national grain production of maize, beans and rice, but also the expansion of the cattle-ranching sector, the government encouraged small-scale grain producers and small and medium cattle ranchers to advance towards the agricultural frontier, which at that time also concerned El Rama. According to the Nicaraguan Institute of Municipal Development (2015), 150,000 additional hectares of land were gained annually on the forest for agricultural purposes. The fact that the national surface covered by rainforest dropped from 55 percent to 33 percent between 1950 and 1990 can also be predominantly attributed to this phenomenon (Lévêque 1986; in Maldidier 2004).

Don Adalberto who is 88 years old, is one of the first inhabitants of El Pijibay who is alive and still living there. He was part of this movement of expansion. Born and raised on a small farm in Acoyapa in the department of Chontales (see Map 4), he

was the eldest son of his parents who owned approximately twelve hectares of land on which they raised animals and produced staple grains. After having labored on the family farm from age thirteen, he started working as a *mandador* (foreman generally in charge of the livestock on the farm of a large cattle breeder) on a cattle *hacienda* (large cattle farm) at age 20. He arrived at El Pijibay when he was 28, in 1954. He recounts:

After I left that *hacienda*, I continued working with the *machete* [as a peasant without land]. Then I realized that the work was not profitable enough. Before, it was easy to come here because land was cheap and a brother of mine encouraged me: he already owned a plot and [moreover] he had more money [than me]. [I told:] “let’s go! These lands are easy”. (...) [My brother] helped me (...) so I could come (...) and that’s how I started my farm here⁴⁵ (Interview with Don Adalberto, El Pijibay, 27/02/2014).

In effect, forests in Nicaragua have a national status and they were freely accessible during the 1940s and 1950s. Don Adalberto’s brother bought a large extension of land from a first owner of these national forested lands. In these areas as there were no ethnic groups living permanently nor temporarily at that moment, land could be appropriated on a first-come, first-served basis (Maldidier 2004): it represented an easy way of appropriating land for the ones who could go and ‘serve themselves’. With the encouragement of the central government, these people would occupy land in proportion to their capacities to manage it, which they would demonstrate by delimiting the plots with clearings. As Maldidier explains “[i]n the minds of those on the Pacific coast [of Nicaragua], the forest areas of the Atlantic represented the same thing as Amazonia for the Brazilians: an empty space with

⁴⁵después ya que salí de esa hacienda, seguí trabajando al machete, de allí ya miré yo pues que el empleo no me daba. Antes esto era fácil la venida por que las tierras eran baratas y un hermano mío me hizo la gana: él ya tenía (...) [y además] manoseaba más centavitos. (...) [Yo dije] ¡vámonos!, aquellas tierras son fáciles. (...) [mi hermano] me ayudo (...) para que me viniera (...) y así vine a fincarme aquí yo.

abundant natural resources that could be used to increase the prosperity of both the country and its inhabitants” (2004, 186).

3.1.1.2. Second wave of colonization: early 90s

The second wave of colonization happened during the early nineties when after the end of the war that opposed the Sandinista revolution to the US supported counter-revolutionary army, the disarmed population in search of land settled in the region by pushing the agricultural frontier further again. The story of Doña Esperanza and her husband Don Javier who arrived in the community during this epoch relates to the consequences of the war. They used to live on a 215 hectare-large farm owned by Doña Esperanza’s mother in law in La Gateada, department of Chontales (see Map 8 in Appendix 2).

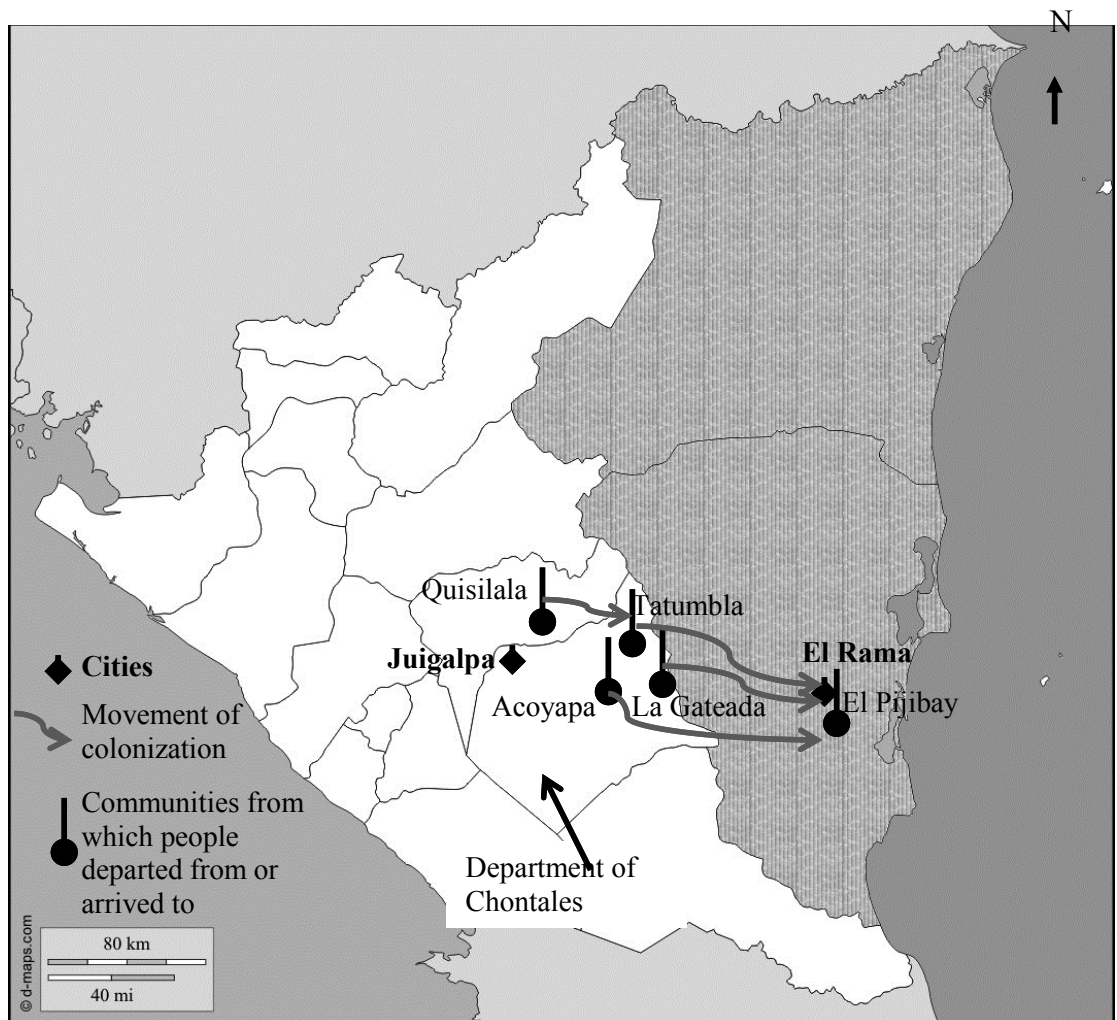
Due to the increased insecurity generated by the armed conflict, the mother in law sold the farm to protect her family. Until the end of the conflict, Doña Esperanza and Don Javier earned their living as agricultural workers on the property of other farmers close to the city of Juigalpa (see Map 4). After the peace agreements in the early nineties, the mother in law stayed at the city of El Rama (see Map 4) but bought a 39 hectares farm in El Pijibay for her son and his family.

3.1.1.3. Third wave of colonization: the 2000s

Other arrivals in the community occurred at the beginning of the 2000s. Some of them are related to demographic growth in the sense that second generation farmers had to migrate to find their own plot when the family farm became too small for them to support the livelihood of their own growing family. Other ones relate to a process of decapitalization. Both cases can be illustrated with the example of Don Rodolfo, who is 42 years old and who used to work on the family farm back in Quisilala, Chontales (see Map 4). The bank confiscated the major part of the family farm in

Quisilala due to an unpaid loan Don Rodolfo's father had taken towards the end of the 1980s. With the remaining land and cattle, the father managed to buy another farm in the early 1990s, further inside in Tatumbula (see Map 4) where land prices were a lot lower than in Quisilala. Don Rodolfo, once married and with growing needs for his family, moved to the neighboring community of El Pijibay by selling the plot of the Tatumbula farm he inherited from his father, thus managing to buy a bigger, 25 hectares farm in El Pijibay, again because of lower prices in El Pijibay.

Map 4. Movements of colonization of El Pijibay



(Author's design using the online map "Nicaragua / República de Nicaragua
Boundaries, Departments," n.d.)

No matter which of these three ‘waves’ they were part of, the settlers stated that the land was forested when they arrived. For example, Don Adalberto enjoys recalling all the wild animals he used to hunt. He explains that most of them have disappeared now. He says: “nowadays (...) one can die to fulfill a desire to eat a piece of deer meat⁴⁶” (Interview with Don Adalberto, El Pijibay, 27/02/2014). Doña Esperanza recounts that when she arrived with her husband they were the ones who cleared the forest: “here there was absolutely nothing [apart from] some forested mountainous areas when we arrived. We cleared the area here⁴⁷” (Interview with Doña Esperanza, El Pijibay 24/02/2014). Don Rodolfo put it simply: “well, it was pure forest, pure forest⁴⁸” (Interview with Don Rodolfo, El Pijibay, 24/02/2014).

3.1.1.4. Analyzing the colonization of El Pijibay as an adaptation practice intended to reduce people’s vulnerability

In each of the described cases, migration appeared to be an adaptation strategy that responded to a process that made people vulnerable to a point that they could no longer bear supporting because it disrupted their livelihoods. Thus, the movement of advancing the agricultural frontier is an adaptation strategy in the sense that it is a response to a situation of crisis, be it due to institutional arrangements (like in the case of the agrarian colonization policies of the 1940s-1970s, or the collapse of the financial support system for farming in the late 1980s), the insecurity generated by the war, environmental degradation, or demographic growth. In the case of Don Adalberto, it was a matter of economic survival for his family, which he could not secure while working on other cattle ranchers’ *hacienda*. For Doña Esperanza and Don Javier, it was the threat of the war. For Don Rodolfo, it was a matter of space: he

⁴⁶ “hoy (...) tal vez se muere uno con el deseo de comer un tuco de carne de venado”.

⁴⁷ “Aquí no había mire absolutamente nada, [excepto] unos montarascales cuando nosotros venimos. Aquí nosotros limpiamos”.

⁴⁸ “Bueno aquí era puro monte, era puro monte”.

needed somewhere to live and work together with his young family, which was not possible on the farm of his father. Adaptation to the above-described stressors is related to livelihood strategies. However, they are also related to personal interests, and subjectivities. For example, Don Adalberto wanted to have his own farm, no matter how hard the conditions were to establish it. Don Pedro, another farmer in El Pijibay who owns 54 hectares of land and an equivalent number of cows, wants to keep his livestock even if this means selling his current farm and house and needing to reconstruct a new one somewhere else (Interview with Don Pedro, El Pijibay, 22/06/2014 and 29/06/2014).

The relational dynamics of vulnerability is best formulated by Taylor as

the ways in which marginalized peoples are adversely incorporated into political, social and economic relationships that produce their vulnerability while simultaneously creating relative security for others (2013, 138).

These relational dynamics are illustrated by the history of colonization of El Pijibay.

The first migration wave was encouraged by the dictatorship and was aimed at avoiding political instability by keeping in power the political elite whose members were involved in export oriented agriculture. By keeping the best quality lands of the Pacific, Central and Northern region of the country for themselves, and pushing smallholder producers towards the East, the colonization of the agrarian frontier was first meant to serve the interest of the elites related to the dictators of the Somoza dynasty supported by the United States: it gave them the possibility to continue increasing their capital and exploiting the Poor while avoiding social conflicts. They did so by opening the ‘escape valve’ of the agricultural frontier by encouraging smallholder farmers to move eastward.

The spatial relationality of vulnerability is shown by the possibly disastrous environmental consequences of the migration of smallholder cattle ranchers towards

the buffer zone of the Indio Maíz biosphere reserve. Indeed this reserve also popularly called ‘the lung of Central America’, is one of the biggest protected areas of Nicaragua, which is already a scene of “contested struggles over production and protection”(Nygren 2004, 189). Map 5 by Global Forest Watch shows where the Indio Maíz Biological Reserve is situated (in dark green), and the recent encroaches that has been made to its territory (in light green).

Map 5. Recent (2000-2013) encroachment on the Indio Maíz Biological Reserve.

(Global Forest Watch n.d.)

relational: the people of El Pijibay tend to move further and further towards the reserve in response to processes that make them vulnerable, including external ones, among them land-grabbing by palm oil plantations. Those who are contributing to live off the reserve are often blamed for this despite the fact that not only encroachers live in the reserve: indigenous populations have historically occupied and maintained this territory. Their vulnerability is also increased by the arrivals of the encroachers (among them the ones who speculate on the reserve's natural resources and the ones who are compelled to advance). Vulnerability is also multidimensional: history has shown that their migrations have depended as much on economic, as on social, political, ecological, and personal issues.

Highlighting the relational and the multidimensional character of vulnerability and adaptation practices allows me to dismantle simplistic arguments about how people's mobility is maladaptation⁴⁹, and contribute to (re)politicizing the climate vulnerability debate. Indeed, constructing small and medium-holder cattle ranchers from El Pijibay as maladapted and bearing the main responsibility for future environmental degradation (including climate change sometimes), contributes to making invisible the environmental responsibilities of the most powerful actors. This invisibilization is similar to when the colonization of the agrarian frontier was presented to smallholders as an interesting economic opportunity, when in reality it was (also) about keeping the dictatorship and its allied wealthy producers in power.

Once vulnerability is reconceptualized as relational and multidimensional, deforestation cannot be seen just as a maladaptive practice either. For example, only

⁴⁹For Arun Agrawal (2005), mobility, like the one that led to the colonization of El Pijibay by cattle ranchers from the Pacific, Central and Northern region of Nicaragua is one of the most common and seemingly natural responses to environmental change. Agrawal underscores that mobility is often considered as maladaptation (2005), however this analysis is not accurate in El Pijibay because instead of asking the question of whether practices are adapted or maladapted, what is important to understand is the factors that push farmers to adapt in specific ways.

during the time I spent in Nicaragua for this research, Don Pedro's family with whom I stayed in El Pijibay, cleared two hectares of their already heavily deforested 54 hectares farm, and nearly half of the families of the community owned a chainsaw. However, the wood from the fallen trees was never directly for their own usage apart from a few cases when they needed to repair their houses, build a new bed, a cradle or a shelf⁵⁰. Don Pedro sold the wood resulting from two hectares of forest to one of the palm oil companies that operates in El Rama, which in its fast expansion needs to grow its infrastructure by building new installations from wood. The palm oil plantation in question is owned by powerful Nicaraguan families who are encouraged to develop this activity in the region through reduced governmental taxes and are allowed to operate as if they were in a tax-free zone like the sweatshops in Nicaragua. Picture 13 shows some cut down trees and wood stacks that resulted from deforestation in 2014 in El Pijibay, and that were designated to be sold to a neighboring palm oil company.

⁵⁰ The wood used for cooking is usually sourced from fallen branches or some branches people cut. Firewood, unless it is used for commercial activities, which I did not witness in any of my research sites did not require to cut entire trees or entire forests.

Picture 13. Cut down trees and wood stacks in El Pijibay waiting to be sold to a palm oil company



(Photo: Noémi Gonda, 28/06/2014 and 31/03/2014)

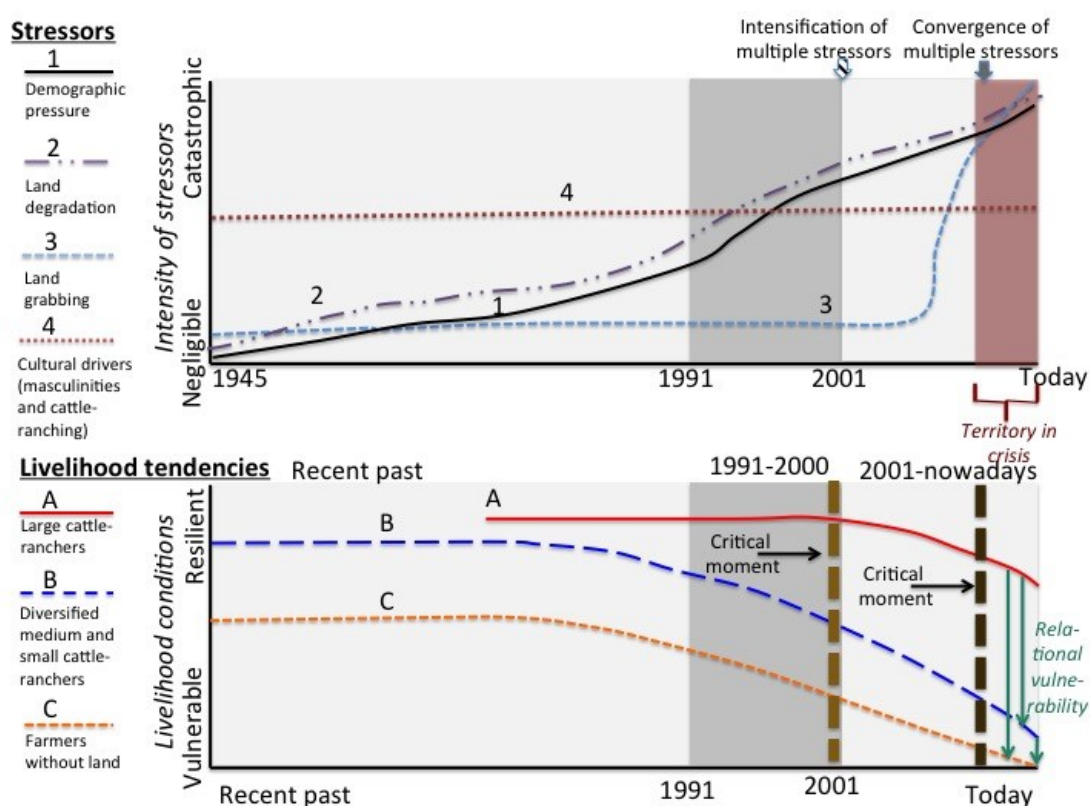
Peasant migrations as an adaptation strategy and environmental degradation are indirectly linked with palm oil plantations in other ways too. Don Mamberto, a farmer whom I interviewed in El Pijibay (28/03/2014) settled in the community just two years prior. A palm oil company bought the lands of his community of origin that lies at some fifty kilometers from El Pijibay by pressuring and threatening its inhabitants. With the money he got from the palm oil company in exchange for giving them his farm, Don Mamberto bought land in El Pijibay, something he would not have considered if he had not been compelled to move. This demonstrates not only the desire to secure pasture for livestock, but also the fact that the expansion of palm oil plantations in the region are pushing smallholders further and further into increasingly remote areas. This phenomenon is contributing to the disappearance of entire rural communities and consequently to deforestation both for the installation of palm plantations and by compelling people to move further into forested areas. The case of Don Mamberto, while unique in El Pijibay for the moment, is illustrative of a worrisome phenomenon that corresponds to an adaptation strategy likely to intensify

in the near future and that has been observed elsewhere in Central America in the context of land grabbing by palm oil plantations (Borras et al. 2012; Alonso-Fradejas 2015). Don Mamberto, who showed me around his newly settled farm in El Pijibay on March 28, 2014, did not have any agricultural production on his 40 hectare-farm, just cattle, something which contrasted very much with the farms of the other producers of El Pijibay. Indeed, most of them produce their own food: mainly beans, plantain, and cassava, as well as maize for a few of them. Don Mamberto told me that losing his land to the palm oil plantation was emotionally difficult and that he was not willing to invest work in a land that he might soon lose to another palm oil plantation. He explained to me that he preferred only having livestock which he could move somewhere else if he needed to.

3.1.2. The stressors that make El Pijibay's inhabitants vulnerable

The history of colonization of El Pijibay, and the particular life stories presented above are meant to show some of the main stressors (demographic pressure, land degradation, land grabbing, cultural drivers) that have historically affected the livelihoods of the inhabitants of this community and how these stressors have contributed to making particular people vulnerable in particular contexts. In this subsection, my intention is to focus on tendencies in different type of producers' livelihood strategies, and discuss how they are related to different stressors. Figure 7 that is inspired from Figure 13-3 in Chapter 13 of the IPCC's Fifth Assessment Report (Olsson et al. 2014, 804), is meant to represent the most important stressors that I identified in El Pijibay (upper part of Figure 7) and the way these stressors affect the livelihood tendencies of different types of producers in the community (bottom part of Figure 7).

Figure 7. Illustrative representation that describes livelihood dynamics in El Pijibay under different type of stressors leading to differential livelihood trajectories over time



(Author's design applied to the case of El Pijibay on the basis of 34 qualitative interviews, after Olsson et al. 2014, 804)

Building on the 34 interviews that I did with the inhabitants of this community, I identify *four main stressors* that have affected the livelihoods of El Pijibay's population. The first stressor (represented on Figure 7 as "1") is *demographic pressure*. With its augmented importance from the 1990s onward, it has contributed to an increased deforestation and *land degradation* by newly settled inhabitants who started installing pastures for cattle-ranching (represented on Figure 7 as stressor "2"). As the acid soils of the humid tropical region where El Pijibay lies are extremely fragile, land degradation has become significant in a very short time. For example, several of my interviewees mentioned that the 'life span' of a pasture is of 15 to 20

years in this region; after that period the land is not usable for agricultural activity anymore. The *land-grabbing phenomenon* (represented on Figure 7 stressor “3”), is increasingly present in El Pijibay’s neighboring territories since the early 2000s and appears likely to become more important in the near future. The *masculine aspiration of becoming a cattle rancher* is a fourth and additional stressor in the sense that it impedes some male farmers from implementing the adaptation strategies that do not provide them with an equally masculine status as cattle-ranching, such as cocoa production. This stressor is represented on Figure 7 as “4”, and is discussed more in detail in Chapter 6 of the dissertation. Finally, I chose not to represent climate change as a stressor on Figure 7, because even though numerous farmers of El Pijibay complain about the fact that the rainy season is getting shorter and shorter, which affects the pastures, they mainly relate this phenomenon to local deforestation that influences the local microclimate and the capacities of the soils to retain humidity.

Different types of farmers are affected differently by the four main stressors highlighted on the upper part of Figure 7, based on their livelihood strategies (see bottom part of Figure 7). The *large cattle ranchers* (whose livelihood tendencies over the recent period are represented on Figure 7 as “A”) have been historically less vulnerable, but have also recently started to feel vulnerability. They have never been permanently living in El Pijibay despite having a farm with their livestock grazing there since the early 1990s, after the first colonizers such as Don Adalberto cleared some of the territory. Currently, the two large cattle ranchers who own land in El Pijibay do not live on the farm and have other farms and other livelihood strategies elsewhere (some of them related to agriculture, some of them not. For example, Don Eric, one of the large cattle ranchers of El Pijibay opened a restaurant in El Rama in 2014). Both largeholders own approximately 300 hectares of land in the community

and have between 150 and 200 animals grazing there. A person from the community (in the case of Don Eric's farm) or a person from a neighboring community (in the case of the other largeholder's farm), who gets a salary for his work, manages the farm as its *mandador*. The male *mandadors* of each of the two farms receive what is considered as a complete (albeit very low) salary for their work (the equivalent of approximately 100 USD per month), while their respective wives who are in charge of milking the cows receive approximately the equivalent of 20 USD per month (Interview with Don Dagoberto, El Pijibay, 26/06/2014). The milk is usually sold fresh, without transformation into cheese. As the farms of the large cattle ranchers have their own quays that allow direct and easy access to the river, every morning after the milking, the *mandador* brings the full milk containers to the quays where they are collected by a boat that transports them to El Rama together with the daily production of other large farmers. The agreement related to the transportation and the commercialization of the milk is made directly between the largeholder cattle rancher, the transporter, and the buyer. The *mandador's* responsibility stops at the quay. Recently, largeholder farmers appear to be increasingly affected by the lack of pastures related to land degradation as shown on Figure 7. However, as they have other income generating activities, their livelihoods are less affected by these stressors than that of the other two categories of farmers.

Medium and smallholder diversified cattle ranchers are the ones who feel the most the pressure to reproduce the cultural and masculine model of becoming cattle ranchers, by moving somewhere else further to find land if necessary. They constitute the second category of producers in El Pijibay. Their livelihood tendencies over the recent period are represented on Figure 7 as "B". They are farmers such as Don Adalberto, Don Rodolfo and his wife Doña Beykin, Doña Esperanza and her husband

Don Javier, or Don Pedro and her wife Doña Nerina, as well as their families, among the ones that I have mentioned earlier. Their central activity is cattle-ranching on farms that range from ten to 55 hectares. They transform daily the milk into *cuajada*, a fresh cheese that they consume partially, and sell the rest on the market in El Rama. Usually they also produce cassava, beans and plantain for their own consumption. Some of them plant maize, which has become increasingly difficult to do in the last years due to land degradation and irregular rain patterns. They are heavily affected by demographic pressure (there is not enough land for their children to install their own farms once they become adults), especially because cattle-ranching is an activity that requires big extensions of pastures. Thus, this category of farmers and their families are made vulnerable by the effects of deforestation in which the large-scale cattle-ranching model and land-grabbing are important drivers.

Farmers without land are the most vulnerable category because as the livelihoods of the other two categories of farmers become more vulnerable, they have less and less opportunities to find work with them. They are the category of producers which is most used to migrate permanently to neighboring cities or countries, with all the related social consequences of migrations in terms of insecurity, delinquency and alcoholism, without talking about the fact that migration sometimes tear entire families apart. They are the children of farmers who did not have land themselves or did not have enough to bequeath it to their children. They usually have a plot with their houses but not land to farm on, or live in the same house with their parents or parents-in-law. They earn their livelihoods by working on the farms of other farmers. It is the case of the two *mandadors* (whom I interviewed: Don Dagoberto, 26/06/2014 and Don Sergio with his wife Doña Paloma, 28/03/2014) who take care of the largeholder cattle ranchers' farms in El Pijibay but also of many other people who are

hired by the small and medium-holder diversified cattle ranchers to help them deforest, look after the livestock, plant, or harvest.

At the local level, the relational vulnerability between the above-described three categories of farmers (the largeholder, the medium and smallholder, as well as the peasant without land) is symbolized on the bottom part of Figure 7 with three green arrows that go downwards. Indeed, the increasing vulnerability of the largeholder entails that he has less work opportunities to give for medium and smallholders as well as to peasants without land. The increasing vulnerability of medium and smallholders also decreases the job opportunities of the farmers without land.

The case of Don Mamberto described previously is the only one in the community that does not fit into the three above-described categories. However it is important to signal that his situation is likely to become more common in the future. He is a small cattle rancher without diversification. The fact that he does not plant anything on his land in El Pijibay makes him more vulnerable to stresses that may affect his livestock such as changing rain patterns or the decrease in pasture availability. However, if palm oil companies would arrive in El Pijibay and directly put pressure on its inhabitants to sell them land (which is not unlikely in the upcoming years), he would be able to move his cattle without losing any other investment like cassava, bean or plantain plantations, as he does not have any. Table 6 summarizes the different types of farmers present currently in El Pijibay with their respective numerical importance, which I estimated on the basis of my interviews and observations.

Table 6. Categories of farmers in El Pijibay and their respective importance in 2014

Category of farmer	Number of families	% of total number of families	Estimated average farm surface (hectares)/ producer	Total area owned by category of farmer (hectares)	Estimated % of the total farm area owned in the community
Large cattle ranchers	2	5%	300	600	49%
Diversified small and medium-holder cattle ranchers	18	45%	32	576	48%
Farmers without land	19	47.5%	0	0	0%
Particular case of non diversified smallholder cattle rancher	1	2,5%	40	40	3%
Total	40	100%	30.4	1216	100%

(Interviews and observation, El Pijibay, 2014)

In addition to highlighting the tendencies in livelihood strategies in relation to the most important stressors, the history of colonization of El Pijibay, as well as the particular case of Don Mamberto are also meant to demonstrate empirically that adaptation practices like migration, deforestation, or deciding not to grow crops anymore can never be just in response to climate change, and that inequality and vulnerability are always multidimensional and related one to another, as highlighted in Chapter 13 of the IPCC's Fifth Assessment Report (Olsson et al. 2014, 807)⁵¹. Hence, climate change must not be seen as a separate or additional stressor as it was the case in early conceptualizations of vulnerability (IPCC 2007). Vulnerability is multidimensional and so are the stressors with which the inhabitants of El Pijibay need to cope with, among them, the ones that relate to national politics that favor the

⁵¹ Here I want to also acknowledge early writings on multiple stressors and double exposure. However and unfortunately, this discussion has made it into the practitioner debate only recently.

wealthiest minority, their local consequences such as demographic pressure and land degradation, the fact that largeholders own half of the territory of the community, and the violent advancement of palm oil plantations, as well as the *macho* aspiration of wanting to become cattle ranchers who need to be constantly seeking new pastures.

Finally, particularly vulnerable moments are the ones when multiple stressors intensify and then converge, becoming critical moments for people's livelihoods. As illustrated in Figure 7, the intensification of the stressors can be observed since the beginning of the 2000s when all types of farmers have started to go down the slope of vulnerability. The convergence of stressors has been happening in El Pijibay for the last ten years, which also highlights the relational character of vulnerability: demographic pressure, land degradation, deforestation, land grabbing and cultural drivers can reinforce each other when at the origin of particular vulnerabilities. Hence, El Pijibay is a rural territory in crisis (symbolized with the period colored in red in the upper part of Figure 7) where, the multi-dimensional and interrelated processes that make people vulnerable such as the ones I described in this section need to be addressed.

3.2. El Nancite: staying in place as an adaptation practice

Adaptation practices can differ significantly from one place to another because similar stressors play out differently in distinctive agro-ecological, social, cultural, economic, and political contexts. In one word, they are situated, even though they are related to vulnerabilities in other places. For example, contrary to the people of El Pijibay, the inhabitants of El Nancite do not consider leaving their territory even if it increasingly resembles a “virtual desert”, as I highlighted at the beginning of this chapter. This willingness to stay in place is related to the fact that, as indigenous peoples, the ancestors of most of the inhabitants of El Nancite have been living there

since before the Spanish colonization at the beginning of the sixteenth century.

Therefore, for its inhabitants, adapting to environmental changes means finding a way to stay in place at any cost, even if this means engaging in struggles over land and sacrificing some of the members of the family who will have to move to maintain those left in the community.

3.2.1. El Nancite: multidimensional and relational vulnerability

3.2.1.1. Vulnerabilities inherited from colonial and development times

The territory of Telpaneca belongs to an indigenous group that has been involved in a recent process of (re)constituting its identity that historically has been ignored by the Nicaraguan State. In the context of this process, respect for their ancestral territory and making it viable are central to their concerns (Monachon and Gonda 2011). The *Telpaneca* People are one of the five indigenous groups of the Northern region of Nicaragua. The region has a total population of 57,764, of whom 51 percent identify themselves as indigenous, and who claim their rights on a total area of 990 km²(INEC 2005; in Monachon and Gonda 2011). The indigenous population, whose members are mostly working on small plots, or without land, practice subsistence-level agriculture in a territory that has been degraded by the unsustainable exploitation of forest resources (Monachon and Gonda 2011).

Telpaneca, like the other four indigenous territories in the region, is currently facing two main problems. First, social pressure on increasingly scarce natural resources (land, water, and the remaining forested areas), related to the fact that the majority of these indigenous territories and the best lands therein belong to outsiders, not to indigenous farmers. These outsiders live in the cities of Ocotal, Estelí and Managua, grow coffee, have cattle or supply wood to timber companies (Monachon and Gonda 2011). Their second main problem is linked with the inadequate recognition of their

existence and their rights by the State and the existence of legal vacuums that exclude them from investment plans, territorial development, and the management and control of their territories (Monachon and Gonda 2011).

In the context of the non-recognition of their existence and their rights (the two being of course related!), in the beginning of the 2000s indigenous groups such as the *Telpaneca* have begun to demand recognition of their existence and rights and to set out their need to control the natural resource base to ensure their cultural and economic survival (Monachon and Gonda 2011). They have created an alliance with four other indigenous groups of the Northern region of Nicaragua who share the Telpaneca's ethnic belonging to strengthen the claim for the recognition of their rights⁵².

One of the aspects that determine the adaptation strategies that the *Telpaneca* put forward is this struggle for recognition and for the defense of their rights on their ancestral lands manifested for example in their fierce opposition in 2009 and 2010 to a World Bank land-registering project. The project had the objective to elaborate the cadaster of the territory without acknowledging its indigenous character because the territory was not officially recognized as such. The *Telpaneca* People protested first peacefully by explaining their situation: namely that they were indigenous people no matter if the government did not recognize them as such and no matter if the Project of Law for Indigenous People of the Pacific, Center and North of Nicaragua they had proposed for their recognition had been blocked at the level of the National Assembly for years. After some discussions with the employees of the cadastre project who obviously did not want to recognize the rights to land of indigenous People who did not officially exist, the World Bank came up with the idea of an anthropological study

⁵²These indigenous groups are from the territories of Totogalpa, Mozonte, San Lucas and Cusmapa.

on the *Telpaneca* People. The study whose terms of reference were published in 2010 was meant to demonstrate whether the Telpaneca existed or not as an indigenous group. That same year, the indigenous government of Telpaneca filed a claim with the Ethnic Commission of the Nicaraguan National Assembly, and managed to make an allied anthropologist, Dr. Mario Rizo, execute the anthropological study the World Bank needed. The study, published on October 19th, 2011, not only confirmed their ‘existence’, it also presented who the Telpaneca People were and shared their vision on natural resources and land management (Rizo 2011). This resulted in a historical moment: the World Bank cadastre project had to stop its activities on the border of Telpaneca. The World Bank project executed the registering of all the territory it was supposed to, and spread their neoliberal vision on land property as eminently private and individual, but did not enter in Telpaneca.

The struggles around the above-described World Bank project highlight the relationship between the Telpaneca indigenous people and their territory. My experience of working with them between 2006 and 2010, and my participant observation in the community during my field research has shown that this relationship is strong despite the unproductive character of their cherished land. This strong relationship, combined with the harsh agro-ecological conditions and the level of degradation of the landscape compel its inhabitants to adopt adaptation practices to environmental changes that are non-agricultural. Indeed, agricultural production does not provide the means for the survival of the rural inhabitants of El Nancite.

In addition to struggles in response to ethnic oppressions inherited from colonial times, the legacy of earlier development projects still contribute to reproducing vulnerabilities. This latter argument can be illustrated with a discussion I had with a climate change project technician, Juan, in charge of facilitating a climate

change adaptation project in El Nancite. After the sad discovery that most of the 2014 maize harvest would be lost in El Nancite, Juan lamented that so few farmers of El Nancite had planted sorghum instead of maize. Indeed, sorghum should be planted in the same period as maize and serves the similar purpose: that of being the ingredient of the *tortillas*, essential for the alimentation of Nicaraguans. Traditionally, some thirty to forty years ago, farmers would always plant sorghum together with maize, even if they usually prefer eating *tortillas* made of maize. The advantage of sorghum in the face of maize is that it is a lot more resistant to droughts, something I also heard from farmers themselves. Planting it has been part of a strategy to have something to eat even if maize production would fail. However, very few farmers are still used to planting sorghum and most of the ones who plant it are near or above their sixties like Don Lalo, Don Ticiano or Doña Leonor. Indeed, development projects of the 1990s and early 2000s encouraged farmers to abandon sorghum production with the argument that Nicaraguan sorghum has no market, neither at the local nor at the international level. Thus, it ‘only’ serves food security purposes, and just in case there is no maize production.

The reasons for abandoning sorghum production must be analyzed as part of the broader political ecology that produces climate vulnerabilities in El Nancite. Ironically, in response to the 2014 droughts, the climate change adaptation project Juan is working with distributed sorghum seeds so that farmers plant them in the following planting season. The discussions about the non-adaptation of the farmers of El Nancite (the fact that most of them abandoned sorghum production despite its wide-known resistance to droughts) did not consider the reasons for this abandonment. Indeed the abandonment of sorghum production is very much related to the fact that for years development projects have been promoting during years the spread of

improved maize seeds that not only are less resistant to droughts but also require the use of high quantities of chemicals. Consequently, thanks to these projects, the majority of local farmers have no more sorghum seeds today, something that not only makes them increasingly vulnerable to the effects of climate change, it also contributes to describing their agricultural practices as non-adapted to droughts in the climate change discourse.

3.2.1.2. Analyzing the strategy to stay in place in El Nancite as an adaptation practice intended to reduce people's vulnerability

In the above described difficult context, in El Nancite, the strategy to stay in place is enabled by a practice which involves massive temporary migrations. In Nicaragua, in the neoliberal era (1990-2007), which I discuss more in detail in Chapter 4, environmental changes and environmental policies contributed to the degradation of the natural resource base of the country and to the increasing difficulties for smallholder farmers, among them the *Telpaneca*, to survive. Neoliberal policies affected particularly the dry region of the country, the most impacted by climate change (Campos Cubas et al. 2012) and considered to have less 'potential' than, for example, the humid regions (Nicaraguan Government 2003) where El Pijibay lies. Indeed, for example in El Nancite, agro-ecological conditions for production are such that the inclusion of women in garden production or the diversification of agricultural production, while widely promoted by climate change adaptation projects, does not provide the means for the family to survive either. For example, the farm of Don Mariano and his wife Doña Miriam, which really stands out from the average farm of El Nancite for its level of diversification, is not providing the means to survive for the family either. Don Mariano and Doña Miriam, despite their diversified farm and the fact that they only have two children at home are not

managing to make ends meet by selling their surplus, simply because it is very rare that due to the recurrent droughts they have any surplus. Rather, they receive help from one of their daughters who lives in the city of Telpaneca, and they have a small income through the community store they opened in El Nancite in June 2014. Don Mariano goes once a week to the city of Telpaneca to buy products such as soap and oil and sells it to the people of the community, an activity that gives him a small, but desperately needed income.

The massive reliance on migrations as an adaptation strategy started long before policies began to talk about climate change. The effects of hurricane Mitch, together with neoliberal policies triggered this reliance on migrations, especially from the end of the 1990s. These effects were particularly harsh on teenager girls in El Nancite. Indeed, with the disappearance of state services for the technical and financial support of small-scale farming, together with market liberalization, rural families of El Nancite were compelled to find new means to generate extra-agricultural income. Sending their teenage girls to big cities such as Estelí or the capital, Managua, to work for richer urban families as domestic workers was one strategy they adopted.

These girls, usually between twelve and sixteen years old in the early 2000s were not a significant source of labor force on the family farm. Yet, one mouth less to feed and the money girls would send back to their families to buy medicine, soap or cooking oil was already of great help for those left behind. The migration of these girls often happened at the expense of their education, and it would not be surprising if some girls had experienced situations of insecurity even though my interviewees did not mention them explicitly. Some of them, like Doña Cristina, who is now twenty-nine years old and single, stopped her studies when she left at age sixteen, but

managed to continue them after she came back from the city where she worked as a maid for a year in 2001. For Doña Lina, a single, now twenty-eight year-old, separated woman and mother of a ten year-old, things have gone differently. She was sent to the city in 2000 when she was fourteen. After two years of serving as a maid in Estelí, where she met the father of her child, instead of coming back to El Nancite, she moved to Managua with her partner and started working in a sweatshop, where she subsequently worked for nine years. She came back to the community only in 2011, when she was twenty-five. Her mother had already been raising Doña Lina's daughter, as it was too difficult for her to both take care of the child and work in Managua, as she separated from the father when the baby was only two months old.

The examples of Doña Cristina and Doña Lina show the gender, age, class and urban-rural divide related consequences of adaptation practices to neoliberal policies and of the degradation of natural resources that become extraordinarily visible after hurricane Mitch. These had negative consequences on the personal development, schooling possibilities, physical security and physical and psychological health of young rural girls from the poorest rural areas of Nicaragua. The girls were compelled to execute hard and often dangerous work despite their young ages. The policies also reinforced the divide between poor and rich, as well as rural and urban women, through compelling young rural girls from El Nancite to do care work for richer urban women.

Young and middle-age men from El Nancite also became massively compelled to migrate for three or four months a year to work in sugarcane, tobacco, watermelon or coffee plantations in neighboring countries. This type of migrations, especially from the dry regions 'without potentials', to which El Nancite belongs to, increased abruptly towards the end of the 1990s due to the combined effects of the

economic crisis and the devastating impacts of hurricane Mitch that hit the country in 1998. Between the 1970s and 2000, the number of Nicaraguan people living permanently abroad jumped from 50,000 to 530,000, respectively to 2 percent and 10 percent of the country's total population (Baumeister 2006). The proportion that remittances from Nicaraguan migrants represented in the economic activities of the country became in the early 2000 one of the highest in the world (Baumeister 2006). Between 1999 and 2006, their amount was higher than that of the country's total exports (Orozco 2005).

The absence of women in the rural communities contributed to giving them a marginalized position in environmental management while men remained in the position of control even when physically absent. Indeed, in the case of male migrants, absent men often continued to intervene in decision-making, which is not something I observed in the case of absent women. The control by absent men is best illustrated through the story of Doña Carla, from the community of El Pijibay. In 2002 Doña Carla, a now 38 year-old woman and her husband left together with their daughters to work in Costa Rica. After two years, they came back to the community where Doña Carla decided to subsequently stay, while her husband chose to go back to Costa Rica. For the last ten years he has been coming back to the community only once or twice a year. Doña Carla stays in the community and is in charge of taking care of their four daughters now between three and 18 years old as well as the 14 hectare family plot and the 28 cows they own. The husband calls Doña Carla at least three times a day on her cellular phone and sends her money regularly. Picture 14 shows the importance of the cell phone in another household of El Pijibay where one the sons and the husband emigrated in Costa Rica. I was told that the cell phone is used nearly exclusively to receive calls from them (Interview with the mother, Doña Laura and a son Don

Bartolomé who were left behind in El Pijibay respectively on 29/03/2014 and 30/06/2014 respectively). The phone is hanging from the roof of the house in a plastic bag: it is the only place where there is network reception. The plastic bag is to protect the phone from getting wet.

Picture 14. Cellphone hanging from the roof in a household with migrants in El Pijibay



(Photo: Noémi Gonda, 28/03/2014)

While Doña Carla told me that she was in charge of the decisions on how to use the money sent by her husband, I discovered that it was only for purchases for the household and the schooling of the daughters. During an interview with Doña Carla's brother in law (Interview with Don Máximo, El Pijibay, 30/03/2014), I understood that in fact it was him who was in charge of managing the family plot and deciding whether to sell or buy animals, for example. Doña Carla is in charge of milking the

cows and making *cuajada*, which she can sell and gain money from⁵³, but she has no decision power on the cattle-ranching activity otherwise. This is typical for migrant men who continue holding the power of decision-making over women, often with the help of other men of the family. This is the case even if they have been away for long years.

The combined effects of neoliberal policies with increased droughts and disasters attributed to climate change can be observed both in the dry and the humid regions of the country, with more visible effects in the so-called ‘Dry Corridor’ where El Nancite lies, and where they have prompted adaptation strategies that had significant social impacts. Migrations have been and are still an adaptation strategy that rural families would implement to survive, and to stay in place. In most cases, migrations have not contributed to the reconfiguration of power relations within the Nicaraguan family and did not contribute to the empowerment of women.

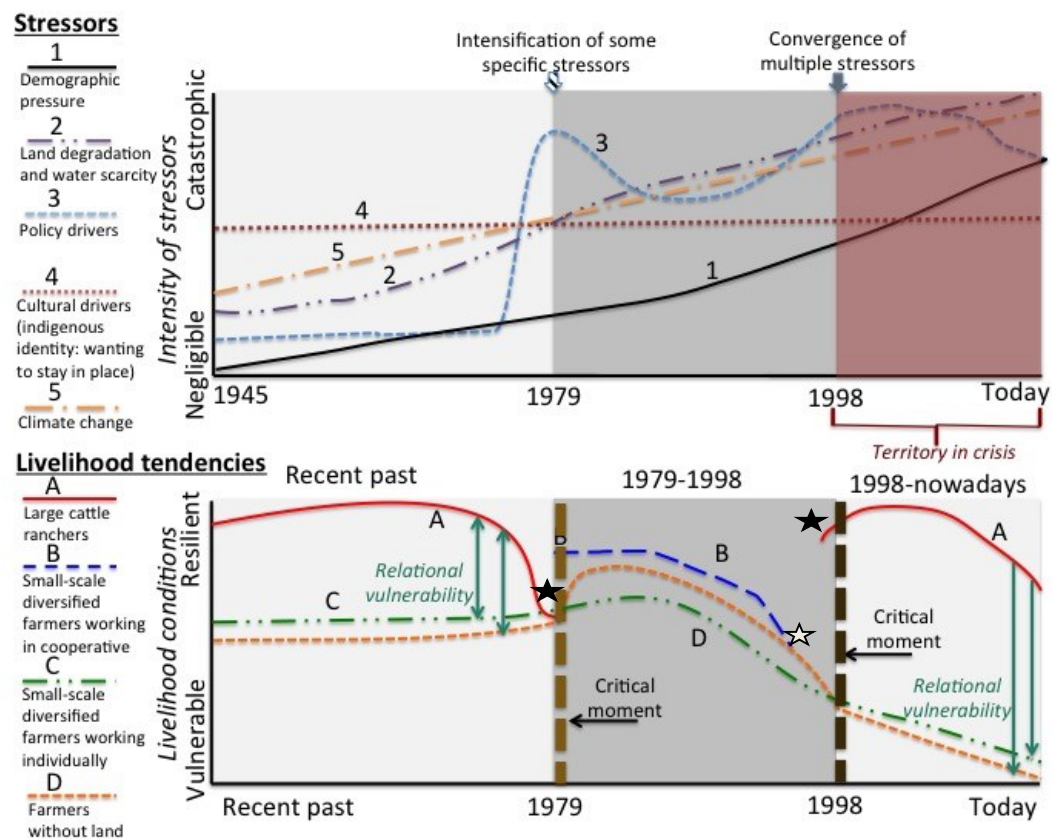
3.2.2. The stressors that make El Nancite’s inhabitants vulnerable

The relation of the *Telpaneca* People to their ancestral land, their strategies to stay in place, the effects of the Green Revolution and of the so-called development projects of the 1990s and 2000s, as well as the particular life stories presented above are meant to illustrate some of the main stressors that have historically affected the livelihood tendencies of the inhabitants of this community and how these stressors have contributed to making particular people vulnerable in particular contexts. Figure 8 that is inspired from Figure 13-3 in Chapter 13 of the IPCC’s Fifth Assessment Report (Olsson et al. 2014, 804) is meant to represent the most important stressors

⁵³ My estimations show that the average weekly income from commercializing *cuajada* on the market of El Rama for producers like Doña Carla is 700 *Córdobas*, the equivalent of 25 USD. This is not a significant amount, and it is usually used to buy products for the household such as cooking oil, soap, sugar, and salt, among other things.

that I identified in El Nancite and that affect the main types of producers of the community.

Figure 8. Illustrative representation that describes livelihood dynamics in El Nancite under different type of stressors leading to differential livelihood trajectories over time



★ Largeholder farmers disappear from the territory of El Nancite as a consequence of the agrarian reform. Largeholders (not the same people as the ones that were present before 1979) reappear towards the mid 1990s as a consequence of the counter-agrarian reform of the neoliberal era.

☆ The category of small-scale diversified farmers working in cooperatives disappears with the dismantlement of the cooperative in El Nancite in the late 1980s. Most of the farmers constituting this category become small-scale diversified farmers working individually. Some of them become farmers without land.

(Author's design applied to the case of El Nancite on the basis of 38

qualitative interviews, after Olsson et al. 2014, 804)

Building on the 38 interviews I did with the inhabitants of this community, I identify five main stressors that have affected the livelihoods of El Nancite's population. The first stressor (represented on Figure 8 as "1") is *demographic*

pressure. It started to be increasingly felt from the 1940s-1950s, when large landowners started exploiting the forests of El Nancite, thereby pushing the smallholder indigenous farmers and their families towards the slopes of the most degraded hills. It continued to be felt even more after the Sandinista war during which the inhabitants of the territory that constitutes today El Nancite and three other communities, decided to live in shelters that they built close one to another. This measure was taken by the population to be able to better protect themselves and their families as a group from eventual attacks. Thus, El Nancite, and especially where the community Church stands today became the center where inhabitants of four surrounding communities settled. After the war, while some of these inhabitants moved back to the community they were originally from, others stayed, thus contributing to increasing the population density in El Nancite, which subsequently grew even more.

Demographic pressure, with its augmented importance from the 1990s onward has contributed not only to an increased deforestation and *land degradation* related to the fact that farmers needed areas to plant their crops, it also led to an extreme *water scarcity* in the community. An NGO worker who is familiar with the conditions in El Nancite, once informally shared with me that “El Nancite is the community where you don’t dare ask for a glass of water. Because there is no water⁵⁴” (paraphrase from fieldnotes). Land degradation and water scarcity are important stressors in El Nancite, whose evolution is represented on Figure 8 as stressor “2”.

The *policy drivers* (represented on Figure 8 as stressor “3”) such as the Sandinista policies of the 1980s that resulted in the confiscation of largeholders' land in El Nancite, and the neoliberal policies of the 1990s whose effects became

⁵⁴“El Nancite es la comunidad donde no te atreves pedir un vaso de agua. Porque no hay agua”.

extremely visible in El Nancite in 1998 when hurricane Mitch hit the community with all its strength, are two important stressors. The relationship of the inhabitants of El Nancite to their ancestral, indigenous land, is a fourth and additional stressor in the sense that it impedes them from envisaging leaving permanently the territory, no matter how degraded it is, and whether there are better options or not elsewhere. This *cultural driver (wanting to stay in place)* is represented on Figure 8 as “4”. Finally, *climate change* (represented on Figure 8 as stressor “5”) appears to be a stressor that is especially felt since the beginning of the decade, when NGOs have started to put a name on its biophysical effects and have identified the ‘Dry Corridor’ to which El Nancite belongs to as the most vulnerable to climate change, something I discuss more in detail in Chapter 5.

The five main stressors highlighted on the upper part of Figure 8 affect the livelihood tendencies of the inhabitants of El Nancite. However, different types of farmers are affected differently based on their livelihood strategies (see bottom part of Figure 8). The *large cattle ranchers* (whose livelihood tendencies over the recent period are represented on Figure 8 as “A”) have been the less vulnerable before the Sandinista revolution but have lost their rights to the areas that they owned in the territory of the community with the agrarian reform of the 1980s thus abruptly increasing their vulnerability and compelling them to leave the territory. Indeed, the Sandinista government of the 1980s confiscated or bought the land of largeholder tenants and re-distributed it to smallholder farmers and peasants without land. Large-scale cattle ranchers started to re-appear in the community towards the beginning of the 1990s. While the families expelled during the Sandinista regime of the 1980s never came back (I was told that they found refuge in the United States), other largeholders benefitted and contributed to the so-called counter-agrarian reform of the

neoliberal era of the 1990s, which provided support for the wealthiest part of the society. Some largeholders started buying land in El Nancite, others rented smallholders' pastures to have their livestock graze on them. None of them is originally from El Nancite and they do not live in the community: they live in neighboring cities. While the agro-ecological conditions of El Nancite are much more difficult than the ones in El Pijibay, especially for cattle-ranching due to the extreme droughts, the large cattle ranchers of El Nancite are still the least vulnerable of the different types of producers present in the community. This observation is explained with the same reason I highlighted for the large-scale cattle ranchers of El Pijibay: while their cattle-ranching activity is increasingly affected by droughts, land degradation and climate change, their livelihoods do not rely only on cattle-ranching.

During the 1980s, a cooperative was formed in El Nancite on the redistributed lands that used to belong to largeholders. With originally over twenty members, the cooperative specialized in collective cattle-ranching and individual staple grain production. While most of the original beneficiaries of the cooperative were men, in the mid-1980s, some women were integrated as members: they were usually the spouses of the male members. With the increasing difficulties faced by the Sandinista regime and the decline of the support system (such as credit and technical assistance) for cooperatives, by the end of the 1980s, the members of the El Nancite cooperative had divided the land of the cooperative among each other. According to my interviewees, the former leaders of the cooperative received more land than the others (it was the case of Don Mariano, Don Ticiano, and Don Lalo while Don Candelario who was not one of the leaders, did not receive anything, according to what the latter told me during an interview in El Nancite on 24/04/2014). Their respective wives'

plots (who at that time had been integrated as full members to the cooperative) fell under the rights of the husband and are today considered as part of the husband's farm.

With the Sandinista agrarian reform *smallholder farmers and peasants without land* reduced their vulnerability by getting access to agricultural land. However, towards the end of the Sandinista regime of the 1980s, and the beginning of the neoliberal era in 1990, that *smallholder farmers and peasants without land* started to go down the slope of vulnerability mainly due to the stressors represented in the upper part of Figure 8. What is also extremely important to underscore is how relational vulnerability plays out (represented in the bottom part of Figure 8 with the green arrows). With the agrarian reform, the increasing vulnerability of largeholders resulted in decreasing vulnerability for smallholders and peasants without land. However, since, the neoliberal era, just like in El Pijibay, the fact that largeholders become increasingly vulnerable, entails that smallholders and peasants without land are also driven into vulnerability because some of their activities depend on the largeholders. For example, they are the largeholders' workforce and/or rent their pastures for their animals. Finally, smallholders and farmers without land are the ones who are tied to the land of El Nancite by their indigenous *Telpaneca* subjectivity.

In an earlier agrarian diagnostic of the municipality of Telpaneca that includes El Nancite (Coudray 2002), there is mention of small-scale coffee producers in the region. While there are still some neighboring communities where smallholders produce coffee, like in Los Ranchos, this is not significantly the case anymore in El Nancite (in the community only Don Mariano and Don Simón with their respective wives produced some coffee, mainly for self-consumption and commercialization within the community). There are coffee producing regions not far from El Nancite such as the municipality of San Juan de Río Coco, where the inhabitants of El Nancite

historically go to work in the harvest, but it is coffee production at a different scale. Coffee regions like that of San Juan de Río Coco are also the ones that are recognized as the most affected by climate change and that are at the center of policy discussions on the challenges of the coffee sector in the face of climate change. I mention this here because the coffee crisis related to climate change that affects the plantations in San Juan de Río Coco impacts negatively the livelihoods of smallholders and farmers without land in El Nancite: it affects directly their adaptation practices which include migrating temporarily (for example to work on coffee plantations) to be able to stay on their *Telpaneca* lands. Table 7 summarizes the different types of farmers present in El Nancite today with their respective numerical importance.

Table 7. Categories of farmers in El Nancite and their respective importance in 2014

Category of farmer	Number of families	% of total number of families	Estimated average farm surface (hectares)/ producer	Total area owned by category of farmer (hectares)	Estimated % of the total farm area owned in the community
Large cattle ranchers	3	7%	100	300	81%
Small-scale diversified farmers working individually	20	48%	3.5	70	19%
Farmers without land	19	45%	0	0	0%
Farmers in cooperative	0	0%	0	0	0%
Total	42	100%	2.5	370	100%

(Interviews and observations, El Nancite, 2014)

In addition to highlighting the tendencies in livelihood strategies in relation to the most important stressors, the recent agrarian history of El Nancite and its producers is again meant to illustrate that adaptation practices like migration and staying in place, as well as deforestation, taking care of other farmers' cattle,

artificially increasing the community's population, can never be just in response to climate change, and that inequality and vulnerability are always multidimensional and relational (Olsson et al. 2014, 807). Particularly vulnerable moments are the ones when specific or multiple stressors intensify or converge, which becomes critical for the livelihoods of some type of farmers. As illustrated in Figure 8, this particular moment happened for largeholder farmers with the Sandinista agrarian reform and has been happening in El Nancite since the beginning of the neoliberal era and has become especially visible since hurricane Mitch in 1998. As I will discuss more in detail in Chapter 4, the post-neoliberal turn has not significantly eased the situation. Hence, just like El Pijibay, El Nancite is a rural territory in crisis (represented in the upper part of Figure 8 with the fact that the last time period is colored in red), where the processes that make people vulnerable such as the ones I described in this section, need to be urgently addressed.

3.3. Gender and other factors of oppressions shaping adaptation practices

In this chapter, I have discussed my first analytical focus: rural women and men's climate change adaptation practices. I discussed them within a historical perspective as coping strategies executed 'on the ground' at the local community level, but connected with practices, discourses, policies and biophysical effects that happen at other levels. To answer my first research sub- question, I first highlight the main factors of oppressions and privileges that shape climate change adaptation practices and, second, I show that rural communities and their members are inserted into the climate change regime through their practices.

3.3.1. Factors of oppressions and privileges shaping agricultural and climate change adaptation practices

Based on the empirical observations described and analyzed in this chapter, I claim that gender and other potential factors of oppressions and privileges such as ethnicity, age, class and geographical location shape agricultural and climate change adaptation practices in rural Nicaragua.

3.3.1.1. Gender

In El Pijibay, I have highlighted that the agrarian colonization, an adaptation practice that is implemented in response to several stressors, is also very much influenced by the cultural reproduction of hegemonic masculinities, which pushes men to want to become cattle ranchers. I have also shown that in some cases gender inequality influences vulnerability with the cases of the *mandadors* who work on the farms of large cattle ranchers in El Pijibay. While their families are among the most vulnerable to climate change because they are peasants without land, their female members have even fewer possibilities to access to livelihood strategies than the men. Indeed, the wife of the *mandador* only gets a pay as the *help* of the *mandador* on the farm, despite the heavy task of milking numerous animals every day. In El Nancite, existing unequal gender relations affected the female members of the cooperative: not only have they not been integrated in the cooperative from its beginnings, once it was dismantled, they lost the rights on the land that was distributed among the members because of household inequities, thus rendering them more vulnerable than men. Indeed, while they remain as a couple with their husbands, the fact that they do not have rights on land may not be an issue, but once they separate, they are more likely to fall into vulnerability than their male partners. In El Nancite, young girls' migrations impeded them to participate in the decision-making processes in the

community, while men continued to participate, even when they were physically absent.

3.3.1.2. *Ethnicity*

Ethnicity is an important factor that shapes climate change adaptation practices and vulnerability in El Nancite. Their indigenous identity that prompts the *Telpaneca* people to stay in place at any cost influences the adaptation practices they implement. The non-recognition of their indigeneity and their related claims makes them particularly vulnerable in the face of climate change adaptation policies that do not consider their specific relation to land and natural resources. In particular, their situation calls for an approach to climate change adaptation, which has the potential to transform (not reproduce) existing oppression systems based on ethnicity.

3.3.1.3. *Class*

Both the cases of El Pijibay and El Nancite shows that vulnerability is heavily determined by class. Class was extremely important in the discussion of the advancement of the agrarian frontier that pushed smallholders and peasants without land towards El Pijibay. The fact that the territory of the Caribbean regions served as an “escape valve” for the *ladino* elites to grab the most productive lands of the Pacific, Central, and Northern region of Nicaragua is clearly linked with class-related oppressions. It intersected with the aspiration of smallholders and peasants without land to become cattle ranchers, because it gave them the (today heavily blamed) opportunity to deforest land to install pastures. Class related inequalities are still very much present: the wealthiest minority of the local population (*i.e.* the large-scale cattle ranchers) remain less vulnerable in comparison to other population categories, because their livelihoods rely on a multiplicity of strategies, including non-agricultural ones.

3.3.1.4. Geographical location

In addition to the enormous differences in terms of agro-ecological conditions between El Pijibay and El Nancite, their discursive constructions also influence local adaptation practices and vulnerabilities. El Nancite is part of the ‘Dry Corridor’ of Nicaragua, the most affected by climate change according to scientific assessments. It is there, that most climate change adaptation projects intervene promoting adaptation practices. Some of these projects, if they do not take into account the intersecting factors that may contribute to reinforcing (climate) vulnerabilities, present the risk of contributing to creating even more vulnerabilities. This was the case with the development projects that promoted abandoning sorghum cultivation, an adaptation practice that only considered commercial aspects but that did not take into account long-term coping strategies to climate change.

3.3.2. The insertion of rural communities into the climate change regime through their practices

In addition to highlighting some of the oppressive and privileging factors that shape adaptation, the discussion of the two units that constitute my case study in this chapter shows how rural communities (and their members) are inserted into the climate change regime through their practices. One topic that is widely discussed in the climate change regime is deforestation, something that I largely debated in this chapter, showing that deforestation is an adaptation practice that is multidimensional and relational. For example, in El Pijibay, deforestation has been influenced by class-related agrarian policies that pushed the agrarian frontier further, and hegemonic masculinities that make men want to become cattle ranchers, among other things. In El Nancite, the increase in demographic pressure related to the war, among other things, and the presence of physically absent largeholder cattle ranchers in the community have prompted farmers to deforest.

In this chapter, I have demonstrated that the arguments about the maladaptation of entire population groups are dismantled when adaptation is seen as relational, and multidimensional. Still, rural communities are often brought into the climate change regime through simplistic arguments related to the maladapted character of their agricultural practices. Indeed, it is not uncommon that climate change and development practitioners refer to cases like the ones observed in my research sites suggesting an idea of some sort of maladaptation. For example, at a conference presentation on the ‘Dry Corridor’ of Nicaragua, Anton Eitzinger, Peter Läderach and Beatriz Rodriguez expressed the need to help farmers understand what they have to adapt to (2012). They thus gave the idea that local populations are not only insufficiently aware of the changes in their environment, they might also be unable to efficiently adapt to them. A similar idea is present in discussions on environmental adaptation in regions of former agricultural frontiers like El Pijibay. As Francisco Pichón expresses, debates in former agricultural frontiers are often about the fact that settlers “bring to the region agricultural practices they are familiar with in their places of origin but which may be poorly adapted to the intricacies of rain forest ecology” (1997, 711). This suggests that when leaving their places of origin, the people currently living in El Pijibay did not adapt their environmental practices to their new contexts, which could explain their purportedly unsustainable practices. The latter argument not only ignores the broader political ecology of adaptation, it also intersects with the reproduction of gender, ethnicity, class and geographical location related oppressions.

Conclusion

In this chapter, I have analyzed the evolution of agricultural practices in my two research sites in a historical perspective to uncover some of the processes that

make rural women and men vulnerable to climate change and to other stressors. I have shown that these processes are multidimensional and they are related with one another.

By doing so, I have contributed to answering my research question by showing that gender, ethnicity, class and geographical location can influence climate change adaptation practices, which I consider as responses to situations in which rural women and men experience vulnerability. I have also shown that it is through these practices that are often embedded in unequal gender, class, ethnicity and geographical location hierarchies that rural women and men are brought into the climate change regime. Based on this observation, the gendering of climate change adaptation politics in Nicaragua (that is at the heart of my main research question) risks to be happening in a context of connected vulnerabilizing processes whose losers are among indigenous, women, small-scale or landless peasants.

In the next chapter, I shift to another analytical scale and turn to the politics of climate change adaptation in Nicaragua: I examine how the gendering of climate change policies and discourses in the current post-neoliberal era reinforces or challenges the previously described vulnerabilizing processes.

CHAPTER 4. GENDERED MARGINALIZATIONS IN POST-NEOLIBERAL CLIMATE CHANGE POLITICS



Picture 15. Sandinista political party militant card with the image of President Ortega belonging to a farmer of El Nancite⁵⁵

(Photo: Noémi Gonda, 26/04/2014)

⁵⁵ The card says: “militant, Nicaragua 2014, making the homeland, Christian, Socialist, Solidary”. FSLN stands for Frente Sandinista de Liberación Nacional (Sandinista National Liberation Front).

As a former development worker in Central America, and more recently as a researcher in Nicaragua, I had the chance to participate in numerous events with rural women's organizations from Nicaragua, Honduras and Guatemala. During these events, be it in the early 2000s or more recently, the most mentioned claims would be women's inclusion in public policy, their participation in political decision-making spaces, and direct measures to support rural women in accessing means of agricultural production such as land, credit, animals and technical assistance. The last time I heard a similar claim was from the representative of the Union of Women Farmers in Honduras⁵⁶ during the Latin American Assembly of the International Land Coalition that took place in October 2014 in Managua. In reaction to the intervention of this admirable activist woman who has been tireless during the last decades in her fight for the rights of Honduran rural women, I could not help reacting by directing attention to the lessons conveyed by the Nicaraguan case. Indeed, in current post-neoliberal Nicaragua, all she is fighting for seems to have been achieved, at least in appearance.

(Source: fieldnotes)

⁵⁶ Unión de Mujeres Campesinas Hondureñas.

“It is ironic that at a time when gendering and feminization have entered the discourses and practices of the state, the women question appears to be losing relevance” (Simon-Kumar 2011, 19).

Introduction

In Nicaragua, three important features distinguish current post-neoliberal politics (2007-nowadays) from previous neoliberal ones (1990-2007): (i) increased efforts to reduce poverty and exclusion, central concerns in social policies; (ii) the environment is not seen as only supposed to serve economic growth, rather it is conceptualized as mutually constitutive with humans, and; (iii) the encouragement of citizen participation in decision-making and service delivering. In particular, women are made visible in the policy discourse and seen through their figures of nurturing mothers when it comes to environmental management.

Gender related measures and policies implemented since the beginning of the post-neoliberal regime recently placed the country in incredibly prestigious positions: out of 142 countries, Nicaragua is ranked sixth in terms of the Global Gender Gap Index⁵⁷ and fourth in the political participation of women (World Economic Forum 2014). A law that created a special fund to support rural women to buy land was issued in 2010⁵⁸ (National Assembly 2010). Another law, the first in the history of Nicaragua to make violence against women illegal⁵⁹, came into effect in 2012 (National Assembly 2012). Since 2007, development, environmental and climate change policy discourses and interventions give special visibility to women. Programs targeted at rural and urban women living in poverty have been implemented since

⁵⁷After Iceland, Finland, Norway, Sweden and Denmark respectively.

⁵⁸ Law 717 Creating a Fund to Buy Land with Gender Equity for Women (Ley 717 Creadora del Fondo para Compra de Tierras con Equidad de Género).

⁵⁹Law 779 Integral Law Against Violence Against Women and Reforms to Law No. 641 "Penal Code" (Ley 779 Ley Integral Contra la Violencia Hacia las Mujeres y Reformas a la Ley No. 641 "Código Penal")

then: access to micro-credit and agricultural assistance to cite just two of them. Poor, rural, indigenous, small-entrepreneur women have never had as much visibility in the Nicaraguan public discourse as since 2007, in which they are predominantly pictured as having a ‘special connectedness’ to nature, making them particularly apt to implement, for example, agricultural activities targeted towards climate change adaptation (e.g. Nicaraguan Government 2010; Nicaraguan Government 2012).

However, together with feminist scholars working in Nicaragua (e.g. Cupples 2004; Bradshaw et al. 2008; Kampwirth 2008; Lacombe 2014a), and the majority of the feminist activists that I interviewed in the country (see Table 20 in Appendix 8), I suggest that these policies and measures, while they integrate gender considerations, do not reflect a feminist perspective. The prestigious ranking of Nicaragua in terms of gender equality hides a context in which women’s participation in decision-making spaces is not always the result of their empowerment, nor does it contribute to empowerment in the majority of cases. The specific fund created in 2010 to support women’s access to land has not received one single *centavo*⁶⁰ since then, and therefore has not benefitted anybody with a single hectare. The progressive law on gender violence was reformed the same year in which it was issued, allowing for mediation, considered by feminist activists that I interviewed as a hindrance placing abused women in a position where they may face renewed victimization. Also, the inclusion of women in development, environmental and climate change discourses is done through evoking their ‘traditional’ gender roles of cooking, taking care of the children and the elderly, as well as of fetching firewood and water, and through the widespread assumption that they are a homogeneous group particularly apt to execute environmental protection.

⁶⁰ The hundredth fraction of a *Córdoba*, the national currency.

It is in this context that I take a closer look at my second analytical focus: the (gendered) politics of climate change in Nicaragua, to analyze the origins, forms, distribution and control of power within the Nicaraguan climate change regime. As underscored in the Introduction, the latter entails studying climate change policies but also their origins, their differentiated understandings and applications ‘on the ground’, as well as their acceptance or reactions (if any) to them. The discussion in this chapter builds strongly on what has been presented previously in Chapter 3 on climate change adaptation practices and situated vulnerabilities. Chapter 3 provides the ‘on the ground’ power-laden context through which rural women and men are brought into the climate change regime in Nicaragua. My aim in this chapter is to answer my second research sub- question, namely:

How do current Nicaraguan post-neoliberal climate change adaptation politics include concerns for gender and other potential factors of oppressions and privileges such as ethnicity, age, class and geographical location?

As justified in Chapter 2, my theoretical approach to climate change adaptation politics builds on the understanding of climate change adaptation as social reproduction. The latter allows me to give a special attention to the divide that climate change adaptation politics may create between the productive and the reproductive spheres, as a manifestation of the workings of patriarchy. In addition, because I see politics as performative, my analysis focuses on the subjects that climate change adaptation politics create, and how the subjects enact or resist the new subject positions that they are given.

Environmental Policy for a Sustainable Economic Growth⁶¹” and “Protection of Mother Earth, Climate Change Adaptation and Integral Management of Disaster Risks⁶²”: these are the titles of the sections relevant to environmental policies in the main public policy documents of Nicaragua written respectively in 2003 and 2012. They are reflective of the discursive rupture conveyed by the transition in 2007 from a neoliberal (1990-2007) to a post-neoliberal regime (2007-nowadays), from the market oriented neoliberal narrative on the environment seen as manageable towards a gendered human development discourse that defies the conceptual divide between humans and the environment.

In the first section of this chapter, I contextualize this discursive shift. In Section 2, I highlight the gendered consequences of the shift from an environment seen as manageable during the neoliberal epoch towards nature seen as our ‘own mother’ in post-neoliberal Nicaragua. In the third section, I show how this paradigmatic shift changed the way rural women are included in environmental management and climate change adaptation in rural communities. In section 4, I discuss the consequences of the fact that while during the neoliberal era, NGOs were in charge of promoting gender equality in the environmental field, this responsibility has been taken up by the State in post-neoliberalism. In the fifth section I discuss an example of climate change adaptation strategy promoted exclusively for women by projects. Finally, in Section 6, I answer my research sub-question by highlighting the major impediments for a feminist response to climate change in post-neoliberal Nicaragua, namely the rise of the post-feminist discourse, the reinforcement of the

⁶¹ La Política Ambiental Para un Crecimiento Económico Sostenible.

⁶²La Protección de la Madre Tierra, Adaptación Ante el Cambio Climático y Gestión Integral de Riesgos y Desastres.

divide between the productive and the reproductive spheres, and the dangers of taking private patriarchy to the public sphere.

4. 1. Contextualizing the shift from the neoliberal to the post-neoliberal era

In Nicaragua the neoliberal era officially started after the loss of the presidential elections by the Sandinista in 1990, in power since 1979. Despite the achievements of an anti-imperialist socialist government that implemented a comprehensive agrarian reform and numerous wide-range social programs based on grassroots mobilizations, the civil conflict, the US embargo and the war economy soon compromised the goals of the Revolution in terms of the transformation of the Nicaraguan society, including the objective of transforming unequal gender relations. Structural adjustment programs that contributed to deepening social inequalities characterized the neoliberal period (Nitlapán - Envío team 1998a; Nitlapán - Envío team 1998b) that was also marked by “the continuing environmental damage being wrought by the region’s externally driven model of economic development” (Brown and Cloke 2005, 5). Julie Cupples who researched gender and rural development in neoliberal Nicaragua described the neoliberal rural landscape in the following terms:

It is relatively easy to identify what is not sustainable about the rural economy in Nicaragua. The emphasis on export-oriented growth, central to structural adjustment, has pushed marginal farmers to more marginal environments, on the slopes of hillsides and volcanoes or further into the rainforest, where slash and burn techniques are deployed in order to grow subsistence crops (2004, 6).

As Cupples highlighted, neoliberal policies jeopardized the natural resource base of the country by encouraging intensive agricultural production on the most productive territories and by pushing the agrarian frontier further.

In addition, the disappearance of the social support system that existed under the Sandinistas and that gave the poorest populations access to means of production

such as land, credit and technical assistance, as well as health and schooling services transposed these responsibilities from the State to NGOs. NGOs also became in charge of intervening in the promotion of gender equality since the neoliberal State did not build on the achievements of the Sandinista regime that used to address gender inequality through communication campaigns, legislative measures and the creation of new social institutions (Babb 2012). While before the neoliberal era, the Sandinista Government encouraged rural and urban women to organize, “thus contributing to develop the revolutionary conscience of women and that of the society as a whole” (Babb 2012, 158), neoliberal policies and subsequent increasing poverty rates compelled women to join the productive sphere: women had to find remunerated jobs in or outside their communities or implement income generating activities on their own farms or that of their families and neighbors. Meanwhile, their reproductive roles, especially the ones related to taking care of children and the elderly became increasingly difficult to fulfill because of the weakening of the social support system (Babb 2012).

It is only after 16 years under neoliberal policies that the current Nicaraguan Government was elected in 2006 as a counter-proposition, and on the strength of its promises to reinstate social rights, reduce market power and restore the role of the State (Sader 2009). Since 2007, the discursive framing of human-environment relations is marked by a shift in the paradigm from modernity to a transition towards the common good. Post-neoliberal environmental and climate change politics have three important features that drastically differ from neoliberal politics in Nicaragua : (i) they conceptualize human-environment relations as mutually constitutive; (ii) they give women an exceptional discursive visibility, and; (iii) gender concerns do not fall

under the sole responsibility of NGOs, they are addressed through governmental policies and measures.

In 2006, the current president, Daniel Ortega won the elections with 38 percent of the votes. This was made possible by last minute changes in the regulation of the elections, enabled by a political alliance between the Sandinista Party (FSLN- Sandinista National Liberation Front) and one of the opposition parties, the Liberal Constitutionalist Party (PLC- Partido Liberal Constitucionalista). Maintaining the FSLN and in particular Daniel Ortega in power has been a central concern since then. Feminist activists whom I interviewed in Nicaragua suggest that the massive integration of women in the political sphere and as the primary beneficiaries of social, agricultural and environmental policies also respond to this interest, and so does the fact that the main policy discourse is gendered. To this, I find important to add that neoliberal views can still be detected under the post-neoliberal discourse and thus shape the intersection between environmental and gender politics, which creates a complex situation. As highlighted in the Introduction to this chapter, it is a situation in which formal gender equality is about to be reached through measures that promote gender parity, however equity is not even on the political agenda and patriarchal subordination is reproduced at all levels. However, it would be too simplistic and not useful for the feminist cause to just mourn that post-neoliberal politics are a more discursively gendered or environmentalist remake of neoliberal politics... a sort of *greenwashed* and *genderwashed* neoliberal politics. If gender and environmental justice are of true concern, feminist and environmental movements need to sincerely engage with climate change from an intersectional perspective. In order to do so, it is key to understand how current Nicaraguan post-neoliberal climate change adaptation politics include concerns for gender and other potential factors of oppressions and

privileges such as ethnicity, age, class and geographical location, and in particular, how despite the discursive visibilization of women and an apparent governmental interest for gender, patriarchy intersects with other systems of oppression in post-neoliberal Nicaraguan environmental and climate change politics. This is the endeavor I am undertaking in the following sections by analyzing at different levels the discursive shifts and continuities in environmental and climate change politics brought by the change from the neoliberal to the post-neoliberal era.

4.2. The policy level: from the manageable environment to nature as our own Mother

In this section, the main public policy documents of the neoliberal and the post-neoliberal era constitute the objects of my analysis, namely the 2003 National Development Plan (Nicaraguan Government 2003) and the 2012 National Human Development Plan (Nicaraguan Government 2012). In both documents, I concentrate on how they conceptualize human-environmental relations to show how the discursive shift from the environment seen as manageable, to nature pictured as our ‘own Mother’ has contributed to giving women an exceptional discursive visibility in climate change policies.

4.2.1. The manageable neoliberal environment

None of the eight chapters of the 2003 National Development Plan is specifically on environmental concerns. They are: (I) “Taking a Better Path”, which sets the main argument: that of supporting economic growth; (II) “Macroeconomic politics”; (III) “Competitiveness as a Poverty Reduction Strategy”; (IV) “Towards an Integral and Sustainable Social Policy”; (V) “Infrastructure”; (VI) “Potentials and

Marginality of the Territories”; (VII) “New Approach to Public Expenditures”, and; (VIII) “Other Institutional Reforms”⁶³.

It is exclusively in the last, ninth section of Chapter (III) on competitiveness as a poverty reduction strategy that environmental problems and their possible solutions are discussed. This suggests that the authors of the document establish a conceptual link between the fight against poverty and environmental management, which shows that the environment is seen as an exploitable basis for economic growth, as well as a means for poverty reduction (through a trickle-down effect as I discuss later). The title of section 9, “Environmental Policy for a Sustainable Economic Growth⁶⁴” is reflective of this view: as the word association shows, the preoccupation with sustainability relates to economic growth, not environmental management. Furthermore, while the document recognizes the fact that economic growth has contributed to the degradation of the natural resource base of the country (2003, 151), it states that “environmental protection becomes a central element of a strategy of differentiation that serves to occupy market niches with major values ⁶⁵” (2003, 152).

The document does not mention the risk that economic growth, even if it is sustainable, can contribute to further environmental degradation. Besides, the section explains that to execute environmental strategies, payment for ecological services will be a central instrument as they are “directed towards economic valuation of the services ecosystems generate” (2003, 154). Payment for ecological services, while a means to generate benefits for populations who conserve natural resources, is

⁶³(I) “Tomando una Ruta Mejor”; (II) “La Política Macroeconómica”; (III) “La Competitividad como Estrategia de Reducción de la Pobreza”; (IV) “Hacia una Política Social Integral y Sostenible”; (V) “Infraestructura”; (VI) “Las Potencialidades y la Marginalidad de los Territorios”; (VII) “Nuevo Enfoque del Gasto Público”; (VIII) “Otras Reformas Institucionales”.

⁶⁴“La Política Ambiental para un Crecimiento Económico Sostenible”.

⁶⁵“protección ambiental pasa a convertirse en el elemento central de una estrategia de diferenciación que sirva para ocupar nichos de mercado de mayor valor”.

criticized for forcing a monetary value on nature, breaking community relations over natural resources management and not taking into account the spiritual relations of local inhabitants to natural resources (e.g. Fairhead, Leach, and Scoones 2012; Kosoy and Corbera 2010; McAfee and Shapiro 2010). This resonates with the assertion of Escobar: the instrumental view of nature leads to the formulation and implementation of policies oriented towards the ‘rational’ management of natural resources as if it were possible to manage them as any other merchandisable goods (1995). In this neoliberal approach, ‘nature’ and ‘society’ are seen as two separate entities (Castree 2001; in O’Brien et al. 2007, 76). Thus, the 2003 National Development Plan reflects a conceptualization of nature as an instrument for development essentially envisaged in economic terms.

“Poor people have very little to lose⁶⁶” stressed a nation-wide recognized expert on climate change, who I interviewed in Managua on November 11, 2013, to my question about who are the most vulnerable groups to climate change in Nicaragua. In his opinion, if economic losses due to climate change are to be reduced, which he identifies as a priority for a poor country like Nicaragua, climate change policies need to find solutions first of all for large agricultural producers. In effect, their activities such as coffee and husbandry production that represent for the country a source of foreign currency through exportation, are currently jeopardized by increasing droughts attributed to climate variability and climate change. This is the type of view that constituted the main argument of environmental policies during the neoliberal era and which is also featured in the 2003 Development Plan. It is based on two main assumptions: (i) the concern that environmental degradation generates consequent economic losses. Therefore, the environment in general, and climate

⁶⁶ “Los pobres tienen muy poco que perder”.

change threats in particular have to be managed in such a way that they reduce these losses and possibly generate economic gains for the country, and; (ii) the conviction that a ‘win-win’ solution to environmental degradation is possible through an articulation of economic growth, poverty reduction and sustainable environmental management. The 2003 Plan also spells out the development model it envisions in its first chapter called “Taking a better path⁶⁷”. It argues that economic growth fostered by the development of economic clusters, also called “poles of competence⁶⁸” in the territories with most industrial, agricultural and touristic potential represent the solution to the crisis, framed as an economic one. According to the Plan, the positive effects of supporting the territories and the economic actors *with capacities* will trickle down towards the less developed regions and populations of the country⁶⁹. This view is harshly criticized in the current policy discourse for both increasing poverty and environmental degradation.

4.2.2. Post-neoliberal nature as our own Mother

The 2012 National Human Development Plan written under the Government ruled by the president Daniel Ortega since 2007 presents a paradigmatic shift in comparison to the 2003 National Development Plan. It is currently considered as the main public policy in Nicaragua. The 2012 Plan spells out the development model it envisions in its first chapter called “The Christian, socialist and solidary model of citizen power⁷⁰”. Just like the 2003 National Development Plan, the 2012 document starts from the observation that an alternative development model is the only solution to get out of the crisis. However, it frames the current crisis as stemming from sixteen

⁶⁷“Tomando una ruta mejor”.

⁶⁸ “Polos de competencia”.

⁶⁹The overall rationale of the 2003 National Development Plan is schematized in Figure 10 in Appendix 13.

⁷⁰ “El modelo cristiano, socialista y solidario del poder ciudadano”.

years of neoliberal policies and adjustment programs that increased social inequalities.

It states that the new development model it envisions is aimed towards:

structural transformations in order to overcome exclusion and unshackle the human development potential of historically excluded groups such as the poor, women, youngsters, indigenous people, afro-descendants, handicapped people, among others⁷¹(Nicaraguan Government 2012, 8).

Just as in the 2003 National Development Plan, economic growth is seen as a central motor for the foreseen transformations to occur: “[t]he success criteria is economic growth with employment generation, overcoming poverty and inequality as well as the elimination of hunger⁷²”(Nicaraguan Government 2012, 8). The shift is notable: while in 2003, economic growth was seen as reachable through the trickle-down effects of the economic development of territories and sectors with potentials, poverty reduction and equality are now seen as factors of development. The strategic goals of the 2012 Plan are formulated in terms of the transformations the Nicaraguan society has to undertake to reach the main goal. These transformations are understood as interlinked, and relate to the political, environmental, economic and social levels⁷³. Environmental and social issues represent two of the four main transformation goals of the current post-neoliberal government; they are not as marginalized behind economic goals as they were in the 2003 Plan. Environmental concerns are in addition present within the economic transformation axis, through for example, the family farming model, both socially and environmentally more friendly than the agro-industrial model encouraged by the previous, neoliberal Government. This discursive

⁷¹ transformaciones estructurales para superar la exclusión y liberar el potencial de desarrollo humano de los excluidos históricamente, como los pobres, las mujeres, los jóvenes, los pueblos originarios, los afro descendientes, los discapacitados, entre otros.

⁷²“El criterio de éxito es el crecimiento económico con generación de trabajo y superación de la pobreza y la desigualdad, así como la eliminación del hambre”.

⁷³ See Figure 11 in Appendix 14 for the rationale of the 2012 Plan presented as a circle in which the main goal, economic growth, appears at the center, and is sustained by four strategic transformation axis.

rupture from the market oriented neoliberal narrative on environmental management towards a gendered human development discourse that defies the conceptual divide between humans and the environment is one of the most important manifestations of the post-neoliberal discourse adopted by the Nicaraguan government since 2007.

The extraordinary visibility given to women pictured as nurturing mothers is the second most important manifestation of the post-neoliberal discourse in Nicaragua. It is related to the first one, as women and nature are considered as especially connected. This is best illustrated with the current Nicaraguan climate change discourse (Nicaraguan Government 2010), integrated in the 2012 National Human Development Plan. Indeed, climate change is one of the twelve major public policies and strategies that the 2012 National Human Development Plan sketches out. The chapter called “Protection of Mother Earth, Climate Change Adaptation and Integral Management of Risks of Disaster” (Nicaraguan Government 2012, 145–164) is a replicate of the National Environmental and Climate Change Strategy for the 2010–2015 period (Nicaraguan Government 2010) that has already been mentioned in the Introduction of this dissertation. This strategy consists of twenty-seven pages and is divided into the following four parts: i) Values and ideals, ii) Environmental situation of Nicaragua, iii) Strategic guidelines and iv) Action Plan.

The ‘Mother Earth Myth’⁷⁴ related to the ecofeminist theorization of the relationship between gender and the environment, and numerous references to women are widely present in the document. The strategy describes nature and the earth that is to be “loved, respected, protected as our own mother” (2010, 3). In total, the word ‘mother’ is mentioned twenty-one times in the twenty-seven page- long document,

⁷⁴ In reference to an article from Melissa Leach: *Earth Mother Myths and Other Ecofeminist Fables: How a Strategic Notion Rose and Fell* (2007).

most often as “Mother Earth” with capital letters. There are also numerous references to “life” in general, such as “respect to life” (2010, 2). “environmental education for life” (2010, 7), “the principle that we, human beings, are (...) guardians of life” (2010, 7), and “water for life” (2010, 9). In the second part of strategy paper (called “Environmental situation of Nicaragua”) women are referred to through the roles they are traditionally attributed in the Nicaraguan society: (environmental) education, water management, fuel wood provision and the use of medicinal plants. In the third part called “Strategic guidelines”, the link between the necessary environmental education and women becomes more evident as it explains that the goal of environmental education is “life” itself. Also, the pronouns used in both the 2012 National Human Development Plan and the 2010 Climate Change strategy paper are gendered, which was not a common practice in official documents before the post-neoliberal era. In the strategy paper, the authors write “las y los Nicaragüenses”, which can be translated as “Nicaraguan women and men” (2010, 2). On page 3 of the policy paper, women and men appear in reverse order but still highlighting gender differences: “Nicaraguan men and women” (2010, 3). Other gendered pronouns are used, such as “todas y todos”, which can be translated as “all women and men” (2010, 8). Direct references to women appear several times in the document: for example when the document establishes the relation between the ‘salvation’ of “Mother Earth” with the “restitution of the rights for a healthy environment for our women, little boys, little girls, young people, men, all women” (2010, 8) or when it mentions that women should be given priority in environmental education (2010, 19) and in environmental management (2010, 20). The importance of giving protagonism⁷⁵ to women also appears explicitly in the third and fourth strategic guidelines, where the document

⁷⁵ In the sense of giving them the main role but without obligatorily giving them leadership, agency or authorship.

refers to concrete governmental programs targeted towards low-income rural and urban women in Nicaragua such as the ‘*Hambre Cero*’ (‘Hunger Zero’) program⁷⁶, discussed below.

Finally, it must be noted that despite the fact that there are a lot of feminine references in the discourse of the strategy paper, there is no mention of men’s roles. While the strategy paper lists the factors that it identifies as the causes of climate change, such as the use of fossil fuels, the chemical contamination of water and industrial pollution (2010, 3–4), it does not establish any relation of these causes with predominantly masculine activities in Nicaraguan society (transport, intensive agricultural model and in particular cattle-ranching, as well as the industry) or a masculine, top-down approach to climate change.

This construction of earth as a female who feeds humanity as well as of women seen as close to nature mirrors ecofeminist views. Thus, in the current framing of human-environmental relations in Nicaragua, women and the Earth share a common destiny. The sad destiny of the environment is possible to be reversed if women are put to work: because of their special connection to nature, women appear in the policy in the role of ‘experts’ in ‘fixing the climate change problem’, something which makes them particularly visible in the discourse. In the following sub-section I illustrate how this discursive inclusion of women in environmental policies was manifest in rural communities in Nicaragua, which contrasted very much with the neoliberal period when women were made invisible.

⁷⁶ The “Hambre Cero” program is intended to subsidize rural families in situation of poverty with animals, seeds and technical assistance.

4.3. On the ground: from invisible to omnipresent rural women

4.3.1. Invisible women and their secondary activities in the neoliberal era

Neoliberal values of the 2003 Plan were reflected in the development projects implemented during this epoch by the Nicaraguan ministries with the support of international cooperation. To paraphrase Escobar, they had the intention to ‘modernize’ peasants through the promotion of certain type of agricultural techniques (1995) and were combined with social policies aimed at integrating poor populations into economic activities. For rural areas, these concerns translated into encouraging farmers to be more ‘efficient’ in their productive activities. The government supported sectors considered *to have potentials* in accordance with its 2003 National Development Plan: among them the coffee and the husbandry clusters, both in need of technological modernization (Nicaraguan Government 2003). The objective was to increase productivity through the introduction of enhanced plant varieties (including the replacement of sorghum by maize as illustrated in Chapter 3) and animal species, as well as a better management of the production process. Environmental preoccupations were limited to the contamination of watersheds by both activities, and deforestation due to the installation of new pastures for husbandry (Nicaraguan Government 2003).

FondeAgro⁷⁷ was one of such programs implemented under this policy in the early 2000s in the rural communities of two Northern departments (Matagalpa and Jinotega⁷⁸). It was implemented by the Ministry of Agriculture, Husbandry and Forestry (MAGFOR) and with the support of the Swedish International Development Cooperation Agency (SIDA). The mid-term evaluation of the program published in

⁷⁷“Fondo de Desarrollo del Agro” standing for Agricultural Development Fund.

⁷⁸See Map 8 in Appendix 2.

2006 (Fajardo, Ammour, and Cruz 2006) was concerned by the fact that while the program purported to be mainstreaming environmental management, it did not measure the environmental impacts of its activities. Similar criticism was expressed for gender equality: evaluations about whether there was progress towards it were not part of its concerns. In general, the program showed trust in a win-win relation between economic growth and gender equality. The latter was highly problematic: there are indeed no studies demonstrating that better incomes result in more gender equality (Arora-Jonsson 2011).

The project contemplated activities such as technical support for men when coffee and milk production were concerned, and worked with women when it came to promoting garden production, which was criticized in the evaluation document in the following terms:

Except for the activities of income generating gardens whose direct beneficiaries are women, it is not justified why technical assistance for livestock and coffee production is generally directed to men and why it does not include their wives⁷⁹ (Fajardo, Ammour, and Cruz 2006, 77).

Indeed, encouraging garden production had the intention to include women in productive, food and income generating agricultural activities. It increased considerably the workload and the responsibilities of women, something highlighted by the evaluators as reinforcing existing ‘traditional’ gender roles:

⁷⁹ “A excepción de las actividades de Economía de Patio, dirigidas específicamente a las mujeres, el componente de asistencia técnica no justifica por qué en el caso de la ganadería y el café se dirige generalmente a los hombres y por qué no incluye a las esposas de éstos”.

The backyard economy has made visible the productive labor of women and their contribution to food security and income generation. In addition, this [gender] component had a positive effect on gender equality (...). However, work in the garden extends the working hours of women and could increase the sexual division of labor, because now not only they have to cook food, but they also have to cultivate food. Although apparently husbands and children also work in the gardens, probably most of the work falls on women, increasing their workload⁸⁰(Fajardo, Ammour, and Cruz 2006, 77).

As noted by the evaluators, the project did not engage the transformation of gender relations because it did not seek to erase the divide between reproductive and productive work. Rather, it made invisible the large responsibilities and heavy tasks of women in coffee and husbandry production, such as watering, harvesting, and pruning of the coffee trees, and milking the cows. In the document, the evaluators highlight that it gave women additional responsibilities on top of their productive roles. I add that not only were women given increased responsibilities by these interventions during the neoliberal era, but also their new productive tasks in the family garden were also given a ‘secondary’ status in opposition to the ‘core’ farming activities assumed by men, according to the discourse of the project. While the project did not create it, it reinforced the discursive hierarchization between the core productive activities assumed by men and the secondary activities of women.

This hierarchization is widely reflected in the way my female interviewees in both my research communities talk about their farming activities. An illustrative example is the case of Doña Esperanza from the community of El Pijibay. She is 46 years old, living on a 31 hectare farm together with a teenage son and an eight year old daughter as well as with her husband who is widely known as an alcoholic, who

⁸⁰ “La economía de patio ha visibilizado el trabajo productivo de las mujeres y su aporte a la seguridad alimentaria y a la generación de ingresos. Además, este componente ha tenido un efecto positivo sobre la equidad de género (...) Sin embargo, el trabajo en el patio prolonga la jornada laboral de las mujeres y podría acentuar la división sexual del trabajo, ya que ahora no sólo tienen que cocinar los alimentos, sino también cultivarlos. Aunque aparentemente los maridos y los hijos también trabajan en el patio, probablemente la mayoría del trabajo recae sobre ellas, aumentando su carga laboral”.

barely works on the plot and at home. Despite this situation, in which together with her teenage son she is the main workforce on the farm, Doña Esperanza qualifies her productive work as “help”, as reflected in the following discussion I had with her:

Me: - And when you work, in what areas do you work ... the animals, maize, cocoa ... what are your tasks?

Esperanza: - Sometimes when there is work to do, I work with the plants ... one has to clean (weed) around the plants.

Me: - With *machete*?

Esperanza: - Yes.

Me: - So you do that too?

Esperanza: - Yes, I *help* [the men] sometimes when I can, when I manage to do the things here at home, I 'm going [on the plot] [because] I have to *help* them there.

Me: - In the cocoa [plantation] too?

Esperanza: - Yes I also *help* pruning, yes ⁸¹.

(Interview with Doña Esperanza, El Pijibay, 24/03/2014)

This idea that the productive activities of women are only *help* is illustrative of the fact that they are seen, and see themselves, as secondary workers in agriculture, something that has been widely discussed in early feminist spheres (e.g. Deere 1976; Agarwal 1985; Benería 1995). This is the case despite the fact that in the neoliberal

⁸¹ Yo: - ¿Y Usted cuando trabaja en qué rubros trabaja... los animalitos, el maíz, el cacao... qué es lo que le toca a usted?

Esperanza: - A veces cuando se toca trabajar en los siembros... se tiene que ir a limpiar los siembros.

Yo: -¿Con machete?

Esperanza:- Sí.

Yo: - ¿Usted lo hace también?

Esperanza: - Sí, les ayudo a ellos en veces, cuando puedo, cuando tengo lugar de hacer las cosas aquí en la casa, entonces ya me voy [porque] tengo que ayudarles ahí.

Yo: -¿Y en el cacao también?

Esperanza: - Sí les *ayudo* también a chuponar, sí.

era with increasing poverty, they became key economic actors in the maintenance of their families. Thus, as Babb highlights, during the neoliberal era women were mobilized to maintain neoliberal policies, while these same policies were contributing to marginalizing them (2012) by increasing their burden and giving their productive activities a secondary status. While most rural women still continue to see their own agricultural activities only as *help*, what has changed since 2007 is that they were put at the center of governmental programs in the communities.

4.3.2. Omnipresent women and their core activities in the post-neoliberal era

Eduarne Larracoechea Bohigas, who studied the current Nicaraguan Government's '*Hambre Cero*' program that promotes inclusive rural development through directly supporting rural women's access to means of agricultural production, explains how '*Hambre Cero*' can be seen as the continuity of FondeAgro which was implemented with rural women *and* men under the neoliberal Government of president Enrique Bolaños (2002-2007). She explains that in the departments of Matagalpa and Jinotega, since 2007, 1500 women beneficiaries of FondeAgro have been selected to become beneficiaries of '*Hambre Cero*' (Larracoechea Bohigas 2011, 8). These women, formerly encouraged to implement 'secondary' activities through garden production, became direct project beneficiaries under '*Hambre Cero*'. Their benefits included (i) the '*Bono Productivo* (Productive Bonus) through which they received a package that usually included chickens, seeds, plants and a cow in certain cases; and (ii) '*Usura Cero*' (Zero Usury), a microcredit fund that supports women's groups in their productive and commercial activities. The program is directly and exclusively targeted towards women.

Doña Liliana from El Nancite, who is 52 years-old, married and mother of five children from 28 to 15 years-old, among them a 26 year-old handicapped son, received a cow and chickens with the '*Bono Productivo*'. She recounts her experience in the following terms:

Doña Liliana: - This bonus is only for women, it is women, so we women have to go to attend the training, meetings and issues like this because it is for women, including the signature [of the contract], and everything is for women.

Me: - And what is your opinion about that? That it is for women only?

Doña Liliana: - Ummm, well... I don't know, as they say it benefits women but as (...) the [project] technician said, *well, the women receives [the benefit], but the husband is the one who has to look after it ...*

Me: - He has to look after it?

Doña Liliana: -Yes, because the men have to look after the cow. At least [in my case], I only went to receive it [from the project], but my poor son went to bring the cow [to the community], he is the one who looks after it, there, in the pastures⁸².

(Interview with Doña Liliana, El Nancite, 23/04/2014)

Both Doña Liliana and the project technician she talks about are clear about the fact that at the end of the day it is men who benefit from the project, as they are the ones who are taking care of the cow (of course, the latter may add up to men's workload). It is also important to note that the cow is the most mentioned advantage by the beneficiaries of the project and considered the most important. When I asked about the chickens women received in El Nancite, they told me that they ate them. This is understandable because the project gave them chickens that were not adapted to local

⁸² Doña Liliana: - Ese bono sólo es para las mujeres, son las mujeres, por eso las mujeres tenemos que andar en capacitaciones, reunión cuestiones así, porque es a las mujeres, la firma y todo es a las mujeres.

Yo: Y ¿cómo lo ve eso? ¿qué sólo sea para mujeres?

Doña Liliana: Ummm bueno... este... yo no sé, como dicen ellos es beneficio para las mujeres pero decía (...) el técnico [del proyecto], *bueno la mujer recibe, pero el marido es el que la viera...*

Yo: -¿Es el que la viera?

Doña Liliana: Sí porque una vaca son ellos las que la ven, por lo menos yo sólo la fui a recibir [del proyecto], pero mi pobre hijo la fue a traer [a la comunidad], es el que la cuida ahí en el potrero.

conditions and that women needed to feed with feed concentrate they could not afford to buy. Cows rapidly pass under the responsibility of men in El Nancite also because the '*Bono Productivo*' is not a gift, but a loan at very favorable rates that women have to pay back. At the time of the interview, Doña Liliana still owed some money, but had paid back the major part of her debt, 2700 *Córdobas*⁸³ with the money of her husband.

Doña Liliana : - I owe just a little bit , I've been [paying], now I just need to give the last installment .

Me: - And how do you get the money? Selling something, or how?

Liliana : Look , uh ... at least [my husband] Ticiano ... (...) he sold some beans and gave me 1000 pesos (córdobas) [telling me] *go and pay* , then ... out from the second harvest which is mostly of beans, [he told me] *take this and go pay 700 pesos*, so that's how we are starting to get out from [the debt], yes, there is little left⁸⁴.

(Interview with Doña Liliana, El Nancite, 23/04/2014)

While the strategies to take care of the cow and pay back the debt are slightly different from one woman to another I interviewed, they often involve men and what is common is that women give a lot of importance to the cow but they do not talk about it as if it was their own animal. An illustrative example is a situation that happened when I went to fetch firewood with Doña Rosibel, a 48 year-old married woman and her 12 year-old granddaughter, Estela. We crossed the family plot where four cows were grazing. I asked about the owners of the animals. Doña Rosibel

⁸³ Equivalent to nearly 100 USD in 2014.

⁸⁴ Doña Liliana:- Ya debo poquito, ya he ido [pagando], ya sólo me falta dar la última cuota.

Yo:- ¿Y de qué paga? ¿ de otras ventas o cómo? ...

Doña Liliana: Mire, eh este... por lo menos [mi marido] Ticiano ... (...) él vendió frijoles y me dio 1000 pesos [diciendo] *anda aboná*, después este... sale la segunda cosecha que es más frijoles, entonces [dice] *tomá anda aboná 700 pesos*, entonces así nos vamos saliendo ya, sí, ya es ya es poquito [que debemos].

answered that three of them were of her husband and one was of the ‘*Bono Productivo*’ (Source: paraphrase from fieldnotes). This shows how these women, direct beneficiaries of these projects intended to serve their empowerment, do not feel the benefits as theirs. This is in part due to the fact that cattle-ranching is mainly a male activity in the Nicaraguan social imaginary and in practice, as I have already highlighted in Chapter 3, having a cow increases social status, especially in the case of men (Flores and Torres 2012).

In the programs of the neoliberal era like FondeAgro discussed previously, women were given additional *secondary* responsibilities in agricultural and environmental management. Programs in the post-neoliberal era provide them with additional responsibilities constructed as *core*. However, it is too difficult for women to assume these roles due to the current division of gender roles, their lack of empowerment as well as the importance of symbolic masculinities at play in cattle-ranching (see more discussion on cattle-ranching and symbolic masculinities in Chapter 6). Rather, the risk with this type of programs is that women are utilized by men to access benefits and that the reasons for unequal gender relations are not addressed. A feminist activist who is a harsh critic of the existing division of feminist movements in Nicaragua that impede a coherent opposition to the measures of the Government she qualifies as “pseudo-feminist”, explains that ‘Hambre Cero’ is illustrative of the governmental approach to gender: “women matter a lot to this Government but [the Government] takes much care not to disrupt the power relations between men and women”⁸⁵ (Interview with feminist activist, Managua, 14/12/2014).

⁸⁵ “A este Gobierno si les importa mucho las mujeres pero cuidando mucho de no trastocar las relaciones de poder entre hombres y mujeres”.

Another negative effect of this type of measures is how the integration of women as promoters of social capital is seen as a fix for poverty (Molyneux 2002). This is no change in comparison with neoliberal gender politics and resonates with the argument by Babb that women alleviated the devastating effects of neoliberal policies by subsidizing with their cheap and non-recognized labor the same measures that were contributing to marginalize them (2012). This can be illustrated by one of the successful measures of the post-neoliberal government: that of increasing school enrolment rates for children. The government sends food (usually rice and beans) to public schools so it can be prepared for enrolled children. This encourages poor families to send their offspring to school. The measure supports families as it saves as many meals per day to as many children as enrolled. It also helps fight malnutrition among children and provides them better studying conditions. However, even though the government provides the basic provisions for the meal, cooking the raw products falls under the responsibility of the mothers of the students in most cases. In the two rural communities where I did my research, mothers (and very rarely fathers, something which I highlight in Chapter 6), in groups of two or three, take turns to cook for the children at school. Of course, this measure is only implemented in public schools, the ones that are subsidized by the government. Hence, mostly poor women from rural communities, and poor urban women like the cleaning ladies working in NGOs who have their children in public institutions carry this burden. This shows how the unpaid labor of mostly poor women is mobilized to subsidize social policies.

With the argument of women being the most apt to fight climate change for the simple reason that they are women, climate change adaptation becomes discursively part of their reproductive roles. In the same way women are bearing the responsibility of cooking food at school for the children for the simple reason that

they are mothers and thus subsidize the governmental (otherwise good) social policy, they are called to subsidize climate change adaptation. This reinforcement of existing ‘traditional’ gender roles constructed as natural is one of the manifestations of patriarchy in the field of climate change. In the following section, I discuss how the fact that the responsibility of promoting gender equality passed from NGOs in the neoliberal era onto the State in the post-neoliberal regime contributes to translating private patriarchy to the public sphere.

4. 4. The responsibility of promoting gender equality: from NGOs to the State

4.4.1. The neoliberal era: NGOs replacing the socialist State

With the ‘disappearance’ of the socialist State, one of the ways NGOs took up their ‘responsibility’ to promote gender equality in rural areas during the neoliberal era was through the encouragement of including of women in environmental management and in income generating activities. However, just like the governmental programs of the neoliberal era (see FondeAgro discussed in Section 3), NGOs did not manage to tackle the unequal division of gender roles and gender power relations in environmental management. Including women in water management committees at the community level is an example of the measures implemented by NGOs since the neoliberal era, in the dry regions of the country, to which El Nancite belongs. Comprised of volunteers, these committees are in charge of providing maintenance to water sources as well as managing a small fund supported by user fees. However, it is often the absence of men rather than an empowerment process that led to the large participation of women in the committees, which is contradictory to the reasons offered by NGOs to explain this phenomenon. Three rural women, who are leaders of water committees in communities of the dry region of Nicaragua I interviewed

together on October 8, 2014 in the city of Estelí, explained that they had been elected because the NGO that supported the formation of the committee organized the election during the dry season which corresponds to the period of temporary migrations: most men of the community were away working in neighboring countries and regions. Thus women became decision-makers, but only in the absence of men.

Another illustrative example is from El Nancite. A ‘women’s group’⁸⁶ whose members were working in income generating activities such as making fruit marmalades and liquors received technical and financial support between 2006 and 2010 from the NGO I used to work with. The NGO had a specific strategic line of action called “rural women’s empowerment” which was intended, among other things, to support economic empowerment of women. In 2014, during my fieldwork in El Nancite, I happened to interview a twenty-seven year-old man, Luis, who explained that he has *always* been the leader of this group, which I believed was a *women’s* group. Because in 2006 the support that the NGO was willing to provide was only targeted towards women, under the encouragement of Luis, the group pretended that they were a women-only group. He reflected:

[The NGO told us:] there should be only women, nobody else, so I tell to the women, *look you have to try, you try and you do as if I weren’t in the group* (laughs). So, you see, that’s how we did it because (...) [the NGO] wanted to know who was in the governing board [of the group] and all these stuff so I did not appear in that. That is how we did a... we did... how to tell it to you ... an ambush⁸⁷ (Interview with Luis, El Nancite, 25/04/2014).

⁸⁶ This group is different from the group of *Las Vulnerables* whom I talk about further.

⁸⁷ [La ONG nos dijo:] sólo eran mujeres nada más, entonces yo le digo a las mujeres *miren ustedes tanteyen, tanteyen ustedes, hagan cuenta a caso que yo no estoy en el grupo* (risas). Entonces mire, así hicimos pues porque ahí les pedían la directiva [del grupo] y todo eso entonces en ese caso ahí yo no salía. Así hicimos una... hicimos... como le dijera una...emboscada.

The example of this fake women's group shows another aspect of the problematic approach that some NGOs had in addressing gender inequalities. While the objective was to promote the economic empowerment of women, it was assumed that it could only be done with women-only groups. The NGO did not anticipate the type of situation that occurred: that a man would 'instrumentalize' women so they get access to funding. If the NGO would have understood better the situation, it could have worked with both women and men to tackle existing unequal gender relations and thus the interventions would not have contributed to reinforcing the manifestations of patriarchy within the households and the community. The latter illustrates how poorly thought gender perspective of the NGOs, together with the effects of neoliberal policies contributed to women's increasing marginalization.

In the absence of the State in the neoliberal era, the responsibility for the promotion of gender equality was relegated to NGOs. As illustrated previously this was done from a perspective in which gender equality was seen as a direct result of the economic empowerment of women. While feminist movements in Nicaragua acknowledge the fact that this approach did not produce significant progress towards gender equality in rural areas, they have not engaged seriously with the problem. Indeed, feminist movements since the neoliberal era til today have been concentrating their efforts in urban contexts thus leaving the responsibility of interventions on gender equality in rural areas for NGOs in the neoliberal era and to the State in the post-neoliberal regime. This is a direct consequence of the historical development of feminist movements in Nicaragua. Urban feminists in Nicaragua developed work on sexual and reproductive rights, as well as on gender violence. In the rural areas NGOs and farmers' organizations have concentrated their efforts on gender equality from an economic perspective, implementing work that often lacks feminist perspective.

While there are some recent efforts to include issues such as the lack of access to land among the gender violences women suffer from (see for example Oxfam's campaign in Nicaragua), most work on gender in rural areas is insufficiently done from a feminist perspective. This historical divide that results in the fact that Nicaraguan feminist thinkers mostly work in urban areas is also an obstacle for Nicaraguan feminists to engage in the climate change debate. Feminism in Nicaragua is mainly urban and climate change is constructed as essentially a rural concern. Thus, the Government faces little resistance from feminists concerning its climate change politics and the way it discursively integrates women in rural areas. The way the paternalistic governmental approach to gender in environmental management transposes private patriarchy to the public sphere is discussed in the following sub-section.

4.4.2. The post-neoliberal era: the paternalistic State substituting NGOs

The post-neoliberal government's efforts to integrate formerly excluded women to the productive and environmental sphere and making them the primary beneficiaries of social, agricultural and environmental programs, create gratefulness from these women. A feminist activist from Matagalpa explains that rural women who benefitted from a cow or other means of production through the '*Hambre Cero*' program share that "nobody in the community dares to be liberal anymore" (Interview with feminist activist, Managua, 17/10/2014). With "liberal", she refers to the Liberal Political Parties in opposition to the ruling Sandinista Government, which is at the origin of the '*Hambre Cero*' program. Indeed, even if it is not openly recognized by the employees and the directors of the program, the beneficiaries of '*Hambre Cero*' are often selected based upon their political affiliation (Larracoechea Bohigas 2011).

Referring to the program which gives women the direct responsibility of the distributed means of production, something that is called “feminization of responsibilities” in Chapter 13 of the IPCC’s fifth report (Olsson et al. 2014, 809), the feminist leader from Matagalpa further states:

But women’s work has not changed, worse; they work more hours and [they have] more and more responsibilities. So the program has some positive impact on their wellbeing but without being something of good quality that would provoke [their] empowerment. Above all, (...) [women’s empowerment] is very limited by the context in which the program is being implemented and because of the politicization and clientelism with which it is being managed. Therefore, everything that is positive [in the program] for women (...) occurs in the frame of gratefulness, of [the idea that] *‘the Government gave me something and I am grateful for it. For the first time they care for us, women’*⁸⁸ (Interview with a feminist activist from Matagalpa, Managua, 17/10/2014).

The paternalistic approach to women is different from the paternalistic approach to men in environmental politics, because it intervenes in the Nicaraguan patriarchal society in which women, especially the ones who are poor, indigenous or oppressed in other ways are already facing increased marginalization. In the rural family, men generally are the owners of land and other means of production. As reflected in my interviews with rural women, as long as the man is ‘good’ and provides for his wife and children, women usually do not ask for more, even if they know that if he leaves them for another woman, they might be left with nothing (this is what I have called the ‘risk of falling in vulnerability’ in Chapter 3). The same happens at the level of the *hacienda*. In my two research communities, *haciendas* are large cattle-ranching farms where poor, often indigenous landless peasants or peasants

⁸⁸ Entonces pero el trabajo de ellas no ha cambiado, incluso se ha sumado más horas de trabajo y [tienen] más y más responsabilidad. Entonces [el programa] tiene cierto impacto positivo en su bienestar, cierto aspecto positivo pero sin que sea una cosa como de calidad, en lo que supondría [su] empoderamiento. Sobre todo esa parte está muy limitada por el contexto en el que se da el programa y por la politización y por el clientelismo con el que se maneja. Entonces, todo lo que en un lado puede tener de positivo para ellas (...) está en ese marco de agradecimiento de que *‘el gobierno me ha dado, de que le estoy agradecida, de que por primera vez se, se preocupan de nosotras’*.

with very small plots work for next to nothing, taking care of the land and the animals of the large cattle rancher. In exchange, they receive the right to live there and produce just enough crops for themselves to survive. The owners of the *haciendas* are large non-indigenous cattle-breeders who live in neighboring big cities or the capital. They are considered ‘good’ if they provide the small plot for the smallholder to plant basic crops and if they are ready to lend money in case of an emergency to the smallholder. This is the case even if the smallholders know that they will never be able to get out of poverty with the pay they are getting, and that the activities on the *hacienda* are often destroying the last forested patches and contaminating the last rivers of the communities they live in.

At the governmental level, it is the same system of subordination that is put to work: the government provides women with 50 percent of the positions, and with pigs, chickens and plants, which makes the Government ‘good’ for women even when in reality it instrumentalizes them. Subordination on the basis of gender, ethnicity and class is the vehicle through which private patriarchy is transposed to the public sphere. A feminist activist I interviewed makes an illustrative parallel between the patriarchal order within the family, the Government and the post-colonial Nicaraguan society:

[This is a culture] of gratitude towards the one who gives. It is an inherited culture of excessive personalization of leadership (“*caudillismo*”), very post-colonial. The boss is good, because he cares about me, he gives things to my children, he takes care of me on the farm, he is concerned with giving me a bed in better state, a small house to live in. There is no questioning of the relationship of exploitation. Because the boss is good. This relationship has been maintained through the cultural model of the [Sandinista] Front: [it reproduces] the farm in big, the boss, the commander who cares for one’s property, gives one school, gives her a piggy. One has the right to go with others to participate in Sunday celebrations, participate as the 50 percent, but don’t touch the great power relations, neither the power of capital nor the political power!⁸⁹ (Interview with a feminist activist, Managua, 14/12/2014)

⁸⁹[Es una cultura] de agradecimiento de el que da. Es una cultura muy guardado, muy caudillista,

Thus, by bearing the responsibility of the promotion of gender equality, the post-neoliberal State reproduces through paternalism the same kind of masculine, class and ethnical domination I have described ‘on the ground’ in Chapter 3, in environmental and climate change politics. The neoliberal State did not care about the inclusion of women in environmental management thus letting the patriarchal order contribute to marginalizing them at the family and community levels (the efforts of NGOs did not manage to tackle them either). The post-neoliberal State discursively includes women in environmental and climate change politics thus transposing this patriarchal order to the public sphere. To great extent, this has occurred through the naturalization of climate change adaptation as part of women’s reproductive roles during the post-neoliberal era.

4.5. Climate change adaptation part of women’s reproductive roles in the post-neoliberal regime

With the ecofeminist discourse of women pictured as especially apt to fight climate change, climate change adaptation becomes discursively part of the reproductive roles of women. In addition to fetching wood, water, cooking, taking care of the children and the elderly, they become in charge of implementing climate change adaptation. Under the label of climate change adaptation, women are typically encouraged to contribute to diversifying the production systems, implementing agro-forestry, using cooking stoves that economize fuelwood, harvesting rainwater, and using plants as natural medicine, among other activities. If social reproduction, now

muy post-colonial. El patrón es bueno, porque me cuida, me da a mí, me da a mis hijos, me cuida en la finca y tener unas literas en mejor estado, una casita. No hay cuestionamiento de la relación de explotación. Porque el patrón es bueno. Esa relación se ha mantenido y modelo cultural del Frente es este: la finca en grande, el patrón, el comandante y cuidan a sus bienes, les dan la escuela, el chanchito. Pueden ir juntos en participar en la fiesta del domingo, la participación, el 50% pues, ¡pero no trastocas las relaciones de poder grandes, tanto del capital que el poder político!

including climate change adaptation, is seen as something that falls ‘naturally’ under the expertise and responsibility of women, then questioning the gendered division of responsibilities between the productive and reproductive spheres would imply questioning the current patriarchal societal order, something that is not part of the Nicaraguan political and social agenda. Naturalizing climate change adaptation in such a way impedes the possibility for unequal gender relations to become a key concern in the field of climate change. This can be an explanation of why current climate change politics show little interest in questioning gender equity and fairness.

This situation is rendered even more complex when the particular gendered climate change discourse in post-neoliberal Nicaragua intersects with the mainstream climate change discourse that is eminently masculine. In Nicaragua, despite the gendered discourse present in the National Environmental and Climate Change strategy (Nicaraguan Government 2010), in practice, the policy translates into measures that promote climate change adaptation in the foreign currency generating sectors such as coffee production and cattle-ranching. This incoherence between the national and the sectoral strategy remained puzzling for me until I finally interviewed a climate change expert who was sitting at the negotiation table when the sectoral strategy was discussed. He qualified the National Environmental and Climate Change strategy with its numerous references to Mother Earth as a “philosophical” piece, and explained that when the Ministry elaborated its *sectoral* strategy, the lobby of the cattle ranchers and coffee producers were consulted. These lobbies are constituted of large producers with important economic and political power. Their adaptation to climate change is key for the government as coffee and cattle represent the main export sectors of the country. This illustrates how existing class related power relations influenced the translation of the post-neoliberal climate change discourse to

sectoral strategies that favor the wealthiest minority of the population. Gendered policies were thus not translated into gendered sectoral strategies. Women are discursively put to the front, but they are compelled to bear increased responsibilities in a field which is dominantly top-down and masculine and which is not interested in tackling gendered environmental and social injustices. Also, women are often expected to execute climate change adaptation strategies on a voluntarily basis: they are called to mothering earth just as they do with their children. The funding available for implementing cooking and rainwater harvesting technologies is insignificant in comparison to the one targeted towards for example the conversion of the coffee to the cocoa sector.

A Nicaraguan feminist activist who I interviewed welcomes the fact that women are pictured as the main victims in the face of climate change, because for her it shows the need for special measures to enhance their capacities. However, she completely disagrees with considering women as saviors in the face of climate change:

[This approach] has no sense of continuity (...) [with the fact that women are victims in the face of climate change]. How will women play a leading role in this huge task of curbing such severe effects of climate change with that level of marginalization? The way would have been, if we want women to be protagonists in improving production systems in order to contain the deterioration of natural resources, let alone to face the adverse impacts of climate change, changing this reality of discrimination and marginalization. This is what we should address, and only then will we ensure that women with resources, information, support, autonomy, can proactively engage in these processes (...). Even though it would be true that they have an [environmental] consciousness, if they don't have the objective and subjective resources, they will not be able to provide for the environment because the owners of the means of production are men, because the owners of the coffee plantations that contaminate water sources are men, because those extensive cattle ranchers are men, because the ones who are exploiting the forest, the loggers are men, those who are exploiting the mines and exploding the mountains are transnational companies, because ... well the

sweatshops... men control the companies that cause deterioration to the environment⁹⁰ (Interview with Nicaraguan feminist, Managua, 10/10/ 2014).

Thus, in the field of climate change, women are given additional responsibilities within climate change projects and their workload is increased. But these responsibilities are discursively considered as part of their reproductive roles: this is again the “feminization of responsibilities” that the IPCC’s fifth report is talking about (Olsson et al. 2014, 809). In this context in which gender inequalities are hidden and gender dichotomies are increasingly blurred, it becomes very difficult to denounce the facts that the strategic needs of women are not fulfilled and that the patriarchal societal order is not challenged.

In the following, last section of this chapter, I contribute to answering my research question by highlighting the risks conveyed by the main discursive framings of gender in climate change in post-neoliberal Nicaragua.

4.6. The inclusion of gender and other factors of oppressions in post-neoliberal climate change politics

Contemporary Nicaraguan climate change adaptation politics reproduce oppressions related to gender, class and ethnicity, by mobilizing an ecofeminist discourse, by including among women’s reproductive roles climate change adaptation, and by bringing private patriarchy to the public level. In this section, I highlight the

⁹⁰[este enfoque] resulta digamos sin sentido de continuidad (...) [con el hecho que las mujeres sean victimas frente al cambio climático]. ¿Cómo es que la mujeres van a jugar un papel protagónico en esta enorme tarea de frenar los efectos tan ociosos del cambio climático con ese nivel de marginalidad? El camino tendría que ser si queremos que las mujeres sean actoras protagónicas para mejorar los sistemas de producción, para contener el deterioro de los recursos naturales, para enfrentar el impacto digamos nocivo del cambio climático, tiene que cambiar toda esta realidad de discriminación y marginalización. Esto es lo que deberíamos de conectar, solo entonces vamos a lograr que las mujeres con recursos, con información, con apoyo, con autonomía, puedan intervenir de manera proactiva en estos procesos (...) aunque tuvieran conciencia [ambiental] si no tienen los recursos objetivos y subjetivos para poder aportar pues no lo van a hacer porque los dueños de los medios de producción son , porque los dueños de los cafetales que contaminan las fuentes de agua son los hombres, porque los que tienen la ganadería extensiva son los hombres por que los que están explotando el bosque son las empresas madereras que tienen los hombres, que, por que los que está explotando las minas y están estallando los cerros son las trasnacionales, porque las maquilas... en fin son los hombres los que controlan las empresas que más deterioro provocan al medio ambiente.

three main consequences of this: the rise of the post-feminist discourse in Nicaragua, the feminization of responsibilities that do not tackle the divide between the productive and the reproductive spheres, and the dangers of taking private patriarchy to the public level.

4.6.1. The ecofeminist discourse at the service of post-feminism

The ecofeminist discourse in climate change adaptation politics serves the interests of a post-feminist discourse that discursively renders feminism useless (Lazar 2007). A post-feminist discourse integrates achievements related to equality indicators, such as the ones of the Global Gender Gap Report (World Economic Forum 2014), or the fact that women are positioned as having better aptitudes and are more keen on fighting environmental changes than men.

Michelle M. Lazar, a feminist discourse analyst, warns about the dangers of the post-feminist discourse:

The discourse of popular postfeminism requires urgent need of critique, for it lulls one into thinking that struggles over the social transformation of the gender order have become defunct. The discourse is partly a reactionary masculinist backlash against the whittling away of the patriarchal dividend” (2007, 154).

Such a critique is urgent in Nicaraguan society. As feminist scholar Karen Kampwirth warns: “the return to the left in Nicaragua does not look very left-wing, at least not from a feminist perspective” (2008, 132).

By institutionalizing the (pseudo-)feminist discourse and taking it to the climate change policy level, the impression that the government wants to give is that the structural conditions are created for both climate change adaptation and gender equality to be reached. Concerning climate change in particular, women are called onto participating both in decision-making and actions on climate change adaptation because they are pictured as the ones who have the best understanding of what should

be done. This relates to a typically problematic assumption of the postfeminist discourse: that women, because they are given the possibilities to participate, only need to try hard enough (Lazar 2007, 154) to achieve in this case, both climate change adaptation and gender equality. This assumption that they can fully exercise their personal freedom “obscures the social and material constraints faced by different groups of women” (Lazar 2007, 154) in the face of climate change. This discourse is one of the reasons why for feminism in Nicaragua, the panorama is dark. One of the feminist activists I interviewed compares Nicaraguan gender politics to psychological abuse, something that is more difficult to detect and fight than physical violence.

Referring to the government’s gender politics, she says:

It is how one can totally decaffeinate feminism. They extract all its essence. This is perverse because it implies a capacity for critical analysis much more profound to detect it. It is like psychological violence or abuse. When it is physical, you are beaten and it is clear. But when it is psychological abuse, it is a lot subtler. You can spend years and you don’t realize because you always have your self-esteem on the ground. I feel that it is similar, that there is institutionalized violence, manipulation, it is like touching women inappropriately, it is subordination⁹¹ (Interview with a feminist activist in Nicaragua, December 14, 2014).

The masculinist backlash is extraordinarily threatening for feminist purposes in the field of climate change as climate change is already a masculinist sphere (MacGregor 2010), prone to maintain a postfeminist discourse in post-neoliberal Nicaragua.

Finally, the postfeminist discourse and practice are detrimental to both women and men. As largely discussed in this chapter, governmental efforts to promote gender equality in rural Nicaragua under the threats of climate change are given meanings that are not feminist. Concerning men, not only do the powerful cattle ranchers who

⁹¹ Es cómo podemos descafeinar totalmente el feminismo. Le quitan toda la esencia. Eso es perverso porque implica una capacidad de análisis crítica mucho más profundo para detectarlo. Es como la violencia o el abuso psicológico. Cuando es físico, te pegan y está claro. Pero cuando es abuso psicológico, es mucho más sutil. Podés pasar años y no te das cuenta porque siempre estás con la autoestima al piso. Yo siento que es parecido, que hay una violencia institucionalizada, de manipulación, de manoseo, de subordinación.

are most often at the origin of environmental degradation become discursively invisible, but the needs of smallholder male farmers are also excluded on the basis of gender. This is best illustrated with the case of Don Leandro from El Nancite, a 56 year-old widower who is raising alone his three grandsons, the oldest being 14 years-old. Don Leandro lost his wife twelve years ago. Even before he became a widower, since the early 2000s, his daughter used to work in the city of Estelí. She has been away from the community for fifteen years, leaving the education of her sons first to her mother, and afterwards to her father. Don Leandro who looks much older than his age, is very poor. He survives from working on his two-hectare plot, with the financial help from his daughter and by working as a hired hand on neighboring farms. He also looks after his grandsons by cooking for them and by being responsible for their health and education (Interviews with Don Leandro, El Nancite, 13/08/2014 and 24/10/2014). Don Leandro, despite his important needs cannot be part of governmental programs for the simple reason he is not a woman. In this sense, he is being excluded from the governmental discourse because of his gender. This illustrates how the empowerment of women, in the way it is conceived by the governmental discourse, results in the disempowerment of a poor, old, widowed man. This is not the kind of transformation of gender relations envisaged by feminists. It is not the way climate change practitioners plan to address gendered vulnerabilities either. The latter highlights that in this type of post-neoliberal contexts, there are no clear winners or losers, and instead of dichotomist analysis, it is intersectional approaches that shed a light on how class, age and ethnicity reproduce subordination (Simon-Kumar 2011, 18).

4.6.2. Feminization of responsibilities and reinforcement of the reproductive-productive sphere divide

A second important aspect that emerges from my analysis is that the ways in which contemporary climate change adaptation politics integrate concerns for gender do not tackle existing unequal gender hierarchies in Nicaraguan society, to the contrary, it reinforces them. As I have shown in this chapter, these gender hierarchies intersect with colonial orders, as well as with class, and ethnicity based oppressions. The fact that unequal gender hierarchies are not tackled is in addition supported by the naturalization of women's aptitudes to fight climate change: they become the cheap labor force of environmental protection, which increases their responsibilities. By including climate change adaptation among their 'traditional' reproductive gender roles, climate change adaptation politics in contemporary Nicaragua do not help tackle the division between the reproductive and the productive spheres, harshly denounced by feminist scholars (hooks 2000; Daly 2002; Molyneux 2002). The only 'novelty' that post-neoliberal climate change adaptation politics brings, is that the reproductive sphere, 'traditionally' attributed to women is expanded to include a new duty: climate change adaptation. However, this responsibility continues to be undervalued, underpaid, and unrecognized in comparison to productive ones.

4.6.3. State patriarchy under post-neoliberalism

The first problem with the fact that private patriarchy is taken to the public sphere through the environmental politics of the post-neoliberal government relates to ideological issues Fraser has written about some 30 years ago (1987) in a very different context: Reagan's welfare state. In her article published in *Hypathia*, she directed attention to the "politics of need interpretation" *i.e.* how politics construct "women and women's need according to certain specific and in principle contestable interpretations, (...) as they lend those interpretations an aura of facticity which

discourages contestation” (1987, 105). This is something that is happening within the Nicaraguan post-neoliberal state in which the aura Fraser speaks about relates to ecofeminist views. In addition, under the post-neoliberal State in which the private (and even the intimate through the supposed embodied and emotional closeness of women to the environment) is intrinsically connected to the public (and even to the global through public policies that are supposed to tackle local manifestations of planetary environmental challenges), gender inequalities are depoliticized and fundamental structural gender inequalities are pushed off the political agenda (Simon-Kumar 2011). As Simon-Kumar highlights:

the containment of women in the private with its attendant feminine and feminized associations, which has long been the basis of feminist critique, is, in these [post-neoliberal] times, displaced (...) [and] the communal is framed by the norms of femininity (2011, 11).

In Nicaraguan post-neoliberal climate change politics, women are disembodied: they are independent of “the conditions of subordination that have defined gender oppression for decades” (Simon-Kumar 2011, 19).

Finally, gender justice within climate change politics in such a context calls for renewed debates on what justice means. For example, David Schlosberg’s threefold conceptualization of environmental justice through the concepts of recognition, distribution and participation (2004) falls short. Under post-neoliberalism, women’s special aptitudes are taken into account (recognition), they are the first to receive the benefits of the projects (distribution), and they are called upon to participate in political spheres and in interventions on the ground (participation). As Simon-Kumar highlights: the workings of patriarchy in post-neoliberal contexts demonstrate the urgent need to develop new feminist analytics in these “[pseudo-] times of inclusion”(2011, 19).

Conclusion

To date, ten countries in Latin America have officially espoused post-neoliberal views. There is increasing scholarly interest in post-neoliberal politics (e.g. Brand and Sekler 2009; Sader 2009) and on gender in post-neoliberal politics (e.g. Kampwirth 2008; Wichterich 2009; Simon-Kumar 2011; Lind 2012). However, until now, there is no work on how climate change politics intersect with gender politics in post-neoliberal contexts. In this chapter, I have contributed to filling in this gap, by illustrating some of the ways in which the gendering of post-neoliberal environmental and climate change politics reinforce gendered and other types of oppressions in Nicaragua, thus impeding the construction of a feminist response to climate change. For this end, I have explored Nicaraguan development, environmental, climate change, social and gender politics both during the neoliberal and the post-neoliberal era. By putting into dialogue discourses of two different epochs, my aim was to highlight the discursive shifts and continuities in the way Nicaraguan environmental and climate change politics address and create gender and other type of oppressions, and thereby provide a response to my second research sub- question: **How do current Nicaraguan post-neoliberal climate change adaptation politics include concerns for gender and other potential factors of oppressions and privileges such as ethnicity, age, class and geographical location?**

I have shown how the discursive shift from an environment seen as manageable towards nature constructed as ‘our own Mother’ contributed to giving women a primary place in environmental and climate change discourses. While this paradigmatic change has opened the floor to better include in the discourse multidimensional (gendered) inequalities in the approach to climate change, the possibility has not been used for feminist purposes. Post-neoliberal environmental

politics essentialize and instrumentalize women by implementing policies that highlight women's 'natural connectedness to nature' and by reinforcing existing 'traditional' gender roles. Climate change adaptation becomes part of the reproductive roles of women and private patriarchy is transposed to the public sphere, thus making it difficult for an already divided and weakened Nicaraguan feminist movement to engage with climate change from a feminist perspective. On top of all these aspects related to gender, climate change politics reinforce other systems of oppression linked with class, age and ethnicity, some of them inherited from colonial times. To contribute with policy-relevant elements for a feminist response to global climate change, the type of task undertaken in this chapter is a first step, as deconstructing the post-feminist and ecofeminist character of the current Nicaraguan climate change discourse reveals the way it reproduces gendered oppressions. It is through the reproduction of these oppressions that gendered climate change politics contribute to (re)creating (climate) vulnerabilities.

However, vulnerabilizing policies and politics do not fall from the sky (to refer to Jesse Ribot's famous expression "vulnerability does not fall from the sky" which made the title of his 2010 book chapter on pro-poor climate change policies (2010)). In particular, climate change policies emerge and are implemented as the result and in the context of existing power relations. In the following chapter, I discuss how these power relations determined the emergence of Nicaraguan climate change adaptation knowledges, and how they fed into policies and actions 'on the ground'.

CHAPTER 5. THE MAKING OF CLIMATE CHANGE KNOWLEDGE



Picture 16. ‘Promotional’ material I received from NGOs (bags, notebooks and a pen) with messages intended to prompt the Nicaraguan population to avoid environmental degradation and to adapt to climate change.

(Photo: Noémi Gonda, 20/10/2014)

During a workshop I attended in May 2014 intended to train young community members of the 'Dry Corridor' to become 'climate change promoters'⁹² (Telpaneca, 29/05/2014), the picture of a polar bear struggling on a melting piece of ice was used to start the discussions on the possible devastating effects of climate change. I found the choice of the image illogical as in tropical Nicaragua temperatures rarely drop under 20°C. Therefore, people from these regions not only have never seen a polar bear, most of them rarely see ice either. Indeed, in both my communities of inquiry, none of the inhabitants owns a fridge as the solar panels that provide electricity to some of the households are insufficient, and most of the local inhabitants would not be able to afford them, anyway.

(Source: fieldnotes)

⁹² They are called "promotores de cambio climático" by the project.

“Feminist objectivity means quite simply *situated knowledges*” (Haraway 1988, 581 emphasis in the original)

Introduction

Engaging women and men from rural communities of Nicaragua on climate change is difficult because in general the topic is perceived as spatially and temporally distant due to the predominant role given to scientists, advocates and policy-makers in its construction (Slocum 2004). However, for climate change project practitioners in Nicaragua, reaching the inhabitants of rural communities with information on climate change is a true and urgent concern. The fact that a communication specialist was hired in 2014 by UNDP’s ‘Territorial Approach to Climate Change’ (TACC) project to design a communication strategy on climate change for the rural communities of the ‘Dry Corridor’, illustrates this preoccupation. Indeed, significant efforts are deployed to contribute to localizing global climate change so that inhabitants of rural communities become capable of seeing climate change as a local problem with local solutions. Rachel Slocum who wrote about strategies governments and advocacy organizations employ to ‘bring climate change home’ in Canada states: “[l]ocalizing climate change means to transform it into problems that are materially and culturally relevant to citizens and also to *change what is relevant*” (2004, 433 italics in original). However, the making of such an immaterial and distant issue as climate change a concrete everyday environmental preoccupation requires generating information and knowledge on climate change that speaks to people at all levels in the specific Nicaraguan context: policy-makers, climate change practitioners, farmers’ organizations, as well as rural women and men.

My aim in this chapter is to answer the third sub-question of my research:

How is knowledge on climate change adaptation created and translated to the people ‘on the ground’ in Nicaragua? In which ways (if any) do these processes

(re)produce or challenge intersectional power relations? To do so, I unpack and investigate the practices around the development and the translation of climate change knowledge in Nicaragua, a process started during the first decade of this millennium by institutions that are considered as experts in the area: research, governmental and international agencies. I focus on two different levels at which this process occurs: first, I am interested in the practices through which researchers generate knowledge on climate change and the way this knowledge feeds into policies and interventions that have impact in my research communities; second, I analyze the knowledge-translating practices employed by climate change project practitioners to their rural audiences in order for them to take measures for climate change adaptation.

By contrasting these knowledge developing and knowledge translating practices with the way rural women and men understand and make sense of the explanations, in Section 1, I show how struggles between governmental agencies, research institutions and the most powerful economic actors have shaped a climate change agenda in Nicaragua that reproduces injustices related to class, ethnicity and geographical location. In Section 2, I focus on the process through which knowledge on climate change is transformed by climate change project practitioners into problems that are materially and culturally relevant (Slocum 2004) ‘on the ground’. I highlight the class and gender biases present in this process of translation. In the final section, with the aim of answering the research sub- question, I claim that a situated approach to climate change knowledge (Haraway 1988; Nightingale 2003; Ahlborg and Nightingale 2012; Tschakert and Tuana 2013) is needed for the knowledge creation and translation processes not to reproduce existing unequal class, ethnicity and gender related power relations.

5.1. Producing knowledge on climate change for Nicaragua

At the global level, climate change entered the development arena as part of the wider agenda of sustainable development following the 1992 Rio Earth Summit that led to the formation of the United Nations Framework Convention on Climate Change (UNFCCC) (Weart 2003; in Grist 2008). In Nicaragua, the first national communication on the UNFCCC was issued in 2001, the same year in which climate change adaptation came to the fore as a global priority with a specific adaptation fund established during the sixth conference of the parties (Huq, Reid, and Murray 2006; in Grist 2008). In its first communication, the Nicaraguan government already prioritized climate change adaptation through measures to be implemented in the sectors that it considered as the most vulnerable: agriculture and water resources (Nicaraguan Republic 2001). However, not much was done on climate change adaptation between 2001 and 2009, as climate change mitigation was receiving the greatest amount of funding during the first decade of the millennium (Campos Cubas et al. 2012). Nevertheless, with the transformation of the political regime in 2007 and the consequent shift from a neoliberal to a post-neoliberal stance, the capitalistic order became one of the culprits of environmental degradation in the governmental narrative (Nicaraguan Government 2010; Nicaraguan Government 2012). Thus, the Sandinista Government manifested its concern for environmental justice in its refusal to share the responsibility for climate change. In consequence, it stated its priority in terms of climate change adaptation rather than mitigation, as Nicaragua has a relatively small contribution to global greenhouse gas emissions (Nicaraguan Government 2010).

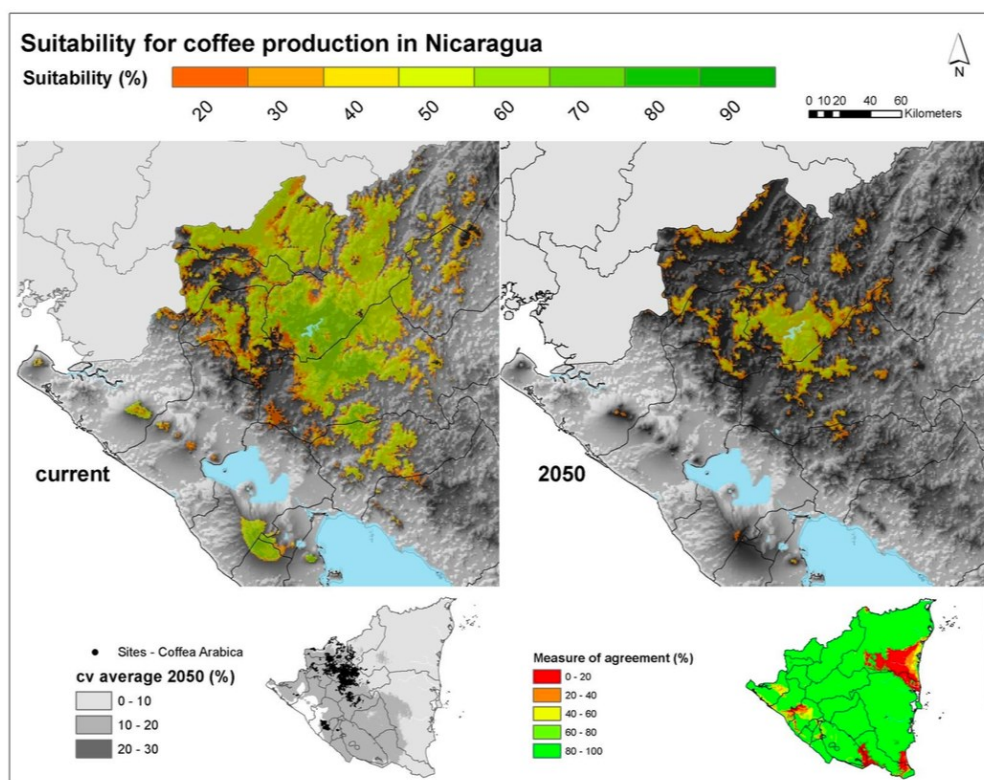
In this section, my intention is to show that once climate change adaptation started to receive political attention in Nicaragua, struggles between governmental

agencies, research institutions and the most powerful economic actors have shaped the national climate change agenda which therefore reproduces injustices related to class, ethnicity and geographical location. In the first sub-section, I describe the process through which sectoral policies on climate change were developed in Nicaragua, and show that the interests of economically powerful and mainly non-indigenous coffee and livestock producers from the Pacific, Central and Northern region of Nicaragua were prioritized to the detriment of the interests of smallholder, often indigenous farmers, and the Caribbean regions in general. In the second sub-section, I turn to the applied research on which climate change adaptation projects rest, and highlight the class, gender and ethnic biases present in the way researchers and practitioners decide which climate change adaptation measures to promote.

5.1.1. Class, ethnic and geographical location biases in the knowledge making process around the sectoral strategy

The International Centre for Tropical Agriculture (CIAT), a research institution whose scientific activities are geared towards making “production more competitive and profitable as well as sustainable and resilient through economically and ecologically sound use of natural resources and purchased inputs”(CIAT 2015), was the first organization in Nicaragua to downscale global climate change scenarios. In its very first study in 2007, CIAT showed that two thirds of the territories currently appropriate for coffee production would not be suitable by 2050. Map 6 shows the extent to which the territory suitable for coffee production is likely to decrease by 2050 according to CIAT’s study (Zelaya 2014).

Map 6. Territory suitable for coffee production in Nicaragua (2007 and 2050)



(Zelaya 2014)

It is no surprise that CIAT decided to open the scientific debate on climate change in Nicaragua with a debate on coffee production, as at that time, CIAT used to technically support the Nicaraguan Coffee Council (Consejo Nacional del Café-CONACAFE), whose members are mostly large-scale coffee producers mainly from the Northern departments of the Pacific, Central and Northern region of the country such as Matagalpa, Jinotega, Madriz and Nueva Segovia (see Map 8 in Appendix 2). A climate change specialist from CIAT who was part of this research, recalls the first reactions to the alarming conclusions of the study:

the initial reaction [of the coffee producers] was that... well... by the year 2050 (...) [the coffee producers] would no longer be alive, but then they started to think about it a little bit more... *'well, but if my children will be here on the same farm, what will they produce?'* Then they began to worry a little bit more and

started thinking about possible solutions to the problem (...). As I told you, [this study], had an important impact and other producers' associations joined because they wanted to know what will happen (...). A demand of this type of studies on the possible impacts [of climate change] was thus created and this demand grew (...). Until that date, normal studies on climate change were done through running the [climate change] models, but there was a need to have studies on its impacts on different sectors⁹³ (Interview, Managua, 28/10/2014).

CIAT's study discussed the probable devastating effects of climate change leading to the disappearance of two-thirds of the coffee producing regions due to increasing average temperatures as coffee is best produced between 18°C and 23°C in Nicaragua.

In a similar study on husbandry that followed upon the request of the cattle ranchers represented by the National Husbandry Commission of Nicaragua (Comisión Nacional Ganadera- CONAGAN), the main problem appeared to be the fact that the rainy season was shortening under the effects of climate change. Indeed, instead of an average of six months, in recent years this period has shortened to only five months, making it difficult to feed the animals during a significantly prolonged dry season. Between 2007 and 2012, other research institutes in Nicaragua, universities, farmers' unions and third and second level peasant cooperatives⁹⁴ joined CIAT's efforts in trying to translate global climate change concerns into concrete studies on how its effects would impact the economy of Nicaragua, largely based on agriculture and husbandry.

⁹³ la reacción inicial fue ... bueno... que ya para el año 2050 (...) [los productores de café] ya no iban a estar vivos, pero luego se quedaron como pensando un poco más... *'bueno pero si mis hijos van a estar ahí en esta misma finca y entonces ¿qué es lo que van a sembrar?'* Entonces empezó un poco más la preocupación y ver las posibles salidas a los problemas. [Este estudio] tuvo como te digo un impacto importante y de allí otros gremios se le sumaron, porque ellos querían saber (...). Esta demanda creció ...pedían que se hiciera ese tipo de trabajo, pero no era los estudios del cambio climático digamos normales hasta la fecha donde se hacían correr los modelos [de cambio climático] sino que además que se mostraba como cambiaba el clima, [se mostraba] como eso iba a impactar a un rubro específico.

⁹⁴ A first level peasant cooperative is a cooperative that unites individual producers. A second level peasant cooperative is a union of several cooperatives, for example of coffee cooperatives of a certain region. Third level cooperatives unite second level cooperatives that have similar interests and profiles.

While sectoral studies were also made on staple grains such as maize and beans on which most smallholder farmers base their livelihoods, the recommended adaptation strategy for these sectors did not reflect a concern for existing structural inequalities. For example, in the driest communities such as El Nancite where farmers are considered as having very low adaptation capacities due to their lack of access to land, water and technification, CIAT's recommendation in terms of climate change adaptation was to "generate non-agricultural income, including through migration and non- agricultural activities ⁹⁵"(Eitzinger et al. 2012, 5). Conversely, the economically powerful farmers, most of them cattle ranchers and coffee-producers who not only have access to production means but also own the largest and most productive farms, are considered to have capacities for adaptation. For them, the recommendation of the researchers is to support the "sustainable intensification [of their production systems] " and their "diversification" (Eitzinger et al. 2012, 5). This approach reflects one of the (many) neoliberal contradictions of the post-neoliberal context in Nicaragua, namely the fact that the role of smallholder farmers in development (and in this case in climate change adaptation) tends to be relegated to a secondary position in the name of efficiency. This has happened numerous times in numerous other contexts like in the case of Lithuania during its accession to the European Union (Mincyte 2011). This reasoning also reflects an approach to climate change adaptation formulated in terms of adaptive capacities and not in terms of needs to adapt. Indeed, for smallholder farmers, the impossibility to cultivate maize and beans is directly related to their survival: not only in biological terms but also as a matter of cultural survival. Recommending to rural women and men who consider themselves as indigenous to leave their ancestral lands jeopardizes the cultural rights of entire

⁹⁵ "Generar ingresos que no provengan de la agricultura, incluida la migración a actividades que no sean agrícolas".

populations who see themselves with a special connection to land on which they build their (indigenous) identities. The same recommendation for larger cattle and coffee farmers would be different: it would encourage them to find new lands for their activities, thus increasing the pressure on smallholder farming.

It is also important to note that the representatives of farmers' organizations in Nicaragua who usually participate in the negotiations at the political, scientific and NGO levels (the ones who got to express their concerns in the discussions with CIAT) are not the poorest and least powerful members of these organizations, or the ones with least adaptive capacities. The example of the association of small-scale coffee producers of Nicaragua, CAFENICA, an influential organization representing nearly one quarter of the coffee producers of Nicaragua ("Cafenica.net" 2015) from a sector in which smallholders represent 70 percent of the total number of coffee producers (Mendoza et al. 2011), is illustrative. In May 2015, an engineer, who at that time was the president of CAFENICA was denounced for corruption. He was accused of having illegally lent four million *Córdobas* (approximately 130 000 Euros) from institutional funds to the son of the mayor of the municipality of Ocotal (Mora Carcamo 2015). The previous CAFENICA leader also used to be an engineer and one of the biggest and most influential coffee producers in the department of Matagalpa who, in 2007, became a deputy for the Sandinista Party. These examples show the type of politically and economically influential privileged leaders who represent farmers' organizations (even the *small-scale* coffee producers organization!), when the majority of the (mis)represented members are small-scale, illiterate farmers who live in poverty.

In 2012, CIAT's research initiatives fed without any opposition into the efforts of the Nicaraguan Government to transform the national environmental and climate

change strategy (Nicaraguan Government 2010) discussed previously in Chapter 4, into concrete policy measures. The climate change expert from CIAT recounts how this happened at the national level:

Back then [in 2012], the Vice-Minister Amanda Lorío from MAGFOR (the Ministry of Agriculture and Forestry) invited for a meeting various institutions working on climate change because (...) [the Ministry] wanted to create the National Adaptation Strategy for agriculture, forestry, livestock and fisheries, a study that was to be funded by FAO. They thought that there was no available information to rely on for elaborating the strategy. So when we had the preliminary meetings we told them *'no, we have been working on several productions, and have even identified some strategic lines together with the farmers unions: there is progress already'*. And in reality, there was a lot [of progress], there were many studies that did not need to be redone, rather there was a need to rely on what already existed⁹⁶ (Interview, Managua, 28/10/2014).

As a result of these efforts, the National Adaptation Plan to Climate Change and Variability in the Agriculture, Husbandry, Forestry and Fisheries Sectors in Nicaragua was published in January 2013 (Nicaraguan Government 2013). It incorporated the sectoral studies implemented by CIAT under the demand of the producers, most of them among the ones who represented the coffee and the husbandry sectors.

Additional studies were done on subsistence farmers, but their findings mainly fed into the project activities of NGOs, not in major national policies. Consequently, the sectoral climate change strategy is mainly interested in the ways the agricultural and husbandry sectors, and I add, the most influential and powerful producers who represent them, can reduce their potential economic losses due to climate change.

This is the primary reason why I claim that climate change research and the sectoral

⁹⁶ En esa época [en 2012] la vice-ministra del MAGFOR Amanda Lorío, llamo a una reunión a varias instituciones que habíamos estado trabajando el tema de cambio climático porque querían hacer la estrategia nacional de adaptación para la agricultura, ganadería forestal y pesca, (...) un estudio financiado por FAO. Ellos creían que para la estrategia no se tenía ninguna información. Entonces cuando tuvimos las reuniones preliminares, les dijimos, *'no, ya hemos trabajado varios cultivos, ya tenemos incluso identificadas algunas líneas estratégicas con los gremios: ya hay algún avance'*. Y realmente que habían muchos estudios que necesitaban no volverlo a hacer, si no que retomar lo que estuviera.

strategy that is based on this research reproduce class and racialized hierarchies. In Nicaragua, it prioritizes the interests of the wealthiest producers who are in addition mostly non-indigenous.

While the climate change agenda at the national level has been set by and for economically and politically powerful large-scale coffee and cattle producers, the discourse and the actions of the climate change adaptation projects are targeted to small-scale farmers.

5.1.2. Discursive hierarchies: adaptation ‘technologies’ versus practices

Before starting the implementation of its activities, the UNDP’s ‘Territorial Approach to Climate Change’ project, hired two consultants to make a study (Benavidez and Olivas, n.d.) on the climate change adaptation practices and technologies that the project would support. Executed in six communities of two departments of the ‘Dry Corridor’ with 124 research participants who were interviewed individually or in focus groups, the study resulted in a listing of climate change adaptation measures. The study ranked these measures upon their level of adoption by rural women and men who participated in the study, most of them smallholder farmers. The researchers thus began with a list of existing measures they classified according to their potential for climate change adaptation in three domains: soil, water and forest management. They evaluated their adoption through percentages indicating to how many of the participants were regularly using them. Table 8 shows the kind of climate change adaptation measures that were considered best ranked in the research.

Table 8. Climate change adaptation measures with a percentage of adoption above 15 percent

Measures	% of adoption by farmers
Sustainable management of soils	
Use of live barriers (an erosion-limiting technique that uses plants and trees)	62.6%
Use of dead barriers (an erosion limiting technique that uses rocks)	25.3%
No use of slash and burn	20.9%
Use of dams made of stone and vegetation	20.9%
Use of organic fertilizers (vermiculture and compost)	15.4%
Rainwater harvesting	
Use of cisterns	16.5%
Retention and storage of superficial water	
Use of reservoirs	19.8%
Increase of the forest cover	
Reforestation	17.6%
Use of live barriers (an erosion-limiting technique that uses plants and trees)	15.4%

(Benavidez and Olivas, n.d.)

The fact that the research began from existing experiences, namely, the measures already implemented by the research participants even if they would not relate it to climate change adaptation, shows an effort to integrate local knowledge in the process of knowledge creation in the ‘Dry Corridor’⁹⁷. However, the approach renders climate change adaptation an eminently technical problem whose success depends on the use of a list of recommended measures. Such a view does not engage with the reasons why some farmers may not adopt the measures that are considered environmentally sound by others, the researchers or even themselves. In addition, it gives a homogeneous view of the research participants (in terms of gender, ethnicity, economic and political situation, and their situation in terms of access to land, water

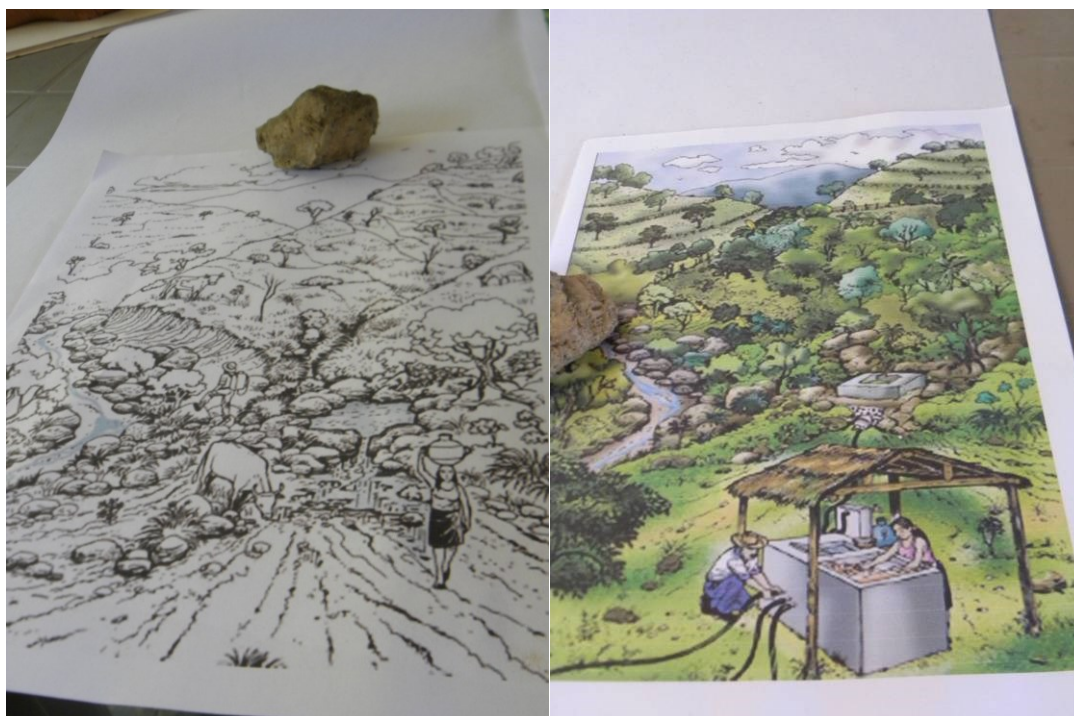
⁹⁷ The research does not specify the time period in which the cited climate change adaptation measures were adopted. However, it explains that most of the measures were introduced by development actors working in the territory (Benavidez and Olivas, n.d.) This suggests that the study refers to adaptation measures that have been implemented since the arrival of development actors in the territory, *i.e.* approximately since the 1980s.

and capital) thus making invisible the factors that may contribute to the adoption of particular measures.

Moreover, the study (Benavidez & Olivas, n.d.) made a distinction between climate change adaptation ‘practices’ and ‘technologies’. ‘Practice’ is described as “the action that is developed with the use of traditional or local knowledge”, while ‘technology’ is defined as “the set of technical and scientific knowledge or equipment or technique that contributes to design and create goods and services for environmental adaptation and to meet the needs of rural families” (Benavidez & Olivas, n.d.). In the study, the reforestation and the non-use of slash and burn were designated as climate change adaptation ‘practices’, while the establishment of barriers, dams, cisterns, reservoirs and the use of organic fertilizers were categorized as adaptation ‘technologies’. While the study did not establish a hierarchy among these ‘practices’ and ‘technologies’, this distinction has led to ‘technologies’ being considered superior to ‘practices’ in the daily activities of the project.

This was evident during a project training session on climate change adaptation on February 9, 2014. One of the exercises during the workshop was to compare two landscape pictures: a degraded (black and white) landscape with visible signs of erosion, monoculture and lack of water; and a protected (full color) area demonstrating soil and water conservation practices (see Picture 17).

Picture 17. Landscape pictures used at a workshop on climate change adaptation



(Photo Noémi Gonda 09/02/2014)

In a discussion of the pictures, Don Mariano, a farmer from El Nancite who has been very active in such projects, qualified the conserved landscape as “technified”⁹⁸ (meaning this as a positive characteristic) as opposed to the degraded landscape. For him, “technification” referred to all the ‘technologies’ that the climate change adaptation project had been promoting in the region. Comments by other participants at the workshop indicated that the rest of the participants agreed with Don Mariano’s interpretation. The most frequently identified ‘technologies’ consisted of the diversification of agricultural production, reforestation, construction of reservoirs for water storage, rainwater harvesting, soil and water conservation techniques, organic production, and stalls for the animals.

⁹⁸ The word used in Spanish was “tecnificado”.

It is noteworthy that these ‘technologies’ used to be called differently before climate change adaptation became a national priority (Nicaraguan Government, 2010, 2012). As a former development worker in Nicaragua between 2002 and 2010, I remember they were designated, for example, as peasant and indigenous farming practices or natural resources management practices. Adaptation projects have led to the “re-legitimation and repetition of old development practices” (Ireland, 2012, p. 92) in a way that they discursively become part of a “technified” environment seen as resilient to climate change, thus losing their ‘indigenous’ character.

The change in the discursive status of old development ‘practices’ also has a fallout on the subjectivities of the people who are supposed to use these ‘technologies’. I noticed how a project technician told a group of youngsters chosen to promote the project: “You were chosen because you have a higher level of knowledge than... let’s say... the producers” (Project facilitator, Telpaneca, 29/05/2014). The producers, he referred to, were the male adult farmers of the community, usually above 40 years of age with no secondary school education, as such a school did not exist until a few years ago in the community. The technician’s explanation posed an open challenge to the ‘traditional’ local perspective in which ancestral knowledge held mainly by the elderly is valued.

I argue that the discursive shift from ‘practices’ to ‘technologies’ reflects the dominant approach to climate change that accords primary importance to scientific knowledge constructed as objective and neutral (MacGregor, 2010). In such a view, technological solutions are considered better, especially if coming from outside the community. This discursive hierarchy not only undervalues ancestral knowledge, but also excludes some possible subjects for adaptation. Indeed, the climate change adaptation project in the community is presented by its coordinator and technician as

a project implemented with a river-basin approach. In theory, such an approach would entail working with all the people who are likely to have an influence on its ecosystem. However, the project only focuses on smallholder farmers and no actions are targeted at economically and often politically powerful cattle ranchers who own large swathes of land and are behind the biggest forest fires or the unsustainable use of local water resources. Indeed, when in need of increased amounts of pastures for their cows, it happens in El Nancite that local cattle ranchers give access to small-scale farmers or landless peasants to the remaining forested areas of their lands. These smallholder farmers and landless peasants gain the right to cultivate by deforesting and burning these plots for the cattle rancher for two or three consecutive production cycles before they hand it back to its owner as a planted pasture. This practice is widely known and mentioned in my interviews both by the farmers of the community and the institutions. I have myself observed it in El Nancite (see Picture 18).

Picture 18. Practice of slash and burn in order to prepare the installation of pastures in El Nancite in May 2014



(Photo: Noémi Gonda, 28/05/2014)

Finding alternatives to this practice would be an important adaptation strategy. However, none of the climate change or development project practitioner I interviewed thought that it was possible to take any action against this phenomenon, or at least not in the frame of climate change projects, which they present as apolitical and not a means by which to fix social inequalities. This view of the climate change projects (that is also being adopted in El Pijibay by the cocoa project that is being implemented there), is problematic: first, because by prioritizing ‘technological’ solutions, it overlooks social transformation as a necessary adaptation strategy; second, because it does not consider that ‘technologies’ could contribute to progress

towards challenging social inequalities. Third, this view generally overlooks the potentially oppressive effects of these ‘technologies’.

The feminist notion of situatedness (Haraway, 1988) increasingly discussed in the field of climate change (Cote and Nightingale 2012; Tschakert and Tuana 2013), is crucial to highlight such injustice behind what counts as a valuable knowledge (related to ‘technologies’) and what is considered less valuable (related to ‘practices’). Following the argument in Melissa Leach and James Fairhead’s work that builds on feminist scholarship (Haraway, 1988), it appears crucial to “displace the focus somewhat from the content and epistemology of knowledge, to the historical and institutional relations in which such knowledge develops and is represented”. The same argument is valid for climate change adaptation ‘technologies’ (Leach and Fairhead 2002, 302). In the above case, it seems that the historical and institutional relations in which climate change adaptation ‘technologies’ are promoted are embedded in unequal power relations. The inequalities relate, for example, to class as smallholder farmers are seen as culprits of deforestation and required to adapt to the resulting changes, when in fact wealthy cattle ranchers are to blame. The inequalities also relate to ethnicity and generational divide: the indigenous knowledge of the elderly is considered less valuable than ‘scientific’ knowledge transmitted to youth.

In the following section I turn to the way climate change projects, through their practitioners, translate the knowledge generated through the processes described previously to a message on climate change that seeks to be understandable for rural women and men.

5. 2. Translating knowledge on climate change for the people 'on the ground'

I remember the first training workshop on climate change I attended in my life back in 2010. It was organized by AVSF, the NGO I used to work for in Nicaragua. During the workshop, the director stressed that if we wanted to secure funding for our projects, climate change needed to be included in our programs. When I left the NGO and Nicaragua at the end of 2010, I had not met any farmer who would talk spontaneously about climate change or who would have significant knowledge about the concept. Conversely, when I first went back in 2013 for a pilot research in the frame of my doctoral studies, during an emotional re-encountering with a peasant leader who barely knows how to write, I asked him about the changes that happened since I left the country. His answer was: “you know, now the challenge for the peasant families is to become *resilient*”⁹⁹(Source: paraphrase from fieldnotes). I quickly realized that during my absence, a new climate change vocabulary through words such as ‘resilience’, ‘adaptation’ or ‘scenarios’ had been introduced in the ‘Dry Corridor’.

In particular, climate change projects had a great influence on the lives of the inhabitants of El Nancite where climate change projects have been implemented since 2009. Consequently, projects have taught its inhabitants on a variety of issues, including the ones related to climate change. Initially, what surprised me is the extent to which the answers of the community members to my question “So, what is climate change for you?” were not about climatic changes but the benefits of climate change projects. The type of responses I got can be illustrated with Doña Rosibel’s answer:

⁹⁹ “Sabe, ahora el reto es que nos volvamos resilientes”.

“These rabbits are from climate change!¹⁰⁰” (Interview with Doña Rosibel, El Nancite, 25/04/2015). Indeed, Doña Rosibel related climate change to the climate change adaptation project that her 28 year-old daughter is participating in. This project supports producers in diversifying their agricultural productions. Among other things, the beneficiaries were given rabbits.

Another illustrative response from El Nancite is Doña Liliana’s answer. She relates climate change to the beneficiaries of the project:

[Climate change?] Sure! The one who is part of it is my husband and the son of mine who was digging there [showing the plot where we have seen his son digging]. They are both participating in climate change¹⁰¹ (Interview Doña Liliana, El Nancite, 23/04/2014).

Or: “you know Juan, the guy you met who rides the motorbike? He is from climate change. He is the project technician” (Source: paraphrase from fieldnotes). Some of my interviewees in El Nancite would even relate climate change with the hole in the ozone layer. I stopped wondering where the rural inhabitants of El Nancite took this idea from when I personally heard this explanation during a training workshop held by Juan, the project technician (Participant observation at a training workshop on climate change for the youngsters of the community, Telpaneca, 29/05/2014). Juan explained that because of the ozone hole, the sun was hitting the Earth more strongly, which consequently suffers from an increase in temperatures. These examples show that in El Nancite, rural women and men’s embodied experiences of climate change are constructed by both the biophysical impacts of climate change (the droughts that contributed to the loss of maize production in 2014), and the discourses and activities

¹⁰⁰ “ ¡Estos conejos son del cambio climático!”

¹⁰¹ “ [¿Cambio climático] Como no, el que está allí es mi marido y el chavalo mío el que estaba escarbando allá. Son los dos que están reunidos ahí en el cambio climático”.

of climate change projects (its benefits like the rabbits or its training sessions during which inhabitants are told about the hole in the ozone layer that is increasing the heat).

In this section, I make the claim that in parallel with the new vocabulary brought by climate change projects to rural communities, the tensions related to differing interests, understandings and knowledge systems in climate change are reproduced in the process through which climate change knowledge is translated for people ‘on the ground’. In particular, these tensions crystallize in the reproduction of class and gender biases.

5.2.1. Class bias: ignorant and culprit smallholder farmers

While there is research evidence about the fact that cogenerative inquiry, rather than top-down downscaling can contribute to enhancing adaptive capacity (Tschakert et al. 2014), in Nicaragua the process of knowledge translation on climate change rarely takes into account farmers’ lived experience. For example, talking at a conference about small-scale bean producers also present in the ‘Dry Corridor’ of Nicaragua, Anton Eitzinger, Peter Läderach and Beatriz Rodriguez, three researchers associated with CIAT, stated:

In order to be able to adapt to climate change, bean producing smallholders in Central America *have to know* which type of changes and to which extent and ranges these changes will occur. Adaptation is only possible if global climate predictions are downscaled and distinct/regionally specific, *to give farmers a direction on what to adapt to* (2012, my italics).

I heard this concern that producers need to *know better* what they have to adapt to at several events on climate change in Nicaragua such as the 2013 and 2014 national fora and the 2014 regional forum on climate change¹⁰² as well as during my interviews. The arguments I heard suggest that local women and men lack sufficient

¹⁰² Held respectively on June 18, 2013 in Managua, September 17, 2014 in Managua and October 7-8 2014 in Estelí, Nicaragua.

knowledge on climate change, which justifies interventions supposed to disseminate this knowledge and ensure that climate change is ‘understood’. This view can be illustrated with the opinion of a female development worker whose institution was engaged in several studies about climate change adaptation in the maize and beans producing sectors between 2013 and 2014¹⁰³. In her opinion, the people who most feel the effects of climate change are the ones who have been trained on the question and therefore ‘understand’ what climate change is about.

Me: - Who feels more [the effects of] climate change?

Development worker: - The ones who feel them the most are the producers who were sensitized. I mean those who were sensitized to the problem for example through keynote speeches given by development programs such as the INTA (the Nicaraguan Agrarian and Husbandry Technology Institute) that promotes that people do not use slash and burn techniques and that they take into account sustainable development. A neighbor who is not part of such program will feel [the effects of climate change] less ¹⁰⁴(Interview, Managua, 28/10/2013).

For this development worker, training farmers on climate change is of key importance. For her, their understanding of climate change will manifest not only in that smallholder farmers adopt practices that do not contribute to more environmental degradation such as the non-use of slash and burn and that are compatible with what she considers a sustainable development approach, but also because they will be more likely to feel its effects. Informal discussions that I had with climate change and development workers as well as my participant observation during events on climate

¹⁰³ These are typically the type of studies that feed into the activities of NGOs, not national strategies or policies that concern these sectors.

¹⁰⁴ Yo: - ¿Quién percibe más [los efectos del] cambio climático?

Trabajadora en desarrollo: - Lo sienten más los productores más sensibilizados. Es decir los que fueron sensibilizados al problema por ejemplo a través de las charlas magistrales que se dan por ejemplo a través de programas de desarrollo como el del INTA (Instituto Nicaragüense de Tecnología Agropecuaria) que promueve la no quema y que toman en cuenta el desarrollo sostenible. Si el vecino no está en el programa, lo siente menos.

change showed that there is a shared belief that if rural women and men are insufficiently aware of what they should adapt to, climate change adaptation measures might fail in their objectives. Thus, the belief that smallholder farmers ‘need to know’ what to adapt to because *they do not know*, is one the main explanations why so much effort is put into the process of translating climate change knowledge for them.

One example of such efforts to translate and spread information on climate change in the rural communities of the ‘Dry Corridor’ can be appreciated through the radio spots elaborated by UNDP’s ‘Territorial Approach to Climate Change’ project. The two spots made for the rural audience of the ‘Dry Corridor’ speak directly to smallholder farmers through the figure of Aniceto Prieto, a funny, sometimes annoying, simple-minded but very popular Nicaraguan cabaret figure. Both spots are a conversation between Aniceto and his wife Lupita. The first spot builds on the idea that the weather has become crazy and if community inhabitants like Aniceto and Lupita do not adapt to climate change, their survival will be in danger. It states that climate change is at the origin of temperature fluctuations and catastrophes, an explanation rural populations would not have obligatorily made before climate change made it into development programs or into the media.

Aniceto: -Lupita, my sweetheart, give me a hug!

Lupita: - Aniceto, stop bothering, can’t you see that it is so horribly hot?

Aniceto: - Goodness, I don’t understand you! Yesterday you said you were cold and now that you are hot!

Lupita: - It is because the climate has become crazier than we are, Aniceto! Cold, heat, water shortage, storms, hurricanes ... didn’t I tell you it is crazy?

Aniceto: - It is because of climate change, Lupita! We have no choice here, either we adapt, or we will have to leave!¹⁰⁵

¹⁰⁵ Aniceto: -Lupita, ¿dame un abrazo mi cucurruchita!

Lupita: - Aniceto, deja de molestar, ¿no ves que hace un calor horrible?

The radio spot constitutes a direct source of information on climate change for the rural inhabitants of the ‘Dry Corridor’. This is best illustrated by the answer of Doña Francisca, a 22 year-old young mother of two from El Nancite, who, to my question about climate change, answered by interpreting the message of the radio spots in her own words:

Well I know that climate change refers to the sudden temperature changes because, for example, as an ad says: the weather is crazy. It is true, right now it has just rained but tomorrow we may have blazing sun. So it does not seem that we are in the rainy season, rather it seems we are in the dry season¹⁰⁶ (Interview Doña Francisca, El Nancite, 12/08/2014).

This idea of ‘craziness’ is echoed by the belief that local environmental knowledge is being disrupted. This is shown by the following quotation from a written communication I received from a climate change specialist in Nicaragua: "Climate change is disrupting (...) ancestral knowledge, for example [the knowledge about] changes in when the rainy season starts and when it ends"¹⁰⁷ (E-mail communication 16/01/2015). The comment was in reaction to a paragraph I wrote in a document in which I called for more attention to rural women and men’s lived experiences of climate change in adaptation projects. The comment shows that this expert considered that climate change becomes a disturbance for local knowledge systems due to the modification of the signals according to which people know how, for example,

Aniceto: - Ideay, no te entiendo! Ayer decías que tenías frío, ¡y hoy que tenés calor!

Lupita: - ¡Es que el clima está más loco que uno, Aniceto ! Frío, calor, escasez de agua, tormenta, huracanes... ¿No te digo que está loco?

Aniceto: - ¡Es por el cambio climático, Lupita! Aquí no queda de otra, o nos adaptamos, o ¡te fuiste tiste!

¹⁰⁶ Bueno, yo sé que el cambio climático son los cambios bruscos de temperatura porque por ejemplo, como dice un anuncio este, el tiempo está loco. Es cierto, ahorita que ha estado lloviendo, al siguiente día se viene un sol ardiente que no pareciera que fuera de invierno sino que parece de verano...

¹⁰⁷“el cambio climático está trastocando (...) [los] conocimientos ancestrales, por ejemplo, los cambios de fecha de las entradas y salidas del invierno”.

seasons are changing¹⁰⁸. Many farmers repeat this discourse about the modification of the signals. However, my participant observation showed that many of them continue using them to plant or harvest. When I asked for example Don Lalo about the reason for this, he explained to me that these signals were not always 'working' in the past either, that there have been climatically 'exceptional' years in the past too (Interviews with Don Lalo, El Nancite, 10/04/2014 and 12/08/2014).

Smallholders are ignorant about climate change: this is the first idea conveyed by the process through which practitioners translate knowledge on climate change. Blaming them is the second. During my conversations with inhabitants of both El Nancite and El Pijibay, deforestation was a common topic that spontaneously rose when talking about local environmental changes in general, and about climate change in particular. This is best illustrated by Don Rodolfo's answer from El Pijibay to my questions about the most important recent changes he identifies in his surrounding environment:

Before when [there were] enough forested hills, people used to produce. Now we observe that the land does not produce maize anymore (...) [and] that it produces little quantities of beans (...). Before, we used to plant more rice. But if you do not burn the land [before planting], you won't harvest rice. This compels us to change the way we manage the soil ¹⁰⁹ (Don Rodolfo, El Pijibay, 30/06/2014).

To my question about the reasons for the changes he refers to, Don Rodolfo answered: "there is no more land [with vegetation] to cultivate on. We made it pasture. We made it dust¹¹⁰".

¹⁰⁸ Among these signals are the blossoming of specific trees, the singing of specific birds, or the multiplication of specific insects.

¹⁰⁹ Antes cuando [había] bastante montañas la gente producía. Ahora vemos que la tierra no produce maíz (...) [y el] frijol produce poco. (...) Antes se sembraba mas arroz. Si no se quema [la tierra] no se cosecha el arroz. Lo que nos obliga a cambiar la manera de manejar el suelo.

¹¹⁰ Ya no hay monte para trabajar. Lo hicimos potrero. Lo hicimos polvo.

Women and men I interviewed in the rural communities related the decreasing possibilities to produce staple grains on which their livelihoods are based, to deforestation and especially their own responsibilities in destroying the forested areas in their communities. While in El Pijibay very few people among the ones that I interviewed made a discursive relationship between deforestation and climate change mainly due to the fact that the climate change discourse has not reached El Pijibay with such strength as in the ‘Dry Corridor’, in El Nancite, people whom I talked with would relate climate change to deforestation that they consider was caused by themselves. For example, Doña Francisca, in the already mentioned interview, explained:

[Climate change] refers to the sudden changes in temperatures that we and our ancestors have caused because (...) [our] deterioration of land, tree felling, burning. All this affects us, all this brings us a change...¹¹¹(Interview Doña Francisca, El Nancite, 12/08/2014).

No matter whether they know about climate change like in El Nancite, or not, as in El Pijibay, the idea of smallholder farmers’ guilt is something that is widely present in my interviews about environmental changes, as the interviews with Doña Francisca and Don Rodolfo testify. It is also present in the message of the second radio spot of UNDP’s climate change project, in which Lupita explains that among several technical and organizational adaptive solutions that they are urged to adopt, smallholder farmers need to stop deforesting.

Aniceto: - Lupita, I’m worried.

Lupita: - Why Aniceto?

Aniceto: - Goodness, in the first harvest we lost the maize production because of the lack of water, and in the second planting season, we lost the beans due to the heavy rains.

¹¹¹[El cambio climático] son los cambios bruscos de temperatura que nosotros mismos y nuestros antepasados lo hemos buscado porque...[...] [nosotros hemos contribuido al] deterioro de la tierra, el despale, la quema, todo eso nos afecta, entonces todo eso nos trae a un cambio...

Lupita: - It is climate change, Aniceto! That's why we have to adapt!

Aniceto: - And how do we have to adapt, Lupita?

Lupita: - It's simple! By harvesting rainwater. By saving water. We don't have to burn or cut the trees. Rather we have to reforest. We have to protect rivers, we have to do diversification on the farm. In addition, we have to learn about adaptation and organize to adapt together with all men and women.

Aniceto: - Of course we do, my sweetheart!¹¹²

Integrated in an effort to make climate change understandable, the intention of building the message on the obvious and visible loss of the forest cover in the communities might be good. However, it takes away the attention from more large-scale phenomena including the structural reasons behind the drivers of deforestation. For example, the cattle rancher who owns the largest herd and the biggest extension of land in El Nancite is the mayor of San Juan de Rio Coco, a municipality in the vicinity of Telpaneca and his son is the political secretary of the Sandinista Party in the municipality of Telpaneca. He is concerned with securing both his personal economic and political power, which he manages as his environmentally destructive activities are not attributed to him, but the smallholders who clear pastures for him. This is the case even if most inhabitants of El Nancite own very small plots or have no land and practice subsistence-level agriculture on a territory that has been degraded by the unsustainable exploitation of forest resources (Monachon and Gonda 2011). These smallholders are the workforce for the already mentioned large cattle

¹¹² Aniceto: - Lupita, estoy preocupado.

Lupita: - ¿Porqué Aniceto?

Aniceto: - Ideay, en la cosecha de primera perdimos el maíz por falta de agua y en la postrera perdimos los frijoles por la mucha lluvia.

Lupita: - ¡Es el cambio climático, Aniceto! ¡Por eso que tenemos que adaptarnos!

Aniceto: - ¿Y cómo nos adaptamos, Lupita?

Lupita: - ¡Sencillo! Cosechando el agua de lluvia. Ahorrémosla. No quememos ni despalemos. Más bien reforestemos. Protejamos los ríos, diversifiquemos la finca. Pero además, debemos capacitarnos y organizarnos para adaptarnos todos y todas.

Aniceto: - Por supuesto que sí, ¡mi cucurruchita!

ranchers or coffee –producers of the region and also the ones who clear land for them. Similarly, in El Pijibay, smallholders are the workforce of large cattle ranchers and palm oil plantations.

Hence, while smallholders may be the ones who physically cut the trees, they are often not responsible for deforestation. This observation strengthens the call of Emily Boyd in her paper on global rhetoric and local realities in the clean development mechanism (2009) for more discussion on the concept of equity in climate change. Despite some already developed academic work (e.g. Adger 2001; Thomas and Twyman 2005; Paavola and Adger 2006), the Nicaraguan case illustrates the urgency to take the debate also ‘to the ground’. I argue that only by understanding the conceptual link both climate change interventions and rural women and men establish between deforestation on one side, and environmental and climate change on the other, will it be possible to understand what climate change is ‘really’ about in Nicaragua. The scapegoating of local smallholder farmers for the degradation of the natural base in general and making them the culprits of climate change constructed as directly related with recent deforestation, takes away the attention from environmental justice concerns in general and responsibilities in particular. The assigning of the role of the culprit is common in environmental narratives. Adger et al. have shown that it relates to a Neo-Malthusian discourse, which suggests that local resource users are degrading the ecosystems on which they depend. This Neo-Malthusian discourse is marked by a class bias as it only addresses smallholder farmers.

In the following sub-section, I discuss how the setting in which knowledge on climate change is translated and transmitted for smallholder farmers (re)creates gender inequalities.

5.2.2. Gender bias: climate change in the house of God and the negative sides of positive discrimination

I had the opportunity to attend a discussion on the communication strategy of UNDP's climate change adaptation project where experts were trying to find the way to reach as many community inhabitants as they could with their messages on climate change. One of the ideas the communication expert came up with was to use local Catholic and Evangelical religious leaders and local religious radios to spread the information. Making local religious leaders the people who convey messages on climate change, especially in the way it is done currently, might have special implications for the inclusion of gender concerns in the local debate on climate change. Indeed, my participant observation in these spaces both in El Nancite and El Pijibay showed that local religious discourses usually reinforce traditional gender roles and see women essentially through motherhood, while the transformation of gender relations is not envisaged. In addition, blaming is especially strong in the religious discourse, be it because of the loss of religious values or the weakening of family ties (fieldnotes written after attendance of religious ceremonies in the research communities). Thus, channeling climate change information through Catholic and Evangelical religious leaders and radios presents the risk that the climate change discourse may reinforce existing gender hierarchies related to the roles of women seen as "traditional" in the Nicaraguan religious society.

However, some projects make genuine efforts to make women participate in their training sessions on climate change. In the context of a series of workshops called 'Communitarian Diploma on Climate Change'¹¹³ organized by two international NGOs and a university, considerable efforts were made to promote rural

¹¹³ Diplomado Comunitario en Cambio Climático.

women participate in the sessions that were organized, each time in a different community. I attended one of their day-long sessions in November 2013, intended to train rural women and men from several communities of the ‘Dry Corridor’ on climate change. The conditions in which the workshop took place were not easy. We had to walk nearly an hour crossing pastures to find a place in the shadow where we could sit and listen to the university professor who came from the capital city to talk about climate change. We were sitting on rocks or the dusty ground. At least half of the participants were women. Several of them had with them small children. One woman who was pregnant and had a three year-old child with her seemed bored and tired during the session. One could tell she was not comfortable. I asked her why she did not stay at home to rest instead of coming to the workshop. She explained that the project offers extra-payment to the families that send a female member to attend. The project technicians I interviewed confirmed that they indeed were practicing positive discrimination for women that materialized in a set of measures and practices that seek to provide advantages for women to participate. According to them, this was all the more necessary, as women often do not participate because of the family duties they have, such as taking care of the children, the elderly and cooking. The project technicians explained that with an incentive, the male partners were more likely to allow them to leave the house. While this is probably well-intended, the example of the pregnant participant demonstrates two risks of positive discrimination measures: i) first, that women who otherwise would not be interested in attending (because the topic is not of their interest) are forced to because of the economic incentive; ii) women might be instrumentalized and used by their own (likely male) family members to attend because of the economic incentive. Indeed, the project technicians did not discuss how other members of the family would take over women’s

responsibilities while they were participating in the workshop, and how the extra-payment would be used. In the case of the pregnant woman, the counter-productive nature of the situation was striking.

In the events I attended, be it workshops organized in rural communities or training sessions in cities, the concern of the organizers for gender equality was manifest in ensuring women's numerical participation (here, a parallel can be drawn with the governmental measures to advance gender equality, also very much targeted towards women numerical participation). For example, they would insist that women have to come to the sessions, but the schedule would not be adapted to women's availabilities. They would allow women to bring their children, but in case food would be provided for the participants of the training, there would be no additional quantities for the children of the participants¹¹⁴. When I asked project officers about the reasons why they would not include these additional quantities, the answer would be because the project budget could only pay for the meal of the participants (the ones who sign the attendance sheet). A similar, budget-related reason was advanced when I asked them why they did not organize the training sessions in the communities, rather than grouping participants of several communities in one 'central' location. In effect, when an event is organized in a community, especially at a time convenient for women, they tend to participate more than when they need to travel far. The answer was that reuniting participants from four communities of the 'Dry Corridor' in a central place was more economical than organizing four different sessions (if the sessions require an external facilitator who has to be paid, the cost increase can be significant). These observations show that while project officers care about gender equality and women's participation, the positive discrimination measures they are

¹¹⁴ Usually it is women who bring their children, but it also happens, -although less frequently- with men. In the latter case, the observation remains valid.

ready to implement are limited to low economic investment. Thus, channeling climate change information through training sessions organized in a way women have difficulties to participate in, and when they participate they might be doing it under pressure, is a counter-productive strategy for gender equality.

While the class and gender biases generated during the efforts intended to ‘translate’ the climate change information for people ‘on the ground’ might be qualified as side effects, as James Ferguson who studied similar issues in development projects states, they still remain “at one and the same time instruments of what ‘turns out’ to be an exercise of power” (1994, 256). Just as the development discourse in the work of Ferguson, in this case the climate change discourse and the knowledge generating and translating practices of the projects obscure the political dimensions of environmental degradation and climate change in general, and deforestation in particular, thus facilitating the expansion of the dominating non-indigenous, masculinist, and scientific knowledge and practice. They also obscure the political dimension of gender equality because they include it as a matter of numerical participation of women and not as a necessary social transformation.

5.3. Gender and other factors of oppression in the politics of knowledge-making on climate change

In this section I will answer my research sub-question on knowledges by showing that the exclusionary politics of indigenous knowledge creation in Nicaragua construct the inhabitants of both my communities of inquiry as non-suitable for participating in a process of knowledge creation on climate change. I stress that the fact that both the people of El Pijibay and El Nancite are not viewed by climate change practitioners as holders of relevant knowledge about environmental changes in general, and climate change in particular represents a racialized othering due to socio-

political prejudice rather than a lack of environmental knowledge of the rural population. Second, I will nuance my argument with an example of a project that worked with the Telpaneca indigenous group recognizing their indigenous identity. This project intended to “harmonize” indigenous and scientific knowledge on climate change. I show how this otherwise noble intention ended up essentializing and excluding the knowledge of indigenous people.

5.3.1. Ethnic biases: whose knowledge is ‘traditional’?

Despite the fact that in the field of climate change it has been recently recognized that there is a need to potentiate the use of both the scientific and local knowledge for climate change adaptation (e.g. Riedlinger and Berkes 2001; Griffiths 2004; Nyong, Adesina, and Osman Elasha 2007), such recognition implies a categorization of what counts as ‘scientific’ or ‘local’ (or ‘indigenous’, or ‘traditional’) that appears to be problematic in my two research sites. Indeed, behind this categorization, there is the assumption that both ‘scientific’ and ‘local’ (or ‘indigenous’, or ‘traditional’) knowledge is specific and identifiable.

Often, local populations are seen as knowledge holders on the environment and climate change and their experiences as a real-world quality control for uncertain scientific studies (CGIAR 2015). This view relates to what Fikret Berkes describes as knowledge understood as content, that is to say “information that can be passed on from one person to another” (Berkes 2009, 153). However, people working in the fields of development and climate change in Nicaragua usually reacted in similar ways when I talked to them about my two research sites for my inquiry on climate change adaptation. They would be surprised by my choice of doing research in El Pijibay, a community considered as non-indigenous in the Autonomous Region of the Southern Caribbean Coast of Nicaragua on the one hand, and my insistence to

consider El Nancite, my second research field site, as part of the indigenous territory of Telpaneca on the other. I claim that the reactions of the people I talked to can be attributed to the fact that the research participants from these communities were seen as “incomplete others” (Nygren 1999) with incomplete knowledges on environmental changes by my interlocutors.

My interlocutors would be perplexed by the fact that El Pijibay is not one of the communities considered as indigenous in the Autonomous Region of the Southern Caribbean Coast of Nicaragua, where disaster reduction work usually takes place. Alternatively, if they would not be familiar with the context and I would not tell them that El Pijibay is a community of *ladino*¹¹⁵ inhabitants, they would implicitly conclude that it is an indigenous community. Indeed, as discussed in Chapter 3, in Nicaragua, the two Caribbean Autonomous Regions are recognized to be *the* territories of the country where questions related to ethnicity acquire pertinence even though in the two Caribbean regions of Nicaragua the proportion of population which declares itself as non-indigenous is above 50 percent (World Bank 2011).

The people I talked with would assume that two main reasons motivate my research on climate change adaptation in a community they would imagine as indigenous. First, because they would believe that indigenous communities in Nicaragua are among the most vulnerable groups in the face of climate change. This is best illustrated by the following opinions:

the indigenous regions feel more the effects [of climate change], example of the RAAN [North Atlantic Autonomous Region of Nicaragua] [where] the deterioration is greater¹¹⁶.

¹¹⁵A person of mixed racial ancestry: for instance in this context, Spanish colonizers’ descendants mixed with indigenous people.

¹¹⁶“Las zonas indígenas sienten más los efectos [del cambio climático], ejemplo en la RAAN [donde] la situación de deterioro es mayor”.

Interview with an NGO worker, Managua, 28/10/2013

[the most affected by climate change?]: poor people, people in risk, women, indigenous people¹¹⁷.

Interview with an international agency worker, Managua, 06/11/2013

Second, there is a growing interest in studying ‘indigenous knowledge’ on adaptation to past environmental changes and to disasters. This interest is partially related to research recommendations on the value of traditional ecological knowledge (TEK) on environmental changes (e.g. Berkes 1993; Berkes 2009; Riedlinger and Berkes 2001), but in Nicaragua it is essentially linked to Nicaragua’s 2010 ratification of the International Labor Organization’s Indigenous and Tribal Peoples Convention (1989) and the subsequent interest of funding agencies to support development projects involving indigenous people and territories. Thus, for some people I talked with, in the region where El Pijibay lies, where there is such a potential (recognized indigenous groups who might hold relevant indigenous knowledge on climate change adaptation), studying non-indigenous people who, in addition settled recently in the region, could appear, if not an aberration, a serious problem in my research design.

The other side of the coin was the comments on the community of El Nancite, where people who consider themselves as indigenous (the *Telpaneca*) are living in a region commonly considered as non-indigenous. Most of the people who I talked with would agree with my choice of studying climate change adaptation in El Nancite. Indeed, the community lies in the so-called ‘Dry Corridor’ of Nicaragua, a prioritized for climate change adaptation. However, when I would refer to El Nancite, the majority would not consider ethnicity as a key aspect to discuss. Indigenous communities outside the two autonomous regions of the country, like Telpaneca are

¹¹⁷[¿ los más afectados por el cambio climático? [la] gente más pobre, [la] gente en situación de riesgos, [las] mujeres, [los] pueblos indígenas.

often not considered as such either discursively or legally. While their official recognition is in a legal limbo, it is easy to ignore their existence, all the more because coordinating project activities with their indigenous government would imply recognizing their special relation to land. It would also imply addressing existing conflicts between the Telpaneca indigenous Government and non-indigenous cattle ranchers who own large extensions of land and are often also powerful economic and political actors. Rather, it seems that it is easier for short-term NGO led climate change interventions to present climate change as a problem that requires technical solutions rather than challenging local environmental injustices.

I discovered that I was not alone in wanting to talk about people who, in the words of political ecologist Anja Nygren, are considered as “incomplete others” (1999, 277). Indeed, she received similar reactions about her choice of doing ethnographic research on the environmental knowledge of people considered as non-indigenous in the region of the Río San Juan in Nicaragua. She recounts:

When explaining my research objectives, many anthropologists were amazed at my interest in studying the environmental knowledge of these ‘forest encroachers’, more or less contaminated by modernization. They really wondered whether it was worth studying the ‘ethnoecology’ of these peasant colonists, who had no autochthonous traditions. All this shows the powerful tendency within conventional anthropology to award high prestige to those who study ‘intact cultures’, while granting less attention to those interested in more complicated societies and their hybrid ways of knowing. As remarked by Nugent (1993, 40) in this discourse, non-indigenous peasants are still portrayed as incomplete others, too eroded by westernization to have that quality of ‘pristine otherness’ that would make them suitable for ethnographic research (Nygren 1999, 270).

I realized that the women and men of El Pijibay were considered by most people working in development and climate change as “incomplete others” due to the fact that they are non-indigenous living in a region discursively constructed as indigenous. I felt that my interlocutors were often suggesting that the people of El Pijibay were

not only responsible for the degradation of their environment (discussed in Section 1), but their knowledge on environmental changes were not considered as traditional ecological knowledge, often associated with an idea of ‘wisdom’ (Brosius 1997), which added to their construction as maladapted. Similarly, in the case of El Nancite, the *Telpaneca* indigenous People were not considered as legitimate holders of indigenous knowledges because they are not officially recognized as indigenous (even if they consider *themselves* as indigenous). The climate change practice reinforces both this non-recognition and the social and environmental injustices behind it.

5.3.2. Who integrates whose knowledge?

The first climate change adaptation project executed in the ‘Dry Corridor’ supported the “harmonization between indigenous and scientific knowledges” on climate change adaptation (CARE 2011). An NGO worker explained to me the concept of ‘harmonization between scientific and indigenous knowledge in climate change adaptation’ that CARE implemented between 2009 and 2011 in the ‘Dry Corridor’ in the following words:

both knowledge that comes from outside [the community] and their knowledge from their own [indigenous] cosmovision as well as their wisdom can be harmonized with the ultimate goal of ... well... a sustainable end ¹¹⁸. (Interview with NGO worker, Somoto, 13/05/2014)

When I asked members of the current Indigenous Government of Telpaneca how they recalled this process of ‘harmonization’, they told me that the efforts were limited to the inclusion of indigenous ceremonies at the beginning of project activities, together with an increased interest in recuperating ancestral knowledge on the use of medicinal plants (often with the participation of old women) (collective interview in Telpaneca with several members of the indigenous government of Telpaneca, Telpaneca,

¹¹⁸ tanto un conocimiento que viene de lo externo [de la comunidad] como el propio de ellos desde su cosmovisión y sus saberes se puede llegar armonizar para poder este... impulsar un fin sostenible.

28/04/2014). This shows that this process was limited to knowledge that did not have the potential to enter into competition with knowledge considered as scientific. The approach also represents the essentialization of indigenous people and their knowledge. Indeed, the scientific approach to climate change neither includes religious aspects, nor does it prioritize discussions on medicinal plants. For all other types of knowledge, such as the ones on the prediction of the beginning of the rainy season, or on possible productive strategies, the scientific and technological solutions were put forward in the project. For example, in several training sessions, the community inhabitants were asked whether they knew how their ancestors determined when it was recommended to start planting. The special singing of a specific bird or the blossoming of a certain type of tree would be the kind of signals they would mention. However, this list of signals would only be used by the project facilitators to show how inaccurate they become in a context in which climate has become unreliable building on the idea of “craziness” of the weather discussed in Section 1.

Conversely what the project would call the “indigenous resources¹¹⁹” of a community for climate change adaptation would be the socio-environmental advantages of the community that the project would consider as such. A systematization document elaborated by CARE in the frame of the already mentioned project presented these “indigenous resources” in an Excel Table with six sheets that concerned separately soil, water, forest, human, food and agricultural resources. All the sheets were a list of what the community “owned” such as rivers, forests, and type of trained people in the community, among other ‘advantages’. The document did not list the significance and the symbolic values of the natural resources. For the human resources, it recounted the number of shoemakers, sewers, and health workers while

¹¹⁹ “Recursos indígenas”.

no mention was made of the elders, indigenous leaders, or the traditional healers. This shows how indigenous resources are valued only when knowledge is presented in a way that makes sense for external non-indigenous people.

This undervaluation of ancestral knowledge on climate change adaptation and the way it is generated is reinforced by the approach of the UNDP's climate change project whose facilitator attributed a higher knowledge to literate young people than to the elderly. Moreover these youngsters have recently been participating in agricultural projects supported by the Canadian cooperation geared towards the diversification of the production systems. This view reflects how the effort of integration is asymmetrical: youngsters from the communities are trained to 'understand' climate change from the perspective of the climate change adaptation interventions while the local perspective based on ancestral knowledge held mainly by the elderly is seldom listened to. Finally, this approach intersects with the approach of the climate change interventions through which particular traditional indigenous adaptive practices discursively lose their indigenous character and acquire the status of 'technologies' when they are validated and appropriated by climate change projects. This phenomenon reinforces inequalities that stem from struggles between a historically invisibilized *Telpaneca* indigenous community and a municipality related to the central government of Nicaragua ruled by a *ladino* (non-indigenous) elite who practice coffee production and cattle-ranching.

In this section, I have shown that both the recognition and the non-recognition of the people who count as knowledge-holders on climate change, and the process of integration of 'local' (or 'traditional', or 'indigenous') knowledge with 'scientific' knowledge reflects existing unequal racialized, gender and age related hierarchies. This fact, together with the efforts to render climate change adaptation a technical and

apolitical matter, reinforces vulnerabilities. The challenge, at least in Nicaragua, remains how knowledge production and translation processes can be conducted in ways that help build capacity for local communities to understand and find their own solutions to their problems (Fazey et al. 2010).

Conclusion

My aim in this chapter was to discuss the politics of knowledge making on climate change in Nicaragua. By investigating the practices around the development of climate change knowledge, first I have shown that struggles between governmental agencies, research institutions and the most powerful economic actors have shaped a climate change agenda in Nicaragua thereby reproducing oppressions related to class, ethnicity and geographical location. Indeed, the climate change knowledge produced in Nicaragua reflects largely the climate-change related concerns of economically and politically powerful coffee and cattle-producers while it contributes to dispossessing small-scale farmers. Second, the process of translating the climate change information for the people ‘on the ground’ has been based, in a problematic manner, on the idea that smallholder farmers are ignorant about climate change, therefore they need to be trained on the topic. The strategy to translate climate change knowledge includes an explanation of climate change that makes smallholders culprits by building on the deforestation discourse that blames smallholder farmers. In addition to this class bias, the settings in which these explanations are produced reproduce gender biases. Finally, I have answered my research question by showing that the practice of making categories of knowledge in climate change such as ‘local’, ‘traditional’, or ‘scientific’ and the ‘integration’ of the different knowledge systems is facilitating these oppressions, thereby showing the necessity for a situated approach to climate change

knowledge that unveils the politics of climate change knowledge creation, in the fashion I have attempted to do in this chapter.

In the following chapter, complementing my previous discussions on climate change adaptation politics and the politics of knowledge creation on climate change, my intention is to look more in depth at subjectivation processes, and at the subjects these politics (re)create.

CHAPTER 6. CONTESTED GENDERED SUBJECTIVITIES IN THE ERA OF POST- NEOLIBERAL ENVIRONMENTALITY



Picture 19. Woman from El Nancite milking a cow that is taken care of by her brother for a large cattle rancher who does not live in the community

(Photo: Noémi Gonda, 22/10/2014)

When I arrived to El Nancite, a person who used to work in an NGO in the community before 2010 told me that there was a group of women in the community called Las Vulnerables¹²⁰. It took me some time to find the group, as in 2014 they decided to change their name to Grupo San José¹²¹, after the patron saint of the community. The members recounted that the group was formed in the early 2000s to undertake a health project attending to small children in the community. One of the founders of the group, Doña Rosa, a twenty-eight year old married woman, and mother of two girls, explained to me that a male technician suggested that they should adopt the name Las Vulnerables to designate their group:

He told us that it was a good name for the group because some of us were single mothers ... and ... the others... well, the others... we were women’’¹²² (Interview with Doña Rosa, El Nancite, 11/04/2014).

While this dialogue between a project technician and rural women who wanted to organize to help themselves and their communities occurred nearly ten years before the first climate change project arrived to the region, in the narratives of the climate change projects women are often constructed as the first victims of climate change. Thus, it would not be unrealistic to imagine a climate change project technician coming up with a similar idea today.

(Source: fieldnotes and interview with Doña Rosa)

¹²⁰ ‘The Vulnerables’.

¹²¹ “Grupo San José”.

¹²² Nos dijo que era un buen nombre para el grupo porque algunas de nosotras éramos madres solteras... y... las otras... pues, las otras eramos mujeres.

Gender relations are always arenas of tension. A given pattern of hegemonic masculinity is hegemonic to the extent that it provides a solution to these tensions, tending to stabilize patriarchal power or reconstitute it in new conditions. A pattern of practice (i.e., a version of masculinity) that provided such a solution in past conditions but not in new conditions is open to challenge—is in fact certain to be challenged. (...) [T]he conceptualization of hegemonic masculinity should explicitly acknowledge the possibility of democratizing gender relations, of abolishing power differentials, not just of reproducing hierarchy. A transitional move in this direction requires an attempt to establish (...) a version of masculinity open to equality with women. Recent history has shown the difficulty of doing this in practice. A positive hegemony remains, nevertheless, a key strategy for contemporary efforts at reform (Connell and Messerschmidt 2005, 853).

Introduction

In this chapter, my intention is to look in depth at the gendered subjects climate change adaptation politics construct, and to discuss the subjectivation processes that contribute to constructing these subjects. In particular, my aim is to put in dialogue the “discursive and cultural constructions of hegemonic masculinities and femininities” (MacGregor 2010, 127) that shape the way climate change is addressed in rural Nicaragua on the one hand, and, how the rural ‘subjects’ of climate change adaptation policies and interventions challenge or comply with these hegemonic gender identities on the other. Based on Margaret Wetherell and Nigel Edley’s definition, I define hegemonic gendered subjectivities as the way women and men “conform to an ideal and turn themselves into complicit or resistant types, without anyone ever managing to exactly embody that ideal” (1999, 337; in Connell and Messerschmidt 2005, 841). With such a focus, I want to answer my last research sub-question: **How do climate change and the process of climate change adaptation (re)create or challenge existing subjectivities in rural Nicaragua? In which ways (if any), do resistant subjectivities emerge in this process?**

To do so, I focus on those practices of climate change professionals that contribute to (re)creating hegemonic gendered subjectivities as well as on the ways

these constructions are reproduced, transformed or challenged by rural women and men in the context of climate change. First, I analyze how gendered subjectivities, such as the virtuous and vulnerable women, and the masculine cattle rancher susceptible to converting into a cocoa-producer, figure in local explorations of climate change adaptation. This analysis is important because the discursive constructions of these subjectivities can contribute to creating (climate) vulnerabilities. I am especially interested in understanding how these processes in which gendered subjectivities are (re)produced reinforce or challenge existing power hierarchies. Second, I am interested in how the subjectivation process itself “activates or forms the subject” (Butler 1997, 84 *italics in original*). I am especially intrigued by analyzing how, why and when the subjects comply with the discourse and try to become what they are ‘supposed’ to be, while others resist or strategically use the discourse to become ‘something’ else, sometimes outside the discourse. Of course, subjectivities are always “subjectivities in-making” (Sundberg 2004), and what I am providing here is a snapshot of subjectivities “in-making” in a particular place and time.

In each of the two first sections of this chapter, I analyze the two aspects introduced above: gendered subjectivities and the subjectivation processes. In the first section, I discuss femininities through this lens, and show how the introduction of climate change technologies alienate their mainly female subjects by tying them to their ‘traditional’ gender roles of fetching wood and water, and how this alienation is locally reinforced and resisted at the same time. Concerning masculinities, in Section 2, I discuss how the power technologies used by climate change programs that directly challenge hegemonic masculinities lead to the failure of these projects. In Section 3, I answer my research sub-question and conclude that the contestations of the “mental rules” by which “environmentalized” women and men are created reveal

that climate change adaptation programs are experienced as burdensome and are neither based on the perspectives, nor oriented towards the needs of the local community inhabitants. In addition, they reveal the need to better include subjectivities in the climate change adaptation debate in order to be able to efficiently challenge the oppressive effects of the intersection of patriarchy and climate change.

6.1. The creation of the female subjects of climate change

6.1.1. The practice of climate change adaptation projects: the making of feminine vulnerabilities

The making of feminine vulnerabilities by climate change adaptation projects is achieved through the reproduction of the gendered stereotypes that construct women as the main victims of climate change. An example of how this essentialization of women constructed as victims is performed in practice can be illustrated with what occurred at a ‘workshop on gender’ I attended together with approximately 30 participants of four communities of the ‘Dry Corridor’. The event was supposed to help collect information on gender roles and relationships for the baseline study of UNDP’s ‘Territorial Approach to Climate Change’ project (Workshop in the community of Los Ranchos, 08/04/2014). The exercises of the workshop were designed in such a way that the participants would confirm the female stereotype of the victim in climate change. The facilitators who were hired to conduct the event, and on the basis of which they had to elaborate a document, asked the group of participants to identify what was happening in the majority of situations. The type of questions that were asked were whether women or men were in charge of fetching water and wood, who got up earlier and went to bed latest, or who was lacking ownership and control over the means of production considered by the facilitators as adaptation ‘technologies’. The questions suggested that women were

expected to answer that *they* were the ones who did the fetching of firewood and water, that they were the ones who got up earlier, and that they did not have control over agricultural production means.

Very few answers given by the participants did match with the expectations of the facilitators. For example, a 60 year-old single woman from El Nancite, who has never been married, who is a mother of an adult daughter, and who lives and works alone on her ten hectare farm, gave the following unexpected answer:

Facilitator (asking all women): - “Who [among you] helps her husband in agricultural work?

Doña Leonor: - “I am the one who works [personally] on the land”

(Paraphrase from fieldnotes 08/04/2014)

Another reaction that was unexpected by the workshop facilitators was that of a man in his sixties who was not from El Nancite, but a neighboring community. While the workshop facilitators, in their intent to reproduce the widely spread victimizing discourse on climate change, were trying to illustrate with examples how much weaker women were than men in the face of climate change, and that often men represented the main obstacles for women to participate in climate change related actions, he got up seemingly angry, and complained:

It is not true that only women are suffering. We, the men, also have difficulties. You know, we also sometimes cry. It is not true that all the men are mean and all women are victims as you are saying. Even if this Law No. 779 suggests so (paraphrase from fieldnotes, 08/04/2014).

This reaction shows that this man wanted to be included in the group of the victims that was discursively constructed by the workshop facilitators as composed of women. Of course, he might want to be included among the victims for strategic reasons: for instance, to get access to the benefits that climate change adaptation projects have predestined specifically for women to challenge their supposed, and inherent

vulnerability to climate change. In addition, this reaction is also a manifestation of this person's discontent with measures that are likely to modify existing (unequal) gender relations. Indeed, the 2012 Law number 779 on Gender Violence Against Women that he is referring to, is widely known: for example, in El Nancite, the community mediator received training on the Law, and subsequently imparted this knowledge to community members via training workshops (interview with community mediator Don Salvador, 04/11/2014). Even if it is not always done in an adequate way, this law has opened new spaces to talk about gender equality. At the workshop, the above –quoted man seemed to fear that this new space may jeopardize existing (unequal) gender relations, which made him claim that he wants to be included among the victims, and strategically enact vulnerability. He did so by saying that he also sometimes cries, thus attributing himself and his male peers a behaviour that he considers as typically feminine.

At the workshop, as the debate was dragging on with similar 'unexpected' answers like that of Doña Leonor and the above described man (fieldnotes 08/04/2014), and the facilitators of the workshop wanted to move on, but not without reaching a consensus that would appear in their report, they started suggesting percentages. For example, they recommended that the participants agree in that in 30 percent of cases it is men who fetch water and in 70 percent of cases, it is women. They also suggested that they agree on the fact that women sleep five to six hours per night, while men sleep seven to eight (fieldnotes 08/08/2014). This approach did not help the facilitators to understand either the reasons why some situations were particular (such as Doña Leonor's), or the factors that are at the origin of some vulnerabilities. The timid efforts to break out from the essentializing picture of women without agency (example of Doña Leonor), and the intents to enact strategic

vulnerabilities (example of the man who wanted to be also seen as a victim), were stopped by the facilitators, thus purposefully or inadvertently reinforcing the stereotyped vulnerable female subject in the face of climate change, which ultimately legitimizes household inequity.

Two main conclusions can be drawn from the observations of what happened at this workshop which, I argue, is representative of what happens at other, similar activities I attended during my field research. First, the exercises of the workshop were designed in such a way that the participants would confirm the female stereotype of the victim in climate change, which, I claim, is illustrative of the sort of Foucauldian device used discursively to create the femininized vulnerable subjects of climate change. The conclusions of the workshop, suggested by the facilitators, reinforced the vulnerabilizing discourse about women. It did so by generating knowledge for a baseline study that ultimately would be presented not only as gathered through a bottom-up and participatory process, but also as scientific and representative, because it included percentages. The process of the creation of this knowledge and its outcome clearly reproduced existing power relations in which women are constructed as the victims of climate change. This observation nuances earlier empirical studies in Latin America, in which researchers describe that rural development and conservation projects are designed for men, in that they reinforce their positions as the leaders and decision-makers both in the local society, and when it comes to assuming a role in the execution of the project (Kabeer 1994; Sundberg 2004). Indeed, in the Nicaraguan post-neoliberal context, the projects are increasingly designed for women (at least in appearance) but still contribute to maintaining male dominance (Sundberg 2004), just as when they were designed for men.

Second, the unequal power relations between the facilitators and the participants enforced the making of feminine vulnerabilities. These power relations, stemming from the differing social status between the facilitators (who were two Nicaraguan, non-indigenous, educated, urban men from outside the communities who introduced themselves as “engineers”), and the attendees (mostly uneducated rural women and men), were strikingly apparent in the way the facilitators enforced the knowledge that they considered as valid through the percentages they suggested. The power relationship between the facilitators and the participants was also reinforced by the extreme poverty in which some community inhabitants live. Poverty, and especially food scarcity, makes them welcome any project activity in which they are given food. This is the case especially in the period in which there is no off-farm work and no harvest (usually between February and July). I have myself seen several workshop participants bring plastic bags to the workshops to take away the food they are given and share it with their families once they get back to the community. In the workshops in which I participated together with the inhabitants of El Nancite, the food was often brought from a restaurant in the city of Telpaneca, and often included meat, which most the inhabitants of El Nancite could rarely afford. This aspect is significant to explain why people participate in workshops, and how poverty forces them in some ways to participate. For example, Doña Sandra told me that it was usual for them to have to attend two or three project workshops per week (fieldnotes). Doña Lina, who is one of the most active women in El Nancite when it comes to projects, also referred to two or three events per week. In her case, this frequency was starting to be problematic, because it impeded her from seriously fulfilling her obligations as a primary school teacher in El Nancite (fieldnotes). For Doña Sandra, her frequent attendance of workshops prevented her from fully taking care of the 0,7 hectare plot

she was cultivating with the financial and technical help of the project that supports agro-ecological production in the community. It is because she was busy, that her father, Don Lalo, and her aunt, Doña Leonor helped her to look after the plot, which implied that she felt obligated to share the production of the plot with them. For both of these women, it seemed important to participate in workshops because if they did not, they risked not being the next time. Doña Sandra shared with me: “What can I do? I learn from these workshops, and sometimes when my daughter is sick, it’s good to be able to give her a piece of chicken leg”¹²³ (Interview with Doña Sandra, 13/08/2014).

Among the women who attended the workshop, the majority (including eventually Doña Leonor and the man who initially wanted to be included in the group of victims), adopted the vulnerabilizing discourse: they did not express major discontent with the outcome of the workshop. They complied with what their subject position implied: attend the workshop, and answer the questions as they were expected to, in order to confirm their positions as viewed by the facilitators.

6.1.2. Challenges to the intent of ‘adapting’ women to climate change through cookstoves and water reservoirs¹²⁴

This construction of women as the most vulnerable to climate change is based on the argument that in rural areas water and wood collection for household needs are the responsibility of women, as part of their reproductive role. This argument states that the time women spend gathering water and wood is increasing, since they have to walk further to find these resources as a result of environmental deterioration and deforestation. By this reasoning, women are likely not only to suffer more from the

¹²³ “¿Qué puedo hacer? Aprendo de esos talleres, y a veces, cuando la niña está enfermita, viene bien un pedazo de pierna de pollo”.

¹²⁴This section is in great part taken from an accepted article I have written for publication in the journal *Gender, Development and Technology* (Gonda Forthcoming).

consequences of environmental degradation related to climate change, but they will also be more eager to implement actions that alleviate their increasingly difficult responsibilities (Soares 2006b; Soares 2006a). The latter begs a question on the constructions of hegemonic masculinities and femininities that justify that climate change projects promote wood-saving cookstoves and water reservoirs under the label of gender-sensitive climate change adaptation ‘technologies’. Equally important is to understand how the actual beneficiaries of these ‘technologies’ challenge hegemonic gendered subjectivities.

With the justification that fetching water and wood is part of women’s ‘traditional’ gender roles, together with a concern for women’s respiratory health and deforestation, UNDP’s project in El Nancite selected 26 women to be the direct beneficiaries of wood-saving stoves (see Picture 20).

Picture 20. Cookstove constructed in 2014 by the climate change project for one of its beneficiaries in El Nancite



(Photo: Noémi Gonda, 12/08/2014)

These women were asked to sign a paper showing their acceptance of the stove they were to receive. However, at least half of the women did not want to sign the document as they could not sign something without the permission of their husbands. This took place during the dry season when many men from the community were working on coffee, sugarcane or tobacco plantations elsewhere. The project staff interpreted the refusal by the women participants as a manifestation of their lack of empowerment. They expressed their astonishment that these women could not themselves decide on an issue, that, in their view, fell under their responsibility. However, interviews with 12 women and eight men of 16 different households in the community revealed that women and men shared the responsibility of fetching wood.

Table 9 shows a classification of responses regarding who fetches wood for household needs, as well as the perceived advantages of the wood-saving stoves by the households that benefited from them.

Table 9. Responsibility for fetching wood and use of improved cookstoves in households of the community

Responsible for fetching wood in the household	Number of households	Number of households that received improved cookstove	Number of households where reduction in use of wood is observed with new stove	Number of households where reduction in smoke is observed with new stove
Men only	7	4	3	2
Usually men, occasionally women and children (when men not available)	4	4	4	1
Men and women with children (alternating upon availability and needs)	3	3	3	1
Women only	1	0	0	0
Do not fetch wood: household members buy or exchange it for goods with people external to the household	1	1	1	1
Total	16	12	11	5

(Source: Individual interviews in El Nancite, January- December 2014)

While these examples may not be quantitatively representative of the 42 households of the community, they demonstrate that the construction of fuel gathering as an exclusively female chore reinforces ‘traditional’ gender roles that are ‘traditional’ only in the view of the project implementers, and that of the part of the

society that has the power to contribute to the (re)creation of the vulnerabilizing discourse. Indeed, in all households but two, men were involved in fetching firewood. In 11 of the 16 households, men were predominantly in charge of this chore¹²⁵. The only household where a woman alone was responsible for gathering wood was that of Doña Leonor who lived on her own. One household that bought or exchanged fuelwood for goods such as eggs or maize consisted of an elderly couple with limited mobility, two adult children with mental disabilities and a five-year-old granddaughter. Of the 14 households in which men were involved in fuelwood gathering, 12 received wood-saving stoves. This was seen as a clear benefit in all but one household consisting of a young couple and their two daughters. Before they were provided with a new cooking stove, they had built one from local materials such as clay and stones and their stove was as energy efficient, according to them, as the cement stove received from the project. But the project staff told the couple that in order to receive a project stove, they had to destroy the former stove, something that both husband and wife told me they regretted.

In the 11 cases in which men were predominantly involved in fuelwood gathering, the stove benefited them. This situation is contrary to the project aim of reducing the time women spend on gathering wood. In this situation, the women would have benefited more had they been given a stove that emitted less smoke. Indeed, my participant observation showed that mostly women were in charge of cooking (with some exceptions among the younger generation which are discussed further). However, in seven cases no smoke reduction was observed. This was due to

¹²⁵Terry Sunderland *et.al*'s research also suggests that men are more engaged in fuelwood collection than women in Latin America, in comparison to other regions of the world like Africa (2014). What is interesting for my argument is that despite this observation, the climate change discourse gives *everywhere* women the responsibility for firewood fetching, as if the world would be a homogeneous place. Also, my interviews show an evolution: with growing water scarcity, it is increasingly men who are in charge of fetching water.

the fact that no chimney was installed for reasons such as the unsuitability of a plastic roof. In one case, an increase in smoke was caused by the fact that a household decided to keep both their former stove and the new one, against the advice of the project.

The second argument underlying the discursive construction of women as victims in the face of climate change is that with increasing water scarcity due to climate change, women may suffer more because they would have to walk further to find the resource. The introduction of water reservoirs for rainwater storage during several months of the year is an adaptation ‘technology’ widely discussed in the ‘Dry Corridor’ of Nicaragua, where rainfall takes place between June and October (see Picture 21 for the type of water reservoirs that have been introduced in El Nancite by projects earlier projects).

Picture 21. Water reservoir for rainwater harvesting in El Nancite



(Photo: Noémi Gonda 12/08/2014)

My findings, shown in Table 10, challenge the widespread image of the woman with a bucket on her head struggling to find water in a dry landscape. They illustrate that women are not the only ones in charge of fetching water and thus not the only ones to benefit from the water reservoirs.

Table 10. Responsibility for fetching water and the use of water reservoirs in households of the community

Responsible for fetching water in the household	Number of households	Number of households that received water reservoirs
Mainly men	4	2
Men and women with children (alternating upon availability and needs)	4	2
Women only, occasionally with children	5	2
Total	13	6

(Source: individual interviews in El Nancite, January- December 2014)

In eight of the 13 households interviewed, men were involved in fetching water, while it was the responsibility of women in the rest of the five households. Interestingly these five women, one single and four married, were around or over 50 years of age (with husbands of approximately the same age or older). The four cases where men and women shared the responsibility of fetching water were young couples (in their early twenties and thirties) with young children. The four households in which men were in charge of fetching water consisted of a single man who was raising his grandsons alone (Don Leandro), an elderly couple with reduced mobility whose grandsons helped them with water-fetching, and two married couples in their late forties with several young sons on the farm.

Interestingly, the drivers for the transformation of water and firewood fetching duties relate to two apparently contradictory factors. First, they are linked to the maintenance of ‘traditions’, which make women responsible for household related tasks. Recent deforestation and water scarcity oblige rural populations to walk further and further to find these resources. Because women stay at home, it is increasingly men who bring back wood and water after a day of farm work. As Doña Nélide, a 49-year-old married woman with ten children put it: “The men bring wood from where they are working” (Interview Doña Nélide, 23/10/2014). In her family, wood is currently gathered from the 3.5 hectare plot her husband and sons are renting from the largest cattle rancher of the community to plant staple grains. In addition, compared to ten years ago, there is also an increased use of donkeys and horses to fetch water in the community, as water sources are further afield. The fact that animals are generally the responsibility of men in this community can also explain why men have become increasingly involved in fetching water. Picture 22 shows a young man who is about to go and fetch water in El Nancite.

Picture 22. Donkeys are increasingly used by men to fetch water in El Nancite



(Photo: Noémi Gonda 12/08/2014)

These examples demonstrate empirically that while gender roles are changing due to decreasing water and firewood availability, the direction in which they are transforming is strongly influenced by the making of hegemonic gendered subjectivities by the projects. These subjectivities are constructed in such a way that they discursively confine women to the house and accept men's mobility, and the responsibility of handling livestock. The second reason why water and wood fetching have become less of a woman's chore relates to an observable change in the distribution of roles between young heterosexual couples. In older couples, women are mostly in charge of fetching water, while in young couples both the husband and wife share this responsibility. Cases of single men or households where young men

are numerous also show that gender roles in fetching water are transforming. This transformation was confirmed by Doña Ninoska, a 60-year-old married woman with six children and a 71-year-old husband:

Doña Ninoska: The men of before didn't want [to do 'women's work'], for example my husband doesn't like to clean the stove. (...). He says: 'I'm not gay, he says: 'I'm not a woman'. He doesn't like it. And he prefers to die of hunger rather than light the fire.

Me: - If there is nobody, maybe he lights it.

Doña Ninoska: No, even if there is nobody he doesn't light it (...). Youngsters today [are different]. For example my sons cook. When I am not at home they cook for themselves, [they make] their eggs, their *tortillas*¹²⁶... (Interview Doña Ninoska, 12/08/2014).

I personally saw one of Doña Ninoska's sons, a 38-year-old married man with three children, cook at home and fetch water. He is also active at the primary school of his eight-year-old, where he takes part in cooking the food received through a governmental school program (discussed in Chapter 4). In my interviews, it was mostly people over the age of 40 who noticed changes in gender relations. Some of the interviewees attributed the conditions that facilitate these changes to governmental policies that promote equal rights for women and men. As Doña Rosibel, a 48-year-old married woman explained:

Back then it was more difficult because you see, if [my husband] Don Lalo, who is the man, was in the house and he said 'look, here I put this bag of beans and you won't touch it', that's how it had to be. It is true that it was like this in these times: the man decided everything and the man was in charge. (...) Today [it is different] ... and I am very grateful for this to [the wife of the President] Doña Rosario Murillo and [the President] Don Daniel Ortega because they put those limits that say that I have as many rights as my husband and then I can tell you that it's good for me, I like it (Interview Doña Rosibel, 25/04/2014).

The rights Doña Rosibel referred to in this interview relate to the Law Number 779, and the direct benefits she can access through projects such as '*Hambre Cero*' or

¹²⁶ Flat bread made of maize most Nicaraguans eat for their meals.

‘*Usura Cero*’. However, the changes in gender roles are not only related to the governmental measures mentioned by Doña Rosibel. They are also linked to decreasing maize production due to increasingly recurrent droughts, decrease in land fertility and lack of technical and economic support for smallholder farmers. Interestingly, some women established the link between the decrease in land productivity and water availability to positive changes in the duties traditionally assumed by women. For example, Doña Fernanda, a woman in her late 30s from a community in a different (humid) agro-ecological region that is also witnessing the effects of droughts, who I interviewed during my pilot field study in 2013, shared the following with me:

Before, women used to make more *tortillas* (...). Now, just the cassava and the plantain. And before, we used to eat more *tortillas*. [There was] more corn. It used to be harvested in big quantities, enough. And now, only few harvests are good. The lands have become exhausted¹²⁷ (Interview with Doña Fernanda, community of La Palmera, department of El Rama, 26/06/2013).

Doña Fernanda explained that in her youth, women used to spend one hour, generally from 3 am to 4 am, to prepare for breakfast and would continue to prepare fresh tortillas three times a day. Now, due to lower *tortilla* consumption caused by less maize production and lower availability of firewood, this duty has eased. Indeed, the boiled cassava or plantain that is increasingly served for meals instead of the *tortilla* requires less firewood and preparation time. This shows how roles attributed to women are changing in part due to the decrease in maize production that may be related to droughts but also to changing prices, land use pressure, rise in cheap imports of staple foods, and increase in wheat and bread consumption from small bakeries and large grocery stores. Doña Fernanda explained that in this case, the fall

¹²⁷ Antes las mujeres solían echar más tortillas. (...). Ahora solo la yuca, el plátano. Y antes, solíamos comer más tortillas [Había] más maíz. Se cosechaba en cantidades, suficientes. Ahora, pocas cosechas son buenas. Las tierras se han cansado.

in maize consumption and firewood availability translated into longer sleeping hours for her, a change that she considered positive.

This recent change in gender relations and in the situation of women also appeared in discussions in El Pijibay during the focus group discussion and mapping exercise I organized. I asked 18 women and men from El Pijibay to individually write down the two most important changes they experienced during the last ten years of their lives, be it at the individual or community level. The participants were given cards of different colors according to their age and gender, two factors that appeared in my qualitative interviews to be potentially determinant of the differences in their experiences. Graph 4 in Appendix 15 presents the results classified by the type of changes that were identified. The second most important type of change that was mentioned by the participants (with the same importance given to the acquisition of a house or a farm) related to the increase in the level of participation of women in community events and family decisions, as well the empowerment of women. It seemed important for five people: four of them women above 40 years of age, and one man above 40. Two women above 40 also talked directly about how they feel more empowered now than before. The most mentioned changes related to the increase in the level of participation of women can be found in Table 29 in Appendix 16.

The discussion in this section highlights that the introduction of improved cookstoves and water reservoirs as gender-sensitive climate change adaptation ‘technologies’ attempts to transform subjects (in particular women) “in a certain improving direction”(Scott 1995, 200; in Rankin 2001, 30) consistent with prevailing gender roles seen as ‘traditional’ and immutable. This is done through the discursive cultivation of the vulnerable but environmentalist woman who implements climate

change adaptation both to challenge her vulnerability and because she is ‘naturally’ called to do so by her gender roles. With this aim, the climate change projects appropriate the vocabulary of empowerment, illustrated by the intentions of the project staff to ensure that women are the direct beneficiaries and users of stoves by affixing their signature. But a limited understanding of the so-called ‘traditional’ gender roles results in the introduction of wood-saving stoves or water reservoirs in part serving the interests of men rather than resulting in the double outcome of both climate change adaptation and gender equality. This happens not only because it is male chores that are eased, but also because unequal patriarchal relations are not addressed. Promoting climate change adaptation ‘technologies’ for women that reinforce ‘traditional’ gender roles is therefore problematic. These ‘traditional’ gender roles are not as ‘traditional’ as imagined by climate change practitioners. Furthermore, this understanding reinforces the already discussed idea (see Chapter 3), that climate change adaptation, together with fetching of water and fuelwood, are part of the reproductive roles of women. In addition, as my participant observation and interviews show, gender roles are changing, something climate change interventions tend to overlook. This is unfortunate because these interventions could in fact build on these transformed gender relations, especially when they are positive. They are important because they may lead to the emergence of emancipatory subjectivities (Manuel-Navarrete and Pelling 2015). There is also little mention in the climate change field of the fact that ‘traditional’ roles of women, such as making *tortillas*, can become less burdensome under the effects of climate change. In general, climate change adaptation project practitioners need to better include discussions about subjectivities in their approaches to gender when they support the introduction of adaptation ‘technologies’ in rural communities. This means recognizing that

‘technology’ and gendered subjectivities are co-constitutive both at the material and symbolic levels, that gender as an oppressive or privileging factor never acts on its own, and that climate change adaptation projects and ‘technologies’ are an artefact of power. The feminist approach can help to shift attention from subjugated subjectivities to emancipatory ones by highlighting the cases of women who do not want to be seen as vulnerable, who do not fetch water and wood any longer, or men who assume roles traditionally attributed to women as part of their (gendered) climate change adaptation strategies.

6. 2. The creation of the male subjects of climate change

“They brought the mentality of having cattle”, stated Don Eric, a man in his 70s, while telling me the recent history of El Rama from his perspective as a former Agrarian Reform Office worker in El Rama during the 60s. This office was supporting the agrarian colonization of the region in that time. He explains:

In the 70s there was still an agrarian frontier that covered partially the communities of this municipality (...), so as farmers [from the Pacific, Central and Northern region of the country], [the departments of] Boaco, Chontales, the regions of the Center arrived, they brought the mentality of having cattle, therefore they dove into the forested areas in order to introduce themselves and that is how it happened (...) [thus] increasing more the agrarian frontier and decreasing the forested areas ¹²⁸ (Interview Don Eric, El Rama, 02/07/2014).

As discussed earlier, the movement of advancing the agricultural frontier is an adaptation strategy in the sense that it is a response to a situation of crisis, be it due to environmental degradation, the increase of the family members, the insecurity generated by war or more recently by the advancement of palm oil plantations. In the following sections, I discuss how masculine subjectivities influence the adaptation

¹²⁸ En los años 70 todavía la frontera agrícola abarcaba parte de las comarcas de este municipio (...), entonces como vinieron campesinos del lado del Pacífico, Boaco, Chontales, también del lado del Centro, ellos traían la mentalidad de tener ganado, entonces se fueron lanzando el área boscosa para irse introduciendo y así fue (...) alargando más la frontera agrícola y disminuyendo el área boscosa.

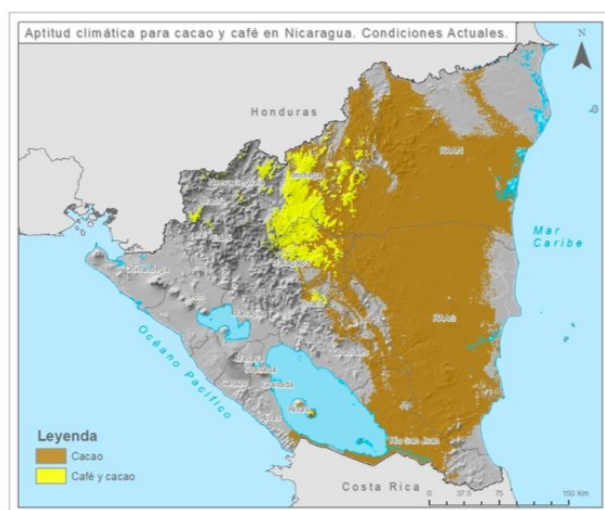
process: indeed, in Nicaragua, men want to become cattle ranchers and therefore are in constant search of more pasture.

6.2.1. The practice of climate change adaptation projects: bad men deforest, good men convert to cocoa production

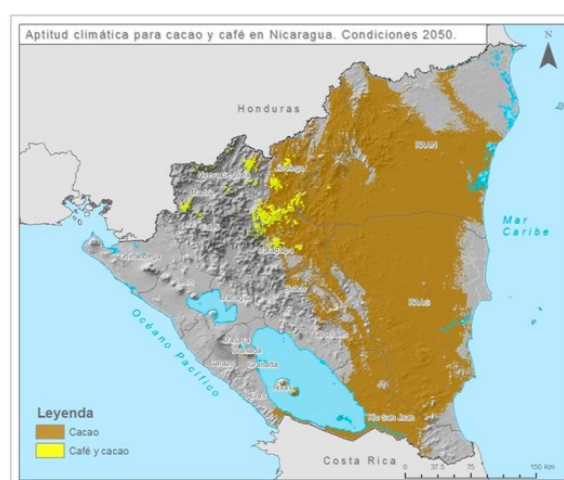
The message conveyed by climate change adaptation projects to sensitize farmers on climate change often builds on the idea that smallholders, especially the ones who contribute to deforestation to install pastures, are the culprits for local environmental degradation, and thus for the decreased capacities to adapt to environmental changes. This is a message that is very much reproduced by rural women and men. Indeed, often women and men who I interviewed in the rural communities related the decreasing possibilities to guarantee their livelihoods to deforestation and especially to their own responsibilities in destroying the forested areas in their communities¹²⁹. The same message is also used by the cocoa project that has been implemented in El Pijibay between 2012 and 2014, and that is just one of the many initiatives on cocoa in Nicaragua that resulted from the sectoral climate change adaptation strategy. These initiatives present cocoa production as the solution for the crisis in the coffee and livestock sectors attributed to the current and future effects of climate change. Indeed, as shown in Map 7, while the territory suitable for coffee production (in yellow) is expected to reduce significantly between 2007 (to the left) and 2050 (to the right), half of the Nicaraguan territory appears to be apt for cocoa production (in brown).

¹²⁹ I have already elaborated on this with examples in Chapter 5.

Map 7. Current and future aptitude for coffee and cocoa production in Nicaragua (2007 and 2050)



Current and future aptitude for coffee and cocoa production (2007 and 2050)



(Zelaya 2014)

The cocoa project in El Pijibay, funded in great part by European funds, and executed by French NGO Agronomes et Vétérinaires Sans Frontières, together with a local NGO based in the city of El Rama, IPADE, was aimed at providing means to convert from cattle-ranching to cocoa production for small and medium-holder cattle ranchers of El Pijibay and its surrounding communities. The project justified the need for this conversion with two main arguments. The first argument was poverty reduction: since cocoa production made it as a priority into national climate change adaptation sectoral policies (as suggested by CIAT's 2007 study described in Chapter 5), the project had the objective to include poor producers in this new income generating opportunity. The second argument was environmental. It related to the

need of stopping the agricultural frontier and the unsustainable use of natural resources, thus contributing to climate change adaptation and mitigation. The project provided participants with training on cocoa production, as well as genetic material (plants), and tools for production. The project also supported the organization and the strengthening of a cocoa cooperative whose headquarters was based in the city of El Rama. The cooperative was supposed to provide the producers of the communities with services such as cocoa drying and commercialization. Because of transportation difficulties between the communities and the city of El Rama, towards the end of the project, the latter also encouraged the organization of cocoa collecting points within the communities, so that farmers would not need to go individually to El Rama to bring their harvests, rather, somebody could be in charge of doing it for their neighbors (for a small remuneration).

Despite the omnipresence of the deforestation and the blaming discourses, including in the narrative of the cocoa project, in an exercise on local environmental changes held in El Pijibay with 18 male and female participants, only two men above 40 years-old mentioned environmental changes as part of the two most important changes in their lives and their environment¹³⁰ during the last ten years. The two answers were: “10 years ago there were more forest fires in the community and they used to reforest less” and “if we cut trees [nowadays], we have to execute some methods to recuperate the damage we did”. Nobody mentioned spontaneously the fact that the forest cover has significantly diminished in the surrounding environment. Rather, the two adult men talked about their 'obligations' to reforest when they burn or

¹³⁰ At the workshop, I purposefully asked about people's lives and about their environment because the workshop was held with farmers of the community who all base their livelihoods on the surrounding environment. By mentioning both their lives and their environment, I wanted them to be able to talk about individual, social or environmental changes without me implying any priority among these changes. I wanted them to talk about the ones that they felt the most important.

cut trees. Instead of talking about deforestation (a process I personally observed), it is this ‘obligation’ to reforest through the introduction of cocoa trees in the farming system with the support of a project that appeared to be very present. It was mentioned by 12 participants, 9 of them men. The answers suggested that the recently introduced cocoa is acquiring an increased importance in the production systems of the farmers of El Pijibay, an importance especially talked about by men (see Table 30 in Appendix 17 for the totality of answers).

However, my participant observation in 2014 in the community and my in-depth interviews with all 9 direct beneficiaries of the cocoa project of one of the sectors of El Pijibay (called El Pijibay 1), showed that the importance of cocoa production in the discourse did not reflect its importance either on the agricultural plots, or in the time dedicated to it by those who talked about it. In the following subsection, I analyze this contradiction through the lens of resistant subjectivities.

6.2.2. Resistance to the challenge to hegemonic rural masculinities

In the Nicaraguan social imaginary, cattle-ranching is an activity that generates social status and power among men, similarly to what has been described in very different contexts and times in the literature (e.g. Willard 2002; Bayers 2015). In El Pijibay, the deep desire of men to increase their cattle herds can be in part illustrated with the way smallholder cattle ranchers in the rural community in Nicaragua rationalize the previously described cocoa project. The direct beneficiaries of the project, most of them men, to my question about what they would do if they would generate a significant income through cocoa production (which was not the case yet), answered that they would use the money to buy more cattle. Some of them added that they found it convenient that they could plant cocoa on plots that are not well suited for pastures, and therefore they ‘did not mind’ ‘converting’ to cocoa, *as*

long as it would not compete with cattle-ranching (Source: paraphrase from fieldnotes). This shows that not converting to cocoa is not just driven by the fact that cattle-ranching may be seen as an economically more interesting activity than cocoa production. Rather, this opinion of the cocoa project beneficiaries in El Pijibay highlights the importance of social status (proportional to the number of animals one has on one's pastures), over potentially interesting economic gains through cocoa production.

The proportionality between the number of cows grazing on one's pastures, and men's social status is shown by the prevalence of the typical arrangements that are made between (usually male) farmers who have pastures (small and medium-holders) and the ones who have animals (largeholders). I observed this arrangement both in El Pijibay and in El Nancite, with of course, a difference in scale because the farmers in El Pijibay have far bigger extensions of pastures than the ones in El Nancite. The large cattlerancher who does not have enough pastures for the quantity of animals he owns, gives a certain number of cows to the smallholder to look after. A large cattle rancher delivers the necessary veterinary products for a smallholder who provides labor for the establishment of pastures, watering, and veterinary assistance (usually men's labor) and milking (under the control of women and youngsters). In exchange, the smallholder becomes the owner of the first offspring or, the newly born calves are shared equally. The milk always belongs to the smallholder while the animals are grazing on his pastures. This type of arrangement is seen as advantageous from both sides. It allows the large cattle rancher to maintain or increase his livestock even if he does not have enough land. For the small-scale and medium-holder it provides the means to increase the number of animals (and consequently social status)

without having to have the liquidity to buy them. Don Eric, one of the large cattle ranchers of El Pijibay explains how he benefits from the arrangement:

Maybe in this area of 100 *manzanas* [70 hectares] I can't have 300 animals, so I look for someone who has land (...). And the logic is that (...) [the] farmer who has 300 animals and who has no land (...) does not want to get rid of his cattle ¹³¹ (Interview Don Eric, El Rama 02/07/2014).

Don Pedro, who owns 54 hectares in El Pijibay explains how this type of arrangement, called *mediania* or *a media* allowed him to capitalize and pay back his loan:

In 2003 I grabbed 80 steers *a media*. This gave me a profit of 75,000 *Córdobas*¹³² (5,000 USD). The following year I did the same with 70 heads. It gave me a profit of 69,000 *Córdobas*¹³³. The third year, it was similar. In three years, I earned 200,000 *Córdobas*¹³⁴ and had finished paying my debts¹³⁵ (Interview Don Pedro, El Pijibay, 22/02/ 2014).

The logic of Don Pedro was to generate income by selling the male animals to pay back his loan and in parallel increase the cattle by keeping the female animals. All my male interviewees in El Pijibay share the wish to increase their livestock. Even when their strategy is to temporally sell animals and buy land somewhere else, it is because of pasture unavailability that limits their growth as cattle ranchers. Don Lalo and Don Ticiano in El Nancite have similar logics at a significantly smaller scale: they grab two to three animals from a large-scale cattle rancher, and look after them on the few hectares of pastures they have.

¹³¹ yo tal vez en esta área de 100 manzanas 300 animales no los puedo tener, yo busco a alguien que tiene tierras (...) Y la lógica es porque (...) [el] ganadero que tiene 300 cabezas no tiene tierras [...] y no quiere deshacerse de su ganado.

¹³² Equivalent approximately to 5,000 USD that year.

¹³³ Equivalent approximately to 4.310 USD that year.

¹³⁴ 11,765 USD.

¹³⁵ En el 2003 yo agarré 80 novillos a media. Eso me dio una utilidad de 75 000 córdobas (5,000 USD). El siguiente año (2004), hice lo mismo con 70 cabezas. Me dio una utilidad de 69 000 córdobas (4,310 USD). El tercer año (2005) también. En tres años, la ganancia era de 200 000 (11,765 000 USD) córdobas, había terminado pagar mis deudas.

Another interesting aspect emerging from this empirical observation is the way in which class differences are erased when it comes to developing practices that reinforce rural masculinities. Both largeholder cattle ranchers like Don Eric or subsistence level farmers who can afford to grab just a few animals like Don Lalo and Don Ticiano have their masculinities dependent on the number of animals they have. For the small and medium-holder, it does not matter if the animals belong to them or not, the importance is having them grazing on their own pastures. For the largeholder it does not matter whether the animals are grazing on their own pastures (they usually do not live on their farms anyway), the importance is owning the greater number of animals. The difference is that smallholders destroy their last remaining plots to have the presence of these animals, while largeholders can afford to increase their status without needing to find new territories to deforest (and without being blamed for advancing the agricultural frontier).

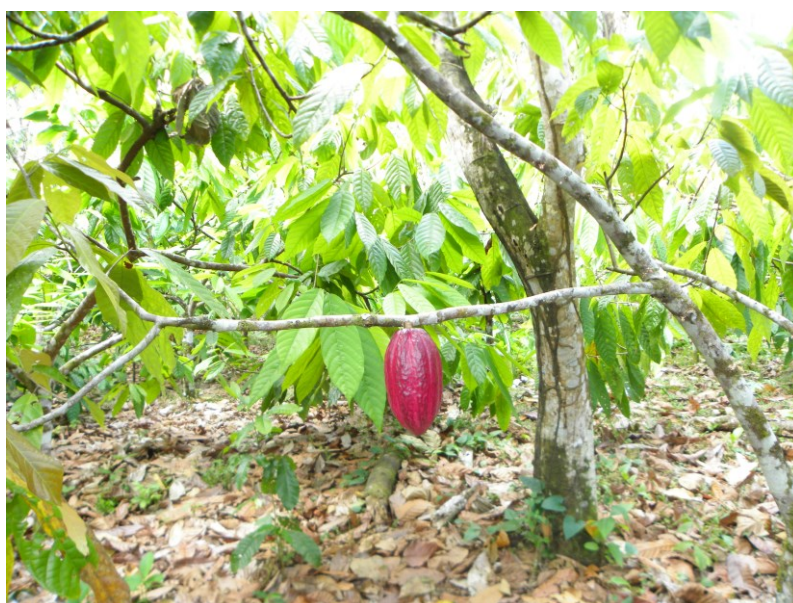
Finally, to strengthen my argument about the fact that having livestock is essentially about masculinities in rural Nicaragua, it is important to highlight that studies both in the region where El Nancite and where El Pijibay lie have shown that cattle-ranching is economically less efficient than diversified small-scale agriculture (see Coudray 2002 for the study in the municipality of Telpaneca, and ; Désir 2013 for the study in the municipality of El Rama), when these activities are compared upon the quantity of wealth generated per production unit and per agricultural worker¹³⁶. The latter is important to highlight because there is a (false) assumption

¹³⁶ Of course one could argue that cattle-ranching is more interesting when it comes to emergency situations: for example in case of illness of a family member, a cow can be easily sold. However, this argument holds only for the wealthiest cattle ranchers who have their own animals they can decide to sell whenever they want. This is not the case for the poorest cattle ranchers who do not own the livestock that is grazing on their pastures. Largeholders may also have other financial reserves to mobilize in case of an emergency (such as land).

that extensive cattle-ranching is better economically than small-scale diversified agriculture.

All but one of the nine (all male) beneficiaries of sector 1 of El Pijibay abandoned the activity of cocoa-production even before the cocoa project finished its operation at the end of 2014. The last producing plot (see Picture 23) was that of Don Pedro and Doña Nerina, where mostly Doña Nerina, her children and a teenage nephew worked.

Picture 23. Cocoa tree and its fruit in El Pijibay



(Photo: Noémi Gonda, 28/03/2014)

The most popular reason provided by my interviewees were that cocoa required too much and continuous labor, which they did not have available on their farm¹³⁷.

¹³⁷ In my interviews, I tried to inquire about the quantity of work required by cocoa production in comparison to cattle ranching. As most of the producers had abandoned their plantations by 2014, I could not make this calculation through my own observations. I however asked all 9 beneficiaries of the cocoa project about it. They all told me that cocoa require much more work than cattle ranching. In discussions with the cocoa project staff, as well as informal chats with them, I inquired several times about this question. They would all tell me that when in its fully productive phase, the work requirement of cocoa production was similar to cattle ranching: the plantations had to be looked after nearly every day because harvest and pruning need to be continuous, just as milking the animals. The

However, even if their plantations were abandoned, these producers would religiously continue attending to the training workshops organized by the project. As Don Rodolfo who initially received all the means to plant one hectare of cocoa on his farm, explained:

The technicians tell us that we have to continue fertilizing (...) [the cocoa], that we need to fertilize it, that we need to take care of it, that we shouldn't abandon it... It's true that if we fertilize it, cocoa produces, but this has a price. To make fertilizers costs a lot (...) and what costs most is labor force, and there are things one needs to buy (...). This is quite a lot of work and for what it is producing...(.) not enough. (...) All the work we put in it, and it doesn't produce (Interview Don Rodolfo, El Pijibay, 30/06/2014).

Cocoa is reported as unprofitable in El Pijibay for several reasons. Among them, ones related to agro-ecological conditions and geographical remoteness from possible commercialization points. The activity is also often neglected by producers because it requires intensive labor according to them. Therefore, cocoa production competes with cattle-ranching without providing the status the latter provides to ranchers. Thus, the interests of the cocoa projects conflict with those of male farmers. Indeed, the project seeks to progressively replace cattle-ranching with cocoa, while the farmers see cocoa production as something that can only be *additional* to their cattle-ranching activities (if they had enough labor force to implement it).

I observed one of the enactments of masculine subjectivities through the practice of burning down one of the last forested patches on Don Pedro's farm. The male members of the family planned it a few days before and asked Doña Nerina to bring back matches from the market in El Rama. The days before the activity were spent to clear the surroundings of the plot that was to be burned for the fire not to propagate where it was not supposed to be. The evening before the activity, Don

project technicians told me that the farmers did not want to understand this, and that for them, cattle-ranching seemed less as work than working in the cocoa plantation.

Pedro, his son, nephew and son-in-law (three youngsters between 15 and 24 years old) discussed how they would proceed and what precautions they had to take in relation to the wind, and the protection of the animals and the cultures. Don Pedro explained to me that women never participate in the burning activity because being in charge of both handling water (in charge of women) and fire (in charge of men) is not good for one's health (some of my interviewees told me that it could provoke arthritis, which is very much feared by farmers because it can constitute a serious impediment to work in agriculture). I also heard about the importance of not being in charge of handling both water and fire from several interviewees both in El Nancite and El Pijibay to justify why men do not do the laundry. Interestingly, cattle-ranching and agriculture (because of the heat of the animals and that of the land) are associated with fire, and thus become a masculine activity whose implementation prevents men to undertake feminine activities that involve water (such as cooking, doing the laundry, but also changing children's wet diapers).

According to Don Pedro, he had not burnt the trees because he wanted to: he was needed to do it to plant maize and beans so the family had something to eat in the following season (fieldnotes). While he did plant some maize during the time I was in El Pijibay, he also sold an impressive quantity of the wood he extracted from the cleared lands to the palm oil plantation and used a plot to plant coffee "in order to experiment with it" (Source: paraphrase from fieldnotes). The money he earned by selling the wood was in part used to buy a new chainsaw so he could more easily process the wood from the fallen trees and prepare them for commercialization. He was clearly in the process of accumulating money in cash. Together with the fact that he had told me that he went to ask his neighbors whether they would be interested in buying his farm (and for how much) suggested that he wanted to leave. Additionally,

he would also very often talk about the fact that he wanted to move further in the forest. He explained this willingness by the fact that he needed the conditions to maintain his cattle for which he needed better land. His wife Doña Nerina was totally against the idea: she did not want to start a new life somewhere else. By the time I left El Pijibay, Don Pedro had gone several times to look for new lands, and according to his daughter Christell with whom I sometimes exchange e-mails, he spends more and more time away from El Pijibay, while her mother stays in El Pijibay and looks after the farm together with their son. In an e-mail Christell sent me on April 30, 2016, she told me that Don Rodolfo and Doña Beykin, another couple from El Pijibay who were beneficiaries of the cocoa project and whose farm was already totally deforested in 2014 had moved out of El Pijibay in the first months of 2016 and went to live further towards the East. They could afford to do it because Doña Beykin's father had gave her her inheritance (e-mail communication with Christell, 30/04/2016).

The examples described above show that adapting to climate change by converting from cattle rancher to cocoa producer represents a competition to the productive activity that provides a masculine status to male farmers, as enacted and understood locally. This is reinforced by the fact that the cocoa project mainly talks to men (in sector 1 of El Pijibay, only men were promoters of the project. In three neighboring communities, I knew about a total of three promoters who were women. Women would represent approximately 10 percent of the promoters according to my observations). And while the beneficiaries show their understanding of the possible benefits of cocoa production, they do not invest time and money in it, as opposed to cattle-ranching in which they do, as illustrated earlier. This shows the link between masculine subjectivity in El Pijibay as intrinsically linked to their role as cattle ranchers, and indirectly to the need to advance the agrarian frontier. Don Eric

explained that every year the number of cows is increasing in the department of El Rama despite the decreasing availability of pastures and the efforts to intensify and diversify the production system.

[The department of El Rama is] of more cattle-ranching than any other thing because the farmers plant thinking that they will buy cattle. They don't plant thinking in other [economic] help [for the family]. [They think:] 'with this income I can buy a cow because this cow gives milk to my son and in addition it is growing the herd' (Interview Don Eric, El Rama, 02/07/2014).

In addition, the cattle ranchers of El Pijibay view their subjectivity as cattle ranchers as the one that links them to the land, not the territory. The example of Don Pedro who is making efforts to leave the community and find new land somewhere else towards the East shows that any challenge to the cattle ranchers' status, be it the decreasing availability of pastures or the actions of NGOs, however they may be linked to climate change, is threatening their sense of self and their *machismo* which intersects with environmental degradation, and jeopardizes climate change coping efforts. Recalling Hugh Campbell's work on masculinities in New Zealand in their own work on the effects of droughts in Australia, Margaret Alston and Jenny Kent write: "[the] destabilization of traditional, hierarchical, gender roles challenges traditional normative rural masculinity and is resisted in various ways by men (Campbell 2006; in Alston and Kent 2008, 137). This resistance in rural Nicaragua manifests itself in that cattle ranchers do not want to convert into cocoa producers. However, they comply with the expectations of the project that requires them to attend activities related to cocoa production because the subject is always ambivalent (Butler 1997). Further research is needed to analyze more in depth the ambivalence of the subject and detect the rare exceptional cases in which men do abandon cattle-ranching for cocoa production, something I unfortunately could not observe in any of my research sites.

Men like Don Eric, Don Pedro, Don Lalo and Don Ticiano want more cattle despite the fact that land is scarce, deforestation is a problem, and that they may have the possibilities to develop economically more interesting activities than cattle-ranching in the medium and long term. As Edward R. Carr (2008) highlighted in his research on rural Ghana, the persistence of some adaptation strategies over time are sometimes not tied to their material outcomes. In this case, the persistence of some unsustainable cattle-ranching practices are related neither to their disastrous environmental outcome, nor to their unsatisfying economic results in the long term. Just like in Carr's case-study (2008), I argue that the adaptation practices linked to the persistence of cattle-ranching in my research field sites endure despite their disadvantages because they mobilize existing, naturalized gender roles. However, it is important to highlight that men are not always in complete control of these strategies, something that Carr also underscores:

Men (...) are never in complete control of these strategies or their outcomes, because they must answer to gender roles not of their making. It is in the interplay of particular goals (maintaining one's authority over one's household) and broader social processes (the formation of gender roles) that specific adaptations emerge. These adaptations are neither idiosyncratic nor structural, but an outcome of the interplay of both (2008, 698).

Hegemonic masculinities and the *macho* culture, in this case related to the cultural significance of cattle-ranching also discussed in Nicaragua by Flores and Torres (2012), contribute to determining how climate change adaptation measures are adopted, by whom, with what objectives and what type of gendered subjectivities they are likely to reinforce or challenge. However, it is important to note that the *macho* resistance that manifests in the unwillingness of some male producers to adopt cocoa production instead of cattle-ranching is reinforced by the previously discussed context in which women's changing roles can be seen as jeopardizing the long-established patriarchal dominance of men in the rural society. The latter is not always well

accepted by men. Doña Rosibel, whose positive opinion on the transformation of gender relations was quoted in Section 1 of this chapter, explains that her husband Don Lalo is not always happy about the changing gender relations and confounds equity and equality:

My husband says when he is angry (...) or when he is drunk and he loses his sense of... how to say it... his sense of respect (...), he says: ‘if you women have all the rights why are you not weeding there on the plot?!’¹³⁸(Interview Doña Rosibel, El Nancite, 25/04/2014).

The opinion of Don Lalo shows that despite the increased participation of women at all levels, he would recognize women’s rights being equal to men’s only if women would do what men do, like working fully on the plot. However, even then, it would be hard to talk about equality as the comment made about Doña Leonor, the 60 year-old single woman from El Nancite who works alone on the farm by a man of El Nancite shows: “Yes, the fact is that she is man and woman at the same time. The only thing she doesn’t do is to ride a horse¹³⁹” (Interview Don Sixto, El Nancite, 27/05/2014). The opinion of Don Sixto shows that the fact that this woman works ‘like a man’ gives her an identity that is both of a man and a woman and, possibly, if she were riding a horse (also related to the image of the cattle rancher) she would become a ‘real’ man!

Doña Leonor does not consider herself a man even if she does men's work. Rather, she usually enacts the identity of a single woman (with a child). For example, she explained to me that she needed to generate more cash than men to pay agricultural

¹³⁸ Dice mi marido cuando se enoja (...) o cuando anda tomado... por que cuando anda tomado (...) y que pierde elcomo le dijera yo el respeto (...) dice : ‘si tienen todo el derecho las mujeres alla estuvieras limpiando vos [en la parcela]’!

¹³⁹ “Si es que ella es hombre y es mujer. Ella lo que le hace falta [para ser un hombre] es que se monte en una bestia”.

workers for the work she is not able to do herself because of her physical limitations (which she related to the fact that she was a woman, not to her age). Also, her brother, Don Lalo, usually sleeps at her place because "a single woman should not sleep alone in a house" (paraphrase from fieldnotes). Related to this discussion on the construction of subjectivities and their enactment, one can wonder whether Don Leandro, the grandfather who raises his grandchildren alone (who I have written about in Chapter 3) would in this understanding become a 'real woman' if he could benefit from the projects that have only women as beneficiaries.

6.3. Creation of gendered subjectivities in the process of climate change adaptation

Climate change and the practice of climate change adaptation projects reinforce 'traditional' femininities and do not challenge 'traditional' masculinities (although they supposedly try to do the latter with the cocoa project) when both would be needed to progress towards gender equality. Indeed, in this chapter, I have shown that climate change projects construct feminine subjectivities both as vulnerable and virtuous by tying them to their 'traditional' gender roles of water and wood fetching. Concerning men, decreasing pasture availability and projects' intent to convince male cattle ranchers to adopt cocoa production challenges rural masculinities in a society that views cattle-ranching as a more masculine livelihood than, for example, cocoa-production, even if the latter would be more adequate to regenerate and sustainably maintain the local environment. These two processes are happening in a context in which women are given increased importance in policies and interventions, which is sometimes seen as a threat to patriarchy by men. Also, some aspects of gender relations are changing (for example men increasingly fetch wood and water), but these changes are rarely included in the debates with climate

change adaptation project practitioners, which again limits the scope of the transformation of unequal gender relations.

I argue that my empirical observations show that gendered climate vulnerabilities are reinforced by the fact that climate change adaptation practitioners do not focus enough on how climate change (including projects) impacts gendered subjectivities and gendered social relations among and between men and women in the household and the agricultural fields. Indeed, as Fauzia Erfan Ahmed discussed in her paper on masculinities and microcredit in Bangladesh (2008), gender empowerment needs to be seen as something dynamic. She states: “gender empowerment needs to be seen as a process as well as a goal, (...) [which is] subtle and nuanced across time and place” (F. E. Ahmed 2008, 124). Therefore uniform interpretations of contexts and identities (such as constructing Nicaraguan rural women as the saviors in the face of climate change), should be banned, even if in some cases they could serve activist purposes (such as highlighting the need to include women in the climate change debate when they formerly used to be made invisible). However, Ahmed also warns against postmodern feminist conceptualizations that see gender as a category in permanent flux, because they can also become problematic when it comes to integrating gender empowerment in policies (2008). Instead, she argues that “an acknowledgement of the subtlety and complexity of household gender patterns does not have to lead to a state of political and strategic paralysis” (2008, 124) - in the case of my research, in climate change adaptation policies and programs. It is this subtlety and complexity I have tried to demonstrate in the context of climate change and post-neoliberal climate change adaptation politics in rural Nicaragua.

Conclusion

In this chapter, my intention was to answer my last research sub-question by discussing how post-neoliberal environmentality constructs women both as vulnerable and virtuous by tying them to their ‘traditional’ gender roles of water and wood-fetching. Concerning men, through an intent of convincing male cattle-breeders to adopt cocoa production, post-neoliberal environmentality tries to challenge rural masculinities in a society that views cattle-ranching as a more masculine livelihood than, for example, cocoa-production, even if the latter would be more adequate for regenerating and sustainably maintaining the local environment. My ethnographic research on climate change adaptation is useful to detect the contestation of these technologies of power that construct, reinforce, or do not manage to challenge hegemonic gendered subjectivities. It is all the more important that these contestations can constitute an explanation of why climate change adaptation projects with such approaches often fail in reaching their objectives. In addition, they also give an idea of how gender relations are transforming, even in the context of climate change, and which transformations and emerging subjectivities may be worth building on and encouraging in order to promote gender equality in climate change. In general, the resistant femininities and masculinities need to be integrated in a broader debate on the politics of transformation in response to environmental changes. The latter, as developed in a recent piece by David Manuel-Navarrete and Mark Pelling should involve discussions on how to promote emancipatory subjectivities that help transform oppressive systems (2015).

CONCLUSIONS AND IMPLICATIONS



Picture 24. Smallholder cattle rancher of El Pijibay cutting manually grass for the cows he is looking after (dry season 2014)

My dissertation sought to examine the gendered processes that shape climate vulnerabilities in post-neoliberal Nicaragua, where climate change politics include concerns for gender. Through an ethnographic study of Nicaraguan rural women and men's gendered experiences of climate change adaptation in two rural communities, I have gathered empirical evidence about how climate vulnerabilities are reproduced in such a particular context. Drawing on a feminist political ecology framework, I have carried out this study of the processes that contribute to making rural populations vulnerable to climate change through a fourfold focus on climate change adaptation practices, climate change adaptation politics, the politics of knowledge creation on climate change adaptation, and the subjectivities that are involved in the process of adaptation. My intersectional methodological approach, and the particular attention that I gave to the workings of power in my feminist ethnography allowed me to highlight not only how the social determinants of vulnerability (such as gender, class, age, ethnicity and geographical location) may intersect in the specific Nicaraguan context in the (re)production of inequalities, but also how vulnerabilities are multidimensional and interdependent among each other.

In this concluding chapter, I first summarize my main research findings. Second, I reflect on the main contributions of my research to knowledge. Third, I recapitulate my answer to my main research question. Finally, I highlight the limitations of my research.

Synthesis of the research findings

In this section, I go through my main research findings and answers to my research questions empirical chapter by empirical chapter. Thus, I first synthesize my response to each of the four research sub-question I have asked in relation to my four

research foci (practices, politics, knowledges, subjectivities). In the fifth sub-section, I provide a synthetic answer to my main research question.

Vulnerability as situated adaptation practices (Chapter 3)

I have empirically substantiated the relational and multidimensional character of vulnerability. Indeed, in both my research communities, I have shown that everyday material adaptation practices are as much shaped by environmental, political, economic, cultural, and social drivers than by people's personal interests and aspirations. For the most important drivers that I identified in each place (among them deforestation, land degradation, water scarcity, demographic pressure, climate change, neoliberal policies, and cultural drivers such as ethnic belonging and *machismo*), I have discussed how they (re)produce and are embedded in existing hierarchies related to gender, ethnicity, class and geographical location. For example, deforestation, land degradation and consequent water scarcity are as much driven by class related dynamics between largeholder and smallholder farmers (some of these dynamics being inherited from colonial times), than by the *macho* aspiration of men to increase their livestock. In El Nancite, ethnicity also appeared to be key when it comes to implementing adaptation practices that involve leaving the territory. It is clear that the indigenous people of Telpaneca who live in El Nancite are emotionally much more tied to their "virtual desert" than the inhabitants of El Pijibay to their territory where rains and vegetation are still abundant in comparison to El Nancite. Policies, including the neoliberal ones of the 1990s and early 2000s, and the most recent climate change policies, also appeared to be important drivers that influence adaptation practices. I have underscored that the gender, ethnicity and class assumptions within these policies (through their discourses on women, smallholder farmers and ethnic groups) influence adaptation practices in the region in which they

are deployed in their full strength. In this sense, the farmers of the Caribbean regions where the central government has less influence bear less the oppressions (re)produced by these policies than the farmers of the ‘Dry Corridor’ of Nicaragua, that appears in the climate change discourse as the most affected by climate change.

Second, I have stated that these everyday material practices, embedded in existing oppressive relations, contribute to producing subjectivities and environments. In particular, it is through these adaptation practices that rural communities and their members are brought into the climate change regime. To substantiate my argument, I have used the example of deforestation because it is a widely discussed in both of my research communities. I have shown that the practice of deforestation taken up by the climate change discourse serves as a vehicle for environmental and climate change policies to blame smallholders for environmental degradation (and climate change). I have emphasized the problematic aspect of this strategy that focuses on smallholder farmers’ maladaptation, and ignores the broader political ecology of adaptation to climate change. Indeed, while smallholders may often be the ones who cut the trees, their activities are frequently driven by the interests of largeholder cattle ranchers, land-grabbing, or the effects of unfavourable policies for the poorest producers.

Gendered marginalizations in post-neoliberal climate change politics (Chapter 4)

The analysis of climate change adaptation policies and interventions led me to conclude that the era of gender-blindness in climate change adaptation policies and interventions is over in post-neoliberal Nicaragua. Indeed, the National Environmental and Climate Change Strategy describes the Earth that is to be “loved, respected, protected as our own mother” and refers to women as the potential saviors of the planet. While women’s roles were mostly made invisible during the neoliberal

era (1990-2007), since the beginning of the new Sandinista regime (2007), women have become the first beneficiaries of social and environmental projects. However, I have argued that despite this discursive inclusion of gender and the promotion of the participation of women, Nicaraguan climate change adaptation politics contribute to reproducing patriarchy as well as other types of oppressions. They do so mainly by reproducing an ecofeminist discourse that essentializes women, by integrating climate change adaptation among the bulk of the undervalued reproductive roles of women, and by taking patriarchy to the public level.

The essentializing aspect of ecofeminism is particularly visible in Nicaraguan climate change adaptation politics. Indeed, the discourse portrays women as if they were a homogeneous group without class, age, ethnicity, personal interest or political related differences, and united around the salvation of Earth. Unfortunately the few feminist movements working on environmental issues in Nicaragua have not managed to build on the main achievement of ecofeminism to utilize the discourse for feminist purposes. Indeed, ecofeminism's main achievement has been to draw attention to the fact that if development was to be achieved, attention was to be accorded to women. This achievement could constitute a first step on which feminists working on environmental issues and climate change could build in Nicaragua.

The making of climate change knowledge (Chapter 5)

In Chapter 5, I have highlighted the existence of a class bias in the politics of knowledge creation on climate change through at two levels. The first was revealed through the type of studies that got into sectoral policies on climate change adaptation in Nicaragua. In particular, I have shown that the fact that shifting to cocoa production is presented as the 'miraculous' solution to cope with the effects of climate change in Nicaragua responds mainly to the economic interests of powerful

coffee-producers and cattle ranchers. I have claimed that these interests have greatly influenced the fact that certain type of studies (such as the one on cocoa) had a significant impact on climate change adaptation policies, while other ones (on maize and beans production, a sector that is about smallholders) have been only taken up by NGOs.

Second, I have argued that class bias in the politics of knowledge creation and translation in Nicaragua can be detected through the pervasiveness of the deforestation discourse that constructs smallholder farmers as ignorants and culprits. Concerning the (re)production of ethnic biases, I have shown that the process of knowledge integration between scientific and indigenous knowledge can undervalue the latter. Finally, related to gender, I have claimed that the settings in which climate change knowledge is translated for ‘people’ on the ground is not apt for women’s interests and needs to be taken into account.

Contested gendered subjectivities in the era of post-neoliberal environmentalism (Chapter 6)

I have found that climate change and the process of climate change adaptation construct feminine subjectivities both as vulnerable and virtuous by tying them to their ‘traditional’ gender roles of water and wood fetching. In parallel, decreasing pasture availability and the projects’ intent convince male cattle ranchers to adopt cocoa production challenges rural masculinities. These two processes are happening in a context in which women are given increased importance in policies and interventions, which is sometimes seen as a threat to patriarchy by men.

The problems with the introduction of cooking stoves and water reservoirs and with the conversion to cocoa production with the aim to engage respectively women and men in climate change adaptation described in Chapter 6 show that the

governmentality paradigm needs some questioning and needs to be completed with a discussion on social transformation. Indeed, despite the strong vulnerability discourse and the reinforcement of ‘traditional’ gender roles, gender relations are changing. I have illustrated this with the example of the women’s group, ‘*Las Vulnerables*’, which, despite having “governed themselves” (Foucault 1983) as *las Vulnerables* for years, have decided to change their names to show that they are not victims just because they are women or single mothers¹⁴⁰. On the other side of the coin, despite the fact that they are continuously blamed for deforestation, cattle ranchers do not want to convert into cocoa producers, possibly not only because of the insufficient economic advantage they find in this activity, but also the low prestige it gives, and their fears that their manhood can be challenged. They resist this conversion by apparently complying to the discourse of the cocoa project but not adopting it in practice. Male and female resistances are related especially due to the post-neoliberal context, which gives women a central role in environmental management and climate change adaptation. Women’s roles are transforming, but men resist this transformation by avoiding claiming that they also fetch wood and water. Only in appearance do they adopt their ‘destiny’ that encourages them to abandon cattle-ranching, but resist it secretly. The resistant femininities and masculinities need to be integrated in a broader debate on the politics of transformation in response to environmental changes. The latter, as developed in a piece by David Manuel-Navarrete and Mark Pelling (2015), should involve discussions on how to promote emancipatory subjectivities that help transforming oppressive systems.

¹⁴⁰ Source: interviews with 3 of the group members.

Contributions to knowledge

My research provides contributions at the empirical, theoretical, methodological levels, and is useful for activist purposes.

Empirical contributions

The conclusions of my research feed well into discussions about plausible future pathways in the context of climate change. Indeed, even though my research is exclusively on Nicaragua, it may provide important lessons on climate change politics for other countries. For example, my research is potentially insightful for other countries in the Central American region with similar climate vulnerability, levels of poverty, gender inequality issues, indigenous populations' rights related struggles, economic reliance on climate related activities such as rain-fed agriculture, exposition to disasters, modest contribution to global greenhouse gas emissions, lack of power in international climate negotiations as well as structural problems. One of such countries is Guatemala¹⁴¹, for which my Nicaraguan case study potentially draws attention to the fact that opening the floor to better include multi-dimensional(gendered) inequalities in the understanding of climate vulnerability does not guarantee that the feminist purpose of achieving gender equality will be reached. In addition, for countries that similarly to Nicaragua hold a post-neoliberal discourse

¹⁴¹ For example, Guatemala's national climate change policy paper can be qualified as gender-blind. In the policy paper gender is mentioned explicitly only once as a cross-cutting issue that should be addressed(2009). There is no explicit reference to women at all in the document. In Guatemala's paper, actors are impersonalized and mentioned as "population", "inhabitants" and two times as "indigenous people": once to call for the strengthening of indigenous agricultural practices that would help climate change adaptation (2009) and once to promote the participation of indigenous people in the implementation of the climate change policy (2009). Thus, the paper does not give the idea that the policy would promote gender specific responses to climate change, nor take into account the different perceptions and responses to climate change according to gender, class, ethnic group, and age. In the Guatemalan paper, climate change is presented as a global problem that would need equal effort from everybody to be dealt with. In opposition to Nicaragua's paper, there is no statement that suggests any connection between women and the environment. Neither is there a suggested connection between people and nature. Instead, the policy paper's discourse promotes a rights-based approach (in which humans should be all equal and free to control and benefit from natural resources). The risk with such an approach is to suppose that because it is based on a Human Rights perspective, it also includes gender, which is not the case.

on the environment such as Bolivia or Ecuador, this research provides elements for critiquing these discourses. Indeed, the knowledge systems these discourses are based on are often described as “alternative kinds of knowledge about global environmental change” (Hulme 2010, 560), a description I do not find accurate in the Nicaraguan case. In this dissertation, I have shown that the paradigmatic shift in the environmental discourse from neoliberalism to post-neoliberalism, rather than providing the opportunity for the implementation of environmentally and socially just climate change politics, is contributing to hindering environmental and social (including gender) equality related issues in climate change politics. Indeed, it seems that the 'post' label cannot really exist in the neoliberal world that we live in, especially when it comes to issues directly related to neoliberalism such as the impacts of climate change and the coping solutions that are put forward.

Nevertheless, the pertinent debate to follow should not only be about whether the Nicaraguan (so-called post-neoliberal) example is a 'good start' that just needs to be implemented more fully or whether it is altogether a wrong model that other countries should not follow. Rather, my empirical findings pose a fundamental challenge to the definition of successful adaptation, be it in Nicaragua, Guatemala, Bolivia, Ecuador or any other country. As Carr underscores:

[h]ow we might foster adaptations that lead to both social justice and material security is a central question in studies of adaptation. Understanding the persistence of current, unjust adaptations that minimally meet the material needs of societies that implement them is an important step toward answering that question (2008, 698).

Theoretical contributions

My main theoretical contribution has been to bridge environmental and feminist scholarship in an ethnographic study on climate change adaptation that pushes the limits of feminist political ecology further, with the intention of helping

the dialogue between feminist scholars working on environmental issues, and climate scientists. For this, I have developed a fourfold analytical lens to study the processes that make people vulnerable to climate change. This analytical lens that understands climate change adaptation as an equation of climate change adaptation practices, politics, knowledges and the subjectivities at play in the process of adaptation, has emerged as much from my feminist political ecology perspective than from the field research itself.

Theoretically, four main topics emerge from my research findings that require further exploration: (i) societal transformation ; (ii) feminist political response to climate change; (iii) participatory learning processes on climate change adaptation, and ; (iv) emancipatory subjectivities.

From individual adaptation practices to societal transformation

Due to the fact that oppressions related to gender, ethnicity, class and geographical location shape agricultural and climate change adaptation practices in rural Nicaragua, and because rural communities are inserted into the climate change regime through these practices, in both my research communities, climate change adaptation appears to be extremely challenging. This is the case, for example, in El Nancite, despite the fact that the region is at the center of the attention of climate change adaptation interventions. First, this is due to the fact that the narrative on the maladaptation of El Nancite's inhabitants due to the degraded character of the landscape questions the legitimacy of the ancestral inhabitants of the territory as the 'stewards' of local natural resources. This questioning adds up to the fact that they are not legally recognized as an indigenous group despite their identity claims: it is another layer in which ethnic oppressions are reproduced, in this case through the

climate change discourse on the ‘adequacy’ of certain climate change adaptation practices.

Second, climate change adaptation is a challenge in El Nancite because current agro-ecological conditions and social inequalities are such that there is very little room left for farmers to adapt to climate change. To put it differently, adaptation within the territory of El Nancite means adjusting within an undesirable state, which is problematic. Cases like the one in El Nancite are the type of problematic situations that has led Karen O’Brien to ask the question: “[i]s adaptation enough?” (2012, 669), and conducted her and other scholars such as Mark Pelling to develop a rationale for societal transformation within climate change scholarship, thereby questioning approaches to adaptation that embrace the rigidity of undesirable states (Pelling 2011; O’Brien 2012). Indeed, when arguing for transformative adaptation, O’Brien cites the father of popular education, Paolo Freire (1970) to highlight the need to problematize the changes that are being adapted to (and to give responses to questions such as: why adapt? who decides to adapt? what is being adapted to?):

The more completely the majority adapt to the purposes which the dominant minority prescribe for them (thereby depriving them of the right to their own purposes), the more easily the minority can continue to prescribe” (Freire 1970, 76; in O’Brien 2012, 669).

Climate change adaptation interventions in El Nancite do not consider the necessity of system transformation, among other reasons because the current state still fits the interests of the most powerful minorities (the absent cattle ranchers), despite their increasing vulnerability. These interventions encourage the return to a ‘normal’ state understood as the one that eliminates the *additional* stressor of climate change, but that do not question the multidimensional and relational stressors that (re) create

(climate) vulnerabilities and that encourage the existence of current (sometimes unsustainable) practices.

However, everyday climate change adaptation practices should be seen as a space for transformation. As Pelling *et al.* put it: “[r]outine behaviour and mundane or everyday acts embody power, instantiating and reproducing values and allowing institutional systems to persist” (Shove 2010; Loftus 2012; in Pelling, O’Brien, and Matyas 2014, 10). In addition to the empirical demonstration of the later statement both in El Nancite and El Pijibay, what has been key in my argumentation is that individual adaptation actions tend to be legitimated (and/or de-legitimated) through climate change and development discourses, social institutions and the wider political system (Pelling, O’Brien, and Matyas 2014). The latter calls for a shift in the theoretical, policy and activist debate on climate change adaptation practices. In particular, adaptation scholars, climate change adaptation policy-makers, and environmental and feminists activists should shift their focus from individual agricultural and climate change adaptation practices, and analyze and address better the transformations needed in the social, political, economic and cultural contexts in which these practices emerge.

From essentializing gendered climate change politics towards a feminist political response to climate change

To start the construction of a feminist response to climate change, it is important to understand why essentialism is used in the Nicaraguan discourse, by whom and with which objectives. Feminists talking about the unique and contradictory gender politics in Nicaragua, in addition to analyzing the situation that led to the banning of therapeutic abortion (e.g. Kampwirth 2008), like to recall one important aspect of President Ortega’s life that influenced his political career. During

the 1980s, Ortega was accused of sexually abusing his stepdaughter Zoilamerica Narvaez. The accusation (made in 1998 and retracted in early 2000s by his stepdaughter) was one of the major threats to Ortega's re-election and led the Nicaraguan and international feminist movements to oppose his candidature. In order to maintain votes, with the help of his wife Rosario Murillo who since then has become the communication assessor of the government and its second most important person (and probably the next candidate the Nicaraguan presidency), feminist movements and organizations have been harassed, and 'pseudo-feminist' measures have been implemented in order to cut feminist claims. As Tim Rogers, a journalist from *The Times* explains:

[President] Ortega has used all his tentacles — Sandinista media outlets, government ministries and fanatical party structures — to investigate, slander and harass Nicaragua's feminist movement, which [has been] informally accused of everything from money laundering and conspiring with the CIA, to "illegally" promoting abortion, pornography and "assassinating children".

[Ortega's wife,] Murillo has even tried to reinvent the feminist movement in her own image by penning an Orwellian essay called "Feminism and Low Intensity War." Murillo's feminist manifesto is intended to change the way Nicaraguan women look at feminism, but her views will hardly be deemed transformative — she lauds the traditional role of a woman as wife and mother, and rails against other feminists as "counterrevolutionaries" who "dress in the clothing of women, but have never known the sensibility of a woman's heart (Rogers 2008).

The Nicaraguan climate change strategy with its essentialist and ecofeminist features seems to be in line with the governmental stratagem to annihilate the Nicaraguan feminist opposition: the effect of giving so much importance to women in the discourse contributes to cutting all opportunities for feminist claims. Indeed, the ecofeminist discourse, by putting to the fore the ideological link between women and the environment, entails a problematic definition of gender that does not allow for social transformation towards a gender equal society.

Additionally, the expansion of women's reproductive roles with the inclusion of climate change adaptation related tasks have shown the necessity of moving away from dichotomist analysis of female vs. male, and winners vs. losers (Simon-Kumar 2011). My research has highlighted that because these boundaries are increasingly blurred in post-neoliberal politics, there is an urgent need for researchers to adopt an intersectional perspective that looks at the workings of power (rather than at who has power) in their analysis of the political processes that contribute to making people vulnerable to climate change. The way private patriarchy is upscaled to the public sphere by post-neoliberal politics also reinforces the need for an intersectional perspective in similar studies. In particular, it should enable the detection of the workings of oppressions in pseudo-inclusive politics, such as Nicaraguan climate change adaptation politics.

From knowledge creation and translation to participatory learning processes on climate change adaptation

My findings that show that the process of knowledge creation and translation on climate change is marked by the (re)production of oppressions, call for a more sustained engagement by climate change adaptation scholars and practitioners with participatory learning processes. Such an engagement would mean moving away from categorizing knowledges vs. beliefs and knowledge-holders vs. ignorants, and investing efforts in participatory learning processes. The latter would not mean implementing 'falsely' participatory processes (for which I have provided an example in Chapter 4, and that are only participatory in their names), but to create genuine spaces for collective participatory learning. Of course, as a first step, it would mean recognizing, assessing and evaluating more fully the knowledge that exists and that is not being captured by discounting the elders for example. The opening of this type of

space would not mean ignoring unequal power relations in which people with more leadership, skills, power, education, influence and experience may be able to make their voices heard more. While not exempt from weaknesses, research shows that such participatory learning processes on climate change adaptation can and should be implemented on the ground (Fazey et al. 2010). A common feature of these experiences is that they take into account local particularities and do not apply pre-existing methodologies everywhere in the same way (Tschakert and Dietrich 2010; Kuruppu and Liverman 2011; Fazey et al. 2010).

Another important aspect to take into account when promoting participatory learning processes on climate change adaptation is the fact that many of the problems faced by local communities “are not their own making and operate at scales far greater than that of the local”(Fazey et al. 2010, 726), something on which I have elaborated extensively in the context of El Nancite and El Pijibay. However, this should not impede these communities to take initiatives for themselves, especially when their governments are only interested in practices, politics and knowledges that favor its elites. Thus, as Fazey *et al.* highlight: it should be “possible for participatory action research projects to resist the tyranny of localism (Stokke and Mohan 2001; Fazey et al. 2010, 727) and to facilitate action for change at multiple scales simultaneously”(Fazey et al. 2010, 727). With such a view, participatory co-learning processes should be able to inject “liveliness and place-based meaning into science predictions that are often considered value-free” (Tschakert and Dietrich 2010, 1064). They should also be able to highlight that knowledge and the process of knowledge creation, at whatever scales this process takes place, is never value-free. The challenge is not to extract or make these values invisible, it is to challenge their embeddedness in oppressive systems.

From subjugated subjectivities to emancipatory subjectivities

My observations on the (re)production of gendered subjectivities and the emergence of resistant ones shows that there is a need for more ethnographic research on climate change adaptation that can help detect the contestation of ‘technologies’ of power that construct and reinforce hegemonic feminine and masculine subjectivities. Such research could, for example, focus on analyzing small resistances to climate change adaptation ‘technologies’. The role of intersecting disadvantaging factors in creating (climate) vulnerabilities or influencing adaptation strategies must be taken into account to explain why some people adopt their constructions as specific subjects, and others do not. Such contestations in particular can explain why some projects fail to meet their objectives.

Gendered subjectivities and resistances matter. They can help challenge the ‘technified’ adaptation schemes that mostly target smallholder farmers who are constructed as culprits of deforestation or women who are seen as tied to their traditional gender roles. In an era in which institutions like Food and Agriculture Organization (FAO) or the Consultative Group for International Agricultural Research (CGIAR) tend to call for *climate-smartness* in agriculture, there is a need to deepen the debate on the *gender-smartness* of the adaptation policies and interventions that are promoted. While this debate has already been initiated (Twyman et al., 2015), feminist scholars and practitioners have a responsibility to push it forward.

Additionally, existing efforts to include discussions on subjectivities in the climate change debate, are still insufficient, especially when it comes to conducting ethnographic research (Sundberg 2004; Nightingale 2011a; Bee, Rice, and Trauger 2015; Manuel-Navarrete and Pelling 2015; Bee 2016 are exceptions). Even fewer are

the discussions on the impact of masculinities on climate change adaptation, as still too often the focus of gender and environment studies remains first and foremost on women.

Methodological contributions

My research provides three important methodological contributions. First, I have shown that a feminist ethnography that translates intersectionality's main characteristics into methodological aspects (see Table 2) is useful to study the processes that make people vulnerable to climate change. Second, the two embedded units I chose to constitute my case studies revealed the pertinence of multi-sited ethnography without intending for a comparison. For example, the fact that there was no climate change discourse in El Pijibay helped to put the El Nancite site in perspective: it allowed me to highlight the role of climate change discourses in the processes that make people vulnerable to climate change. Thus, rather than helping a comparison, the two sites allowed me to fully spell out the situated character of rural women and men's experiences of climate change adaptation. Third, emotions played an important methodological role. Indeed, rural women and men's experiences of climate change are marked by these emotions. While I tried to spell them out as often as necessary, emotions could deserve even more attention in climate change adaptation research by going deeper into debates about belonging and affect, as well as emotional risks and damages that may influence adaptation choices. Concerning emotions, I have also highlighted mine, and how they were an integral part of the research process. Highlighting emotions was part of a political stance aimed at underscoring that climate change research needs to make more progress in moving away from seemingly value-free statements and embrace the situated and subjective character of knowledge production.

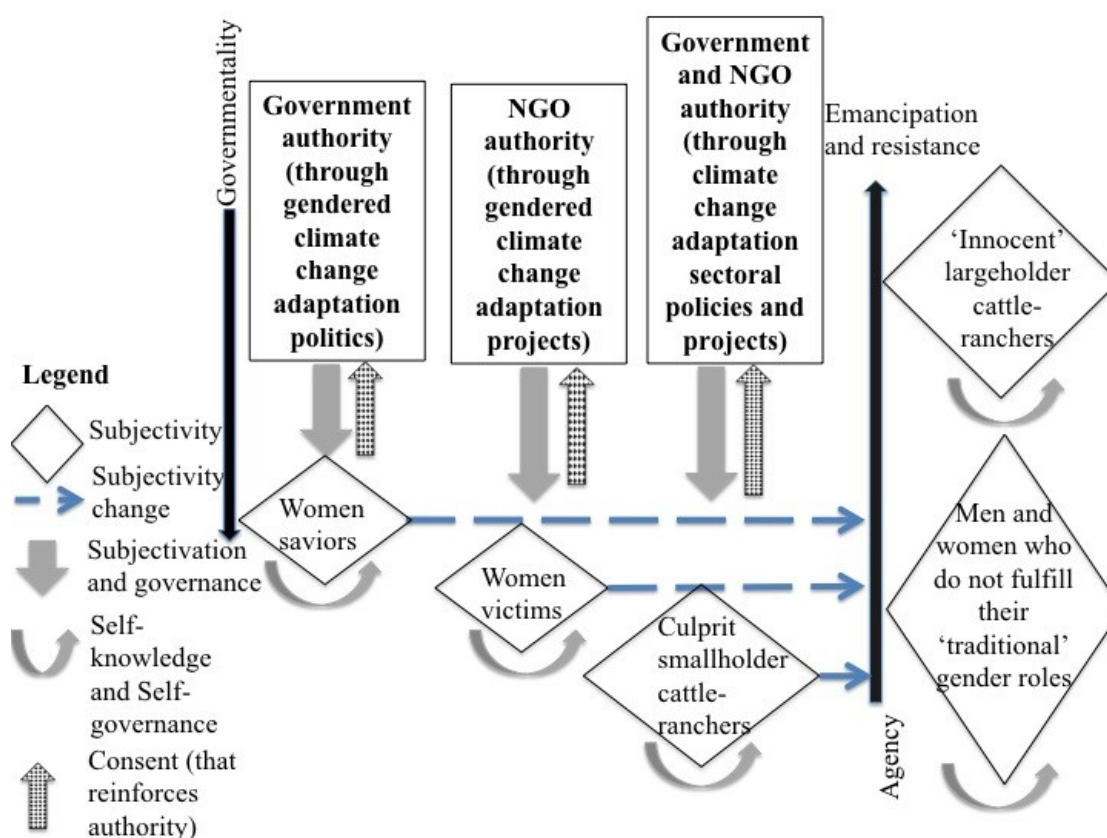
Contributions for activist purposes

In a country that is the third most affected by climate change (Harmeling and Eickstein 2012), and where feminist movements have once been so influential in the political sphere (Bradshaw et al. 2008; Lacombe 2014b), I was surprised that feminist movements and organizations had barely any political stance on the issue of climate change. Of course, they had other priorities to consider, such as the constant harassment by the government, the problematic laws on domestic violence and access to land for women, which they had difficulties to challenge in a context in which the government had opened (otherwise patriarchal) participation spaces for women. However, in my discussions with Nicaraguan feminists, and in this dissertation, I have argued that climate change is a problem for feminists too. It is so *in particular* in Nicaragua where the problem of climate change contributes to depoliticizing both the environmental and the feminist debate.

Answering the main research question

In this dissertation, I have stressed that climate change is fundamentally political. The outcome of the gendering of Nicaraguan climate change politics, which constitutes my main research question, depends upon the power dynamics underlying the adaptation practices and politics that are implemented, as well as the knowledges and the subjectivities that are mobilized. As I have argued throughout this dissertation, this outcome is far from becoming a feminist response to climate change. Applied to my case study, the model elaborated by Manuel-Navarrete and Pelling, is useful to summarize how power dynamics underlie climate change in post-neoliberal Nicaragua (see Figure 9).

Figure 9. Heuristic model of power dynamics underlying climate change adaptation in post-neoliberal Nicaragua



(Adapted from Manuel-Navarrete and Pelling 2015, 561 and 565)

Government authority (through gendered climate change adaptation politics) make subjects act in certain ways. In Nicaragua climate change adaptation politics prompt women to become environmentalists. NGO authority through their gendered climate change adaptation projects encourage women to become victims. Both government authority through sectoral climate change adaptation politics and NGO authority through projects such as the one that encourages the conversion of small and medium-holder cattle ranchers to cocoa producers create the subjectivity of the culprit smallholder cattle rancher. In parallel, by making them discursively invisible and therefore 'innocent', it leaves a certain freedom to largeholder cattle ranchers to continue executing their (socially and environmentally unsustainable) activities. Also, by ignoring the existence of men and women who do not fulfill their 'traditional'

gender roles, for example firewood and water fetching, authorities reinforce 'traditional gender roles and these resistant and emancipatory subjectivities are neither contested nor built on. When the subject knows and /or governs herself as she is supposed to according to the authority by enacting her subjectivity as she is supposed to, she reinforces these politics. Thus, to challenge the gendered processes that make people vulnerable to climate change, first, it would be key to see both femininities and masculinities as multiple, and ask which femininities and masculinities support the maintenance of the intersection of patriarchy and environmental degradation in rural Nicaragua. Having said that, one needs to ask which femininities and masculinities have the potential to contribute to challenging the intersection of patriarchy and environmental degradation in rural Nicaragua. The authority exercised through the climate change adaptation projects that reinforce the 'traditional' femininities of the water and fuelwood fetcher can be seen as part of a governmentality project (Foucault 1982; Butler 1997). Rural women and men can and do resist this type of project. This is what happened in the case of *Las Vulnerables* who decided to change the group's name. Resistance, however, is not always conducive to emancipatory subjectivities: sometimes they are intended to reinforce patriarchy, which is the case of the male cattle ranchers. In the latter case, two types of masculinities are reinforced: that of the smallholder farmers and the largeholders, who unite their efforts to maintain the patriarchal status quo.

Therefore, the most important part of Figure 9 is what relates to the emancipatory subjectivities that have the potential to challenge authority and contribute to shifting politics towards transformational patterns of socio-ecological change. These emancipatory subjectivities will emerge through new adaptation

practices that are developed in resistance to oppressive politics, knowledge systems and unjust societies.

Research limitations

The first main limitation of my research derives from my intersectional approach. While I have attempted to reflect on multiple subjectivities and discuss how subjectivities are reinforced and can be challenged at the same time in the process of climate change adaptation from an empirical case study of individuals, it is important to highlight that the emergence of these subjectivities are always situated and related to their contexts and times. By adopting an intersectional approach and basing my analysis on individual life stories, I may have overemphasized what England also denounces in relation in feminist (intersectional) ethnographies *i.e.* the overemphasis on "the abilities of individuals to actively produce their own lives" and underestimation of "how the ability to enact some (...) [subjectivities] or realities rather than others is highly contingent on the power-laden spaces in and through which (...) experiences are lived" (1994, 84). According to England, these risks of overemphasizing and underestimating presents can contribute to "overlook the importance of space (...) [and not] being sensitive to the continued [spatial and interscalar] importance of questions of power and social exclusion"(1994, 84). Indeed my focus on individuals have compelled me to look at questions of power and social exclusion mostly at the local level (even if I linked them with global environmental changes, and national and regional policies). However, such a focus did not allow me to link my arguments with a substantive criticism of the global economy and how much the reproduction of climate vulnerabilities may also be about the interests of the Global North.

The second main limitation of my research relates to the use of emotions in my research process. While I have highlighted its importance in Chapter 2 on the research methodology, in the empirical chapters more emphasis could have been given to how my research participants' perceptions of climate change and the process of climate change adaptation are mediated by emotions. However, this would have necessitated a more in-depth theoretical discussion on how far I could go as a researcher in speaking for other people's emotions. It would have required writing-up more detailed life stories and a more lengthy fieldwork with fewer research participants. On my side, it would have implied asking questions suggested by Rebekah Widdowfield (2000) in her piece on the role of emotions in research, such as:

- (i) To what degree, if at all, are emotions related to climate change and to the gendered process of climate change adaptation?
- (ii) How far (and in what way) do men and women, young and old, smallholders and largeholders, indigenous and non-indigenous people differ in their emotional responses to climate change?
- (iii) What role do class, ethnicity, politics and religion play in determining emotional responses to climate change?

Asking these questions may have certainly led me somewhere else in my research that is also worth exploring: namely the topic of emotional losses and damages related to climate change and the process of climate change adaptation.

To conclude, the depoliticization of climate change clearly serves the interests of the government that holds a post-neoliberal discourse on the environment but has a clear neoliberal stance on its management. The most striking example of this contradiction is the fact that in 2014 the Nicaraguan government has given a hundred-year concession for a Chinese millionaire to build a transoceanic canal across the country with all the probable environmental and social disasters mega-project can have. By mobilizing a feminist perspective, this research has sought to recaffeinate climate change by bringing back to the environmental debate its political substance.

Appendices

Appendix 1. Summarizing table presenting the research questions, research aim, objectives and analytical levels

Table 11. Summarizing table presenting the research questions, research aim, objectives and analytical levels

Main research question	Research aim	
How does the gendering of climate change adaptation politics shape gendered climate vulnerabilities in contemporary rural Nicaragua?	To study Nicaraguan rural women and men's gendered experiences of climate change adaptation in contemporary post-neoliberal Nicaragua, and to assess how climate change politics include concerns for gender and for the processes that contribute to (re)producing (gendered) vulnerabilities.	
Research sub-questions	Research objectives	Analytical level(s)
1. How do gender and other potential factors of oppressions and privileges such as ethnicity, age, class and geographical location shape agricultural and climate change adaptation practices in rural Nicaragua, and how are rural communities (and their members) inserted into the climate change regime through their practices?	1.1. To study the adaptation practices farmers implement in order to adapt to the changes they perceive. 1.2. To analyze whether and to what extent gender and other social factors determine the adaptation practices that are put forward by the farmers.	Local (mainly at the level of the rural communities)

<p>2. How do current Nicaraguan post-neoliberal climate change adaptation politics include concerns for gender and other potential factors of oppressions and privileges such as ethnicity, age, class and geographical location?</p>	<p>2.1. To study the discursive shifts and continuities in the way Nicaraguan environmental and climate change politics address and create gender and other factors of oppressions and privileges. 2.2. To analyze the gendered consequences of the discursive shifts and continuities. 2.3. To investigate how processes of discursive gendering intersect with gendered place-based rural practices, especially the ones linked with climate change adaptation. 2.4. To describe some of the ways in which the gendering of current environmental and climate change politics reinforce gendered and other types of oppressions in rural Nicaragua, thus impeding the construction of a feminist response to climate change.</p>	<p>National level (environmental and climate change policies), regional level (particular policies that are designed for specific regions of Nicaragua), local level (to understand the ‘on the ground’ effects of the policies and interventions, as well as the reactions to them).</p>
<p>3. How is knowledge on climate change adaptation created and translated to the people ‘on the ground’ in Nicaragua? In which ways (if any) do these processes (re)produce or challenge intersectional power relations?</p>	<p>3.1. To study the practices through which researchers in Nicaragua generate knowledge on climate change and the way this knowledge feeds into policies and interventions that have impact in my research communities. 3.2. To analyze the knowledge-translating practices employed by climate change adaptation project practitioners in order for their rural audiences to take measures for climate change adaptation. 3.3. To contrast these knowledge developing and knowledge translating practices with the way rural women and men understand and make sense of the explanations on climate change. 3.4. To show how the workings of power have shaped the climate change agenda in Nicaragua.</p>	<p>National level (research and policy-making), regional level (to observe the knowledge translating practices by NGOs), local level (to understand how people from rural communities interpret the knowledge).</p>
<p>4. How do climate change and the process of climate change adaptation (re)create or challenge existing subjectivities in rural Nicaragua? In which ways (if any), do resistant subjectivities emerge in this process?</p>	<p>4.1. To analyze the discursive and cultural constructions of hegemonic masculinities and femininities that shape the way climate change is addressed in rural Nicaragua. 4.2. To study how the rural ‘subjects’ of climate change adaptation policies and interventions challenge these hegemonic gendered subjectivities.</p>	<p>National, regional and local levels and the level of the human bodies (at which the discursive and cultural constructions of subjectivities occur), the local level and the level of the human bodies (where these constructions are resisted).</p>

(Source: author’s design)

Appendix 2. Map of the departments and regions of Nicaragua

Map 8. Map of Nicaragua's departments and autonomous regions



(Magellan Geographix 1997)

Appendix 3. Community organizations functioning in my research communities

Table 12. Community organizations functioning in El Nancite

Origin of the structure	Community organization
Central government	1. Cabinet of the Family, Community and Life (structure dependent of the central government)
	2. Health committee (dependent of the Nicaraguan Health Ministry's representation in the city of Telpaneca)
	3. School committee (dependent of the Nicaraguan Education Ministry's representation in the city of Telpaneca)
	4. Collective for productive activities: it is a reminiscence of a cooperative that the Sandinista government of the 1980s formed in the community. Since then, some of its members have changed.
Indigenous government	5. Indigenous community
Current or former NGO project initiative	6. Committee in charge of the credit fund in the community
	7. Water management committee
	8. Grain storage system committee
	9. Climate change project promoters
	10. Women's group (managing a community shop and a microcredit fund). It is currently supported by a governmental project but it started as an NGO initiative.
	11. A group formed originally as a women's group in order to undertake product transformation activities (marmalades, wines, etc.)
	12. Agroecology project promoters
Religious initiative	13. Road maintenance committee
	14. Local committee of the Catholic Church (dependent of the parish of Estelí)

(Source: interviews and participant observation in El Nancite, 2014)

Table 13. Community organizations functioning in El Pijibay

Origin of the structure	Community organization
Central government	1. Health committee (dependent of the Nicaraguan Health Ministry's representation in the city of El Rama)
	2. School committee (dependent of the Nicaraguan Education Ministry's representation in the city of El Rama)
Current or former NGO project initiative	3. Cocoa project promoters
Religious initiative	4. Local committee of the Catholic Church (dependent of the parish of El Rama)

(Source: interviews and participant observation in El Pijibay, 2014)

Appendix 4. Map of the main cities of Nicaragua

Map 9. Main cities of Nicaragua



(Magellan Geographix 1997)

Appendix 5. Field research activities

My field research activities and their respective results are described in Table 14.

Table 14. Research activities and their results

Period, place and duration	Activity	Result
June-July 2013, Nicaragua (six weeks)	Pilot study, visit to a community in El Pijibay to identify one of my research sites, preliminary interviews with institutions, and establishment of important institutional contacts.	Validation of my research design and refinement of the research methods. Confirmation of the two municipalities in which two communities would constitute my field research sites. Negotiation of institutional support for my research (UNDP Nicaragua and French NGO Agronomes et Vétérinaires Sans Frontières).
October-November, Nicaragua (five weeks)	Execution of a study on gender and climate change in collaboration with French NGO Agronomes et Vétérinaires Sans Frontières and under the commission of UNDP Nicaragua	Preliminary research results on how institutions, climate change, development and gender experts conceptualize climate change in Nicaragua.
January-December 2014, Nicaragua (one year)	In-depth interviewing, participant observation, participatory mapping in the communities, organization of thematic fora and several events to present my preliminary findings.	Ethnography of climate change adaptation in rural Nicaragua

Appendix 6. Events at which I did participant observation

Table 15. Events at which I did participant observation during my field research

	Place	Date	Event
1	Managua (AVSF office)	31.01.2014	Meeting between AVSF coordinator and IPADE coordinator about their common cocoa project in El Pijibay
2	City of Estelí, and communities of San Juan de Limay	12.-13.02.2014	Gender and climate change national event (co-organized by UNDP and AVSF)
3	Managua (AVSF office)	14.02.2014	Evaluation meeting on the event on Gender and Climate Change
4	Managua (AVSF)	15.02.2014	Thematic meeting of several local and international organizations about access to land
5	Managua (AVSF)	17.02.2014	Meeting between PNUD and AVSF about UNDP's climate change adaptation project
6	El Pijibay	19.02.2014	Meeting of cocoa project leaders
7	Managua (UCA)	21.03.2014	Forum on population dynamics and migrations in Central America
8	Managua (AVSF)	29.03.2014	Meeting on migrations
9	Somoto (INPRHU)	07.04.2014	Meeting between local NGO INPRHU and PNUD about their common climate change adaptation project
10	Los Ranchos, Telpaneca	08.04.2014	Workshop organized by INPRHU and UNDP with community inhabitants of the 'Dry Corridor' in order to establish the baseline study of the climate change adaptation project. Topic of the workshop: gender and climate change.
11	Los Ranchos, Telpaneca and visit the river basin	09.04.2014	Workshop organized by INPRHU and UNDP with community inhabitants of the 'Dry Corridor' in order to establish the baseline study of the climate change adaptation project. Topic of the day: the local biophysical effects of climate change
12	El Nancite	23.04.2014	Climate change adaptation project activity: meeting of project beneficiaries to define the trees they will ask from the project in order to plant on their farms
13	El Nancite	26.04.2014	Meeting of the members of the community grain storage system
14	El Nancite	28.05.2014	Focus group discussion (I organized for my research)
15	Telpaneca	29.05.2014	Training for youngsters of El Nancite to become promoters of the climate change adaptation project
16	Managua (AVSF)	19.06.2014	Meeting of the national network supporting activities on gender and climate change
17	Managua (UCA)	20.06.2014	Seminar organized by CATIE and CGIAR about how to link science and actions about climate change adaptation
18	Managua (AVSF)	24.06.2014	Discussion about a study on climate change adaptation related actions in Nicaragua executed by AVSF

	Place	Date	Event
19	El Pijibay (IPADE)	25.06.2014	Discussion of cocoa project staff
20	El Pijibay (IPADE)	01.07.2014	Meeting between AVSF coordinator and IPADE coordinator about their common cocoa project in El Pijibay
21	El Pijibay	02.07.2014	Meeting between IPADE cocoa project staff, beneficiaries of the cocoa project in the communities, and cocoa cooperative members
22	Managua (AVSF)	04.07.2014	Discussion about a study on climate change adaptation related actions in Nicaragua executed by AVSF
23	Managua (UNAN)	16.07.2014	Seminar of archeologists working in Nicaragua
24	Managua (UCA)	21.07.2014	Meeting of researchers in Nicaragua investigating rural families
25	Managua (AVSF)	22.07.2014	Discussion about a study on climate change adaptation related actions in Nicaragua executed by AVSF
26	Managua (AVSF)	22.07.2014	Discussion about a study on climate change adaptation related actions in Nicaragua executed by AVSF
27	Managua (AVSF)	25/07/2014	Meeting of the national network supporting activities on gender and climate change
28	Managua (UCA)	27.07.2014	Debate on the expansion of palm oil <i>versus</i> smallholder farming
29	Managua Crowne Plaza	30.07.2014	National public consultation about the project of constructing a transoceanic canal
30	Managua (Hotel Holiday Inn)	07.08.2014	Seminar organized by AVSF about the preliminary results of the study on climate change adaptation they executed.
31	El Nancite	13.08.2014	Meeting of the water management committee of the community
32	Managua (AVSF)	18.08.2014	Meeting of the national network supporting activities on gender and climate change
33	Estelí	30.08.2014-01.09.2014	National forum on gender and climate change
34	Managua	29-30.10.2014	National Assembly of the International Land Coalition
35	Los Ranchos, Telpaneca	14.08. 2014	Meeting organized in the frame of the visit of UNDP and COSUDE representatives to beneficiaries of the climate change project they are supporting
36	Managua (UCA)	17.09. 2014	VI th National Forum about Climate Change
37	El Pijibay (IPADE)	17.12.2014	Closing event of the cocoa project with the presentation of its results
38	Managua (AVSF)	18.12.2014	Final debriefing about my research with AVSF staff

Appendix 7. Interview guide with NGO, government and international organization workers

The objective of the interviews is to understand how representatives of non-governmental, governmental and international organizations see:

- the effects of climate change in Nicaragua, as well as;
- the measures they conceptualize as coping solutions to these effects.

Table 16. Interview guide with NGO, government and international organization workers (English version)

Main questions	Sub- questions	Important subjects to ask about during the interview (check-list)
1. According to you, how do the Nicaraguan society perceive the effects of climate change?	What are its most perceived effects? Who are the ones who perceive climate change's effects the most and with which consequences?	The effects of climate change at different levels: from the individual to the global level (from the effects on human health to the effects on regional dynamics). Human consequences (health), agro-ecological, social, political, economic consequences, etc, Check if the interviewee identifies criteria related to gender, ethnicity, economic level, geographical location, political belonging, social situation.
2. According to you, how does the Nicaraguan society respond to the effects of climate change?	What type of responses to the effects of climate change can you observe? What do you think about the efficiency of these responses? How do these responses articulate with development objectives and development institutions?	Responses at the local, regional, national, global levels. Sectoral responses (agriculture, forestry, water, tourism, enterprises, etc.) Coordination between sectors Articulation with development objectives and institutions
3. In case the effects of climate change would worsen in the future, how do you think that adaptation could happen to new modified situations?	What would be the changes that would become possibly more important in the next years according to you? Who would be the people or the groups of people who would be the most affected if they do not do anything about adaptation? What do you think should be the solutions to anticipate these changes?	Projected impacts

Main questions	Sub- questions	Important subjects to ask about during the interview (check-list)
4. According to you, who should be the responsables for making adaptation efforts to the current and future changes?	Who are in the best situation to face these changes now? Who are in the best situation to face these changes in the future?	Roles for women and men Roles for political leaders (and at which level) Roles for social movements
5. What is your institution doing related to this objective?	Description of the institutional vision, objectives, implemented projects and results of these.	Vision of climate change Vision of the importance of gender in relation to climate change
6. How do you consider the work of other institutions addressing climate change in Nicaragua?	What do you think of the position of the government and the different Ministries? What do you think of the position of the NGOs? What do you think of the position of the Delegation of the European Union, FAO, and UNDP? What do you think of the position of private enterprises? What do you think of the position of the government and the social movements? (environmentalist and feminist) How are their efforts articulated?	
Additional data	Name Position Gender Willing to give me another interview in the future: YES/NO Contact:	

(Author's design)

The original version of the interview guide is:

Table 17. Interview guide with NGO, government and international organization workers (Spanish version)

Preguntas principales	Preguntas secundarias	Importantes temas que cubrir durante la entrevista (check-list)
1. ¿Según Usted, cómo la sociedad nicaragüense percibe los efectos del cambio climático?	¿ Cuáles son los efectos más percibidos? ¿ Quiénes son los que más perciben estos efectos, porqué y con qué consecuencias?	Efectos en diferentes ámbitos: del nivel individual al nivel global (desde efectos sobre la salud a dinámicas regionales) Consecuencias humanas (salud), agroecológicas, sociales, políticas, económicas, etc. Ver si se identifican criterios de género, etnicidad, nivel económico, ubicación geográfica, pertenencia política, situación social, etc.
2. ¿Según Usted, como la sociedad nicaragüense responde a los efectos del cambio climático?	¿ Qué tipo de respuestas se pueden observar al cambio climático? ¿ Cómo valora la eficiencia de estas respuestas? ¿ Cómo se articulan estas respuestas con objetivos y medios (instituciones) de desarrollo?	Respuestas a nivel local, regional, nacional, global Respuestas a nivel de sectores (agricultura, forestaría, agua, turismo, empresa, etc) Coordinación entre sectores Articulación con los objetivos e instituciones del desarrollo
3. En caso que los efectos del cambio climático se vuelvan aún más severos en el futuro, como piensa Usted que se podría adaptar a las nuevas situaciones que se presentarán?	¿ Qué son los cambios según Usted que posiblemente se vuelvan aún más severos en los próximos años? ¿ Quiénes serían las personas o los grupos de personas más afectados según Ustedes si no se hace nada para adaptarse a estos cambios? ¿ Qué piensa Usted que podrían ser soluciones para anticipar estos cambios?	Impactos proyectados

Preguntas principales	Preguntas secundarias	Importantes temas que cubrir durante la entrevista (check-list)
4. Según Usted, quiénes son ahora las y los responsables de realizar estos esfuerzos de adaptación a los cambios, y quiénes deberían ser responsables en el futuro?	¿ Quiénes son los mejor ubicados para enfrentar estos cambios ahora? ¿ Quiénes deberían actuar para buscar soluciones frente a estos cambios en el futuro?	Rol para las mujeres y los hombres Rol para los líderes políticos (y a cual escala) Rol para los movimientos sociales
5. Que hace su institución con este objetivo?	Descripción de la visión, de los objetivos, de los proyectos implementados y de los alcances de éstos	Visión del cambio climático Visión de la importancia del tema de género en el cambio climático
6. ¿ Cómo valora el trabajo de las otras instituciones en Nicaragua en el tema de cambio climático?	¿ Qué piensa de la posición del Gobierno y de los diferentes ministerios? ¿ Qué piensa de la posición de las ONGs? ¿ Qué piensa de la posición de la Delegación de la Comisión Europea, la FAO, el PNUD? ¿ Qué piensa de la posición de las empresas privadas? ¿ Qué piensa de la posición de los movimientos sociales (ambientalistas y feministas?) ¿ Cómo les esfuerzos están siendo articulados?	
Datos adicionales	Nombre Puesto Género Dispuesto a recibirme en el futuro : SI/NO Contacto:	

Appendix 8. List of interviewees

Table 18. List of interviewees in El Nancite

	Pseudonym for community inhabitants / responsibility for members and workers of institutions	Community/ Organization	Individual or collective interview (I/C)	Place of the interview(s)	Date of the interview(s)	Gender (F/M)	Age in 2014 (NA if not available)
1	Doña Rita	El Nancite	I	El Nancite	26.04.14	F	NA (probably above 70)
2	Don Sancho	El Nancite	I	El Nancite	26.04.2014	M	44
3	Don Serafín	El Nancite	I	El Nancite	25.04.14	M	30
4	Doña Rosibel	El Nancite	I	El Nancite	25.04.2014	F	48
5	Don Salvador	El Nancite	I	El Nancite	04.11.2014	M	44
6	Doña Rosa	El Nancite	I	El Nancite	04.11.2014 and 25.02.2014 and 12.08.2014	F	28
7	Don Luis	El Nancite	I	El Nancite	25.04.2014	M	27
8	Don Candelario	El Nancite	I	El Nancite	24.04.2014	M	63
9	Doña Liliana	El Nancite	I	El Nancite	23.04.2014	F	52
10	Doña Cristina	El Nancite	I	El Nancite	10.04.2014	F	29
11 and 12	Don Diego and Doña Elisabet	El Nancite	C	El Nancite	11.04.2014	1M+1F	44 and 46
13	Don Lalo	El Nancite	I	El Nancite	10.04.2014 and 12.08.2014	M	51
14	Doña Soledad	El Nancite	I	El Nancite	10.04.2014	F	34
15	Doña Miriam	El Nancite	I	El Nancite	10.04.2014	F	51
16	Don Abraham	El Nancite	I	El Nancite	11.04.2014	M	70

	Pseudonym for community inhabitants / responsibility for members and workers of institutions	Community/ Organization	Individual or collective interview (I/C)	Place of the interview(s)	Date of the interview(s)	Gender (F/M)	Age in 2014 (NA if not available)
17	Doña Sara	El Nancite	I	El Nancite	25.04.2014	F	31
18	Don Mariano	El Nancite	I	El Nancite	25.04.2014	M	53
19	Don Sixto	El Nancite	I	El Nancite	27.05.2014	M	71
20	Don Simón	El Nancite	I	El Nancite	28.05.2014	M	35
21	Doña Ninoska	El Nancite	I	El Nancite	12.08.2014	F	60
22	Doña Socorro	El Nancite	I	El Nancite	12.08.2014	F	40
23	Doña Francisca	El Nancite	I	El Nancite	12.08.2014	F	22
24 and 25	Doña Nidia and Don Narciso	El Nancite	C	El Nancite	13.08.2014	1F+1M	45 and 45
26	Doña Nuria	El Nancite	I	El Nancite	13.08.2014	F	42
27	Doña Norma	El Nancite	I	El Nancite	13.08.2014	F	29
28	Don Leandro	El Nancite	I	El Nancite	13.08.2014 and 24.10.2014	M	58
29	Don Tomás	El Nancite	I	El Nancite	13.08.2014	M	29
30	Don Ticiano	El Nancite	I	El Nancite	14.08.2014	M	55
31	Doña Sandra	El Nancite	I	El Nancite	13.08.2014	F	28
32	Don Filiberto	El Nancite	I	El Nancite	22.10.2014	M	70
33	Don Nicolás	El Nancite	I	El Nancite	22.10.2014	M	32
34	Don Néstor	El Nancite	I	El Nancite	23.10.2014	M	38
35	Don Camilo	El Nancite	I	El Nancite	23.10.2014	M	52
36	Doña Nélida	El Nancite	I	El Nancite	23.10.2014	F	49
37	Doña Nereja	El Nancite	I	El Nancite	24.10.2014	F	26
38	Doña Romilda	El Nancite	I	El Nancite	24.10.2014	F	29

Table 19. List of interviewees in El Pijibay

	Pseudonym for community inhabitants / responsibility for members and workers of institutions	Community/ Organization	Individual or collective interview (I/C)	Place of the interview(s)	Date of the interview(s)	Gender (F/M)	Age in 2014 (NA if not available)
1	Don Rodolfo	El Pijibay	I	El Pijibay	24.02.2014 and 30.06.2014	M	42
2	Doña Esperanza	El Pijibay	I	El Pijibay	24.03.2014	F	54
3	Doña Adela	El Pijibay	I	El Pijibay	27.02.2014	F	34
4	Don Adalberto	El Pijibay	I	El Pijibay	27.02.2014 and 31.03.2014 and 27.06.2014	M	87
5	Doña Agueda	El Pijibay	I	El Pijibay	25.02.2014	F	47
6	Don Eric	El Pijibay	I	El Pijibay	02.07.2014	M	70
7	Doña Beykin	El Pijibay	I	El Pijibay	24.02.2014	F	42
8	Doña Christell	El Pijibay	I	El Pijibay	19.02.2014 and 31.03.2014	F	22
9	Don Pedro	El Pijibay	I	El Pijibay	22.02.2014 and 29.06.2014	M	47
10	Don Aníbal	El Pijibay	I	El Pijibay	25.02.2014	M	28
11	Doña Anastasia	El Pijibay	I	El Pijibay	27.03.2014	F	25
12	Don Aniceto	El Pijibay	I	El Pijibay	28.03.2014	M	27
13 and 14	Doña Paloma and Don Sergio	El Pijibay	C	El Pijibay	28.03.2014	1F+1M	50 and 51
15	Doña Laura	El Pijibay	I	El Pijibay	29.03.2014	F	22
16	Doña Leticia	El Pijibay	I	El Pijibay	29.03.2014	F	39
17	Doña Mabel	El Pijibay	I	El Pijibay	29.03.2014	F	30
18	Doña Nerina	El Pijibay	I	El Pijibay	30.03.2014	F	44
19	Don Máximo	El Pijibay	I	El Pijibay	30.03.2014	M	24
20	Doña Carla	El Pijibay	I	El Pijibay	30.03.2014	F	38

	Pseudonym for community inhabitants / responsibility for members and workers of institutions	Community/ Organization	Individual or collective interview (I/C)	Place of the interview(s)	Date of the interview(s)	Gender (F/M)	Age in 2014 (NA if not available)
21	Don Pío	El Pijibay	I	El Pijibay	31.03.2014 and 28.06.2014	M	68
22	Don Benjamín	El Pijibay	I	El Pijibay	31.03.2014 and 28.06.14	M	30
23	Don Dagoberto	El Pijibay	I	El Pijibay	26.06.14	M	28
24	Don Roque	El Pijibay	I	El Pijibay	23.02.2014 and 28.06.2014	M	55
25	Don Darío	El Pijibay	I	El Pijibay	29.03.2014	M	38
26	Don Demetrio	El Pijibay	I	El Pijibay	29.06.2014	M	50
27	Don Baltasar	El Pijibay	I	El Pijibay	29.06.2014	M	25
28	Don Bartolomé	El Pijibay	I	El Pijibay	30.06.2014	M	24
29	Doña Barbara	El Pijibay	I	El Pijibay	25.02.2014	F	18
30	Don Mamberto	El Pijibay	I	El Pijibay	28.03.2014	M	60
31 and 32	Don Bernabé and Doña Belinda	El Pijibay	C	El Pijibay	04.12.2014	1M+1F	34 and 36
33	Don Bernardo	El Pijibay	I	El Pijibay	07.12.2014	M	48
34	Raimundo	El Pijibay	I	El Pijibay	07.12.2014	M	18

Table 20. List of interviewees with people external to the communities

	Pseudonym for community inhabitants / responsibility for members and workers of institutions	Community/ Organization	Individual or collective interview (I/C)	Place of the interview(s)	Date of the interview(s)	Gender (F/M)	Age (NA if not available)
1	Anthropologist specialist of Nicaraguan indigenous people in the Pacific, Central and Northern region of Nicaragua	Independent	I	Managua	9.07.2014	M	NA
2	Climate change program officer	International NGO working on development and climate change issues	I	Managua	04.11.2013	F	NA
3	Climate change program officer	UNDP Nicaragua	I	Managua	31.10.2013	M	NA
4	Climate change program officer	Nicaraguan NGO	I	Estelí	30.09.2014	M	NA
5	Climate change program officer	International research and cooperation agency	I	Managua	28.10.2014	M	NA
6	Climate change program officer and project staff member	CARE (International NGO)	C	Somoto	01.11.2013	1M+1F	NA
7	Climate change project coordinator	CARE (International NGO)	I	Somoto	13.05.2014	M	NA
8	Climate change project officer	Nicaraguan female farmers organization (number 1)	I	Managua	30.10.2013	M	NA
9	Climate change project officer	UNDP Nicaragua	I	Managua	28.10.2013	F	NA
10	Climate change project officer	Nicaraguan NGO	I	Somoto	20.10.2014	M	NA
11	Climate change project officer	International NGO working on development and climate change issues	I	Managua	20.05.2014	M	NA
12	Climate change researcher	Nicaraguan research and advocacy institute	I	Managua	30.10.2013	F	NA
13	Director	Nicaraguan NGO working on gender	I	Mozonte	01.11.2014	F	NA
14	Director	Nicaraguan female farmers organization (number 1)	I	Managua	30.10.2013	F	NA

	Pseudonym for community inhabitants / responsibility for members and workers of institutions	Community/ Organization	Individual or collective interview (I/C)	Place of the interview(s)	Date of the interview(s)	Gender (F/M)	Age (NA if not available)
15	Director	International NGO working on gender	I	Managua	29.10.2013	F	NA
16	Director	Nicaraguan NGO working on gender	I	Managua	17.11.2014	F	NA
17	Feminist activist	Independent	I	Managua	14.12.2014	F	NA
18	Gender program officer	UNDP Nicaragua	I	Managua	06.11.2013	F	NA
19	Gender program officer	Municipal government of Estelí	I	Estelí	30.09.2014	F	NA
20	Gender program officer	International NGO working on development, gender and climate change issues	I	Managua	10.10.2014	F	NA
21	Gender program officer	International cooperation agency	I	Managua	28.10.2014	F	NA
22	Gender program officer	International NGO working on development, gender and climate change issues	I	Managua	13.11.2014	M	NA
23	Gender program officer	Central American Network of organizations working on gender	I	Managua	13.11.2014	F	NA
24	Climate change expert	Independent	I	Managua	11.11.2014	M	NA
25	Nicaraguan feminist activist	Feminist leader and activist	I	Managua	10.10.2014	F	NA
26	Masculinity project officer	Nicaraguan network of organizations working on masculinities	I	Managua	17.11.2014	M	NA
27	Member of the directing board	Nicaraguan farmers organization	I	Managua	06.11.2013	M	NA
28	Members of the governing board	Indigenous government of the Telpaneca	C	Telpaneca	28.04.2014	2 F+ 3M	NA
29	Municipal worker in charge of	Municipal government of	I	Estelí	01.10. 2014	F	NA

	Pseudonym for community inhabitants / responsibility for members and workers of institutions	Community/ Organization	Individual or collective interview (I/C)	Place of the interview(s)	Date of the interview(s)	Gender (F/M)	Age (NA if not available)
	environmental issues	San Juan de Limay					
30	Municipal worker in charge of environmental issues	Municipal government of Telpaneca	I	Telpaneca	29.04.2014	M	NA
31	NGO director	International NGO working on development and climate change issues	I	Managua	28.10.13	F	NA
32	Nicaraguan feminist	Nicaraguan feminist organization	I	Managua	27.10.2014	F	NA
33	Nicaraguan feminist from Matagalpa	Nicaraguan feminist organization	I	Managua	17.10.2014	F	NA
34	Program officer, funding member	Nicaraguan female farmers organization (number 2)	I	Managua	21.11.2013	F	NA
35	Staff member at the Division of Climate Change	Ministry of the Environment and of Natural Resources	I	Managua	18.11.2013	F	NA

Appendix 9. List of climate change adaptation project documents used for the analysis

Table 21. List of climate change adaptation project documents used for the analysis

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
1	Reduction of risks and vulnerability in the face of flooding and droughts in the river basin of the Estero Real (Reducción de riesgos y vulnerabilidad ante inundaciones y sequías en la cuenca del río Estero Real)	MARENA	Delegation of the Ministry of the Environment and Natural Resources MARENA	Adaptation Fund UNDP	07/2011	06/2015	0	0	22	0%	0%	Terms of reference for technical coordinator of the project TDR
2	Integral Management of River basins in Central America (Manejo Integral de Cuencas en Centroamérica) “MICUENCA”	CARE CEU eTD Collection	Cabinets of citizen power, water committees, local committees of disaster prevention, community basin committees, ecological brigades, health promoters, municipal governments, and other local and international organizations such as RED PAS, RASNIC, SINAPRED, RENOC, CRS, UICN	Private Foundation Howard G Buffett « The Global Water Initiative »	NA	NA	1	1	18	6%	6%	Powerpoint presentation of the project

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
3	Adaptation to Climate Change in the Water and Sanitation sector (Adaptación al Cambio Climático en el sector de agua y saneamiento) "PACCAS"	MARENA	New FISE, National Water, Authority, Municipal government of Corn Island	Special Fund for Climate Change, World Bank, GIZ	NA	NA	0	3	136	0%	2%	Frame document about environmental and social management

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
4	Integral project of Hydrographic Basin Management, Water and Sanitation (Proyecto Integral de Manejo de Cuencas Hidrográficas Agua y Saneamiento) “PIMCHAS”	CARE and MARENA	TECSULT, UBC, 17 municipal governments FONADEFA, INTA, INTECFOR, HIDROGESA, FAREM-UNAN, CIRA-UNAN, UNAN-León, UNI-Norte, UNA, FISE, Mined, MINSA, CIAT, UNICEF, COSUDE, CRS, Oxfam-Québec, FIDER, APRODECON, OCTUPAN, IMC, ASODEA, MOPAF-MA, SOPROCOM, ASOGAPCON, FADESE, FUMDEC, APC El Porvenir, Cooperatives (Juan Francisco Paz, Tepeyac, 10 de mayo, Blanca Arauz), Dariana Association, ASODEPA, TERRENA Alliance, Action Against Hunger, AMUDES, AMULEON, sub-basin and micro-basin committees, water committees	Canadian cooperation agency ACIDI	01/2007	01/2015	3	1	23	13%	4%	Powerpoint presentation of the project
5	Territory and Natural Resources project (Proyecto Territorio y Recursos Naturales) “TERRENA”	ONGAWA CEU eTD Collection	La Cuculmecca, Centro Humboldt	Spanish cooperation agency AECID	2008	2013	0	2	2	0%	100%	Project presentation document

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
6	Environmental conservation and improving sub-program of the livestock conversion program (Componente de conservación y mejoramiento del medioambiente del Programa de Reconversión de la Ganadería)	MAGFOR, IICA	COSUDE	FAO	2008	2024	1	1	49	2%	2%	Presenttaion document of the sub-program

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
7	Strengthening of local face the effects of climate change capacities in the Nicaraguan and Honduran Caribbean Coast. (Reforzamiento de las capacidades locales para enfrentar los efectos del cambio climático en la Costa Caribe de Nicaragua y Honduras	GVC	GVC, Bluefields Indian & Caribbean University, Universities of the Caribbean Coast of Nicaragua, Municipalities of Ahuas and Segrate	European Commission and GVC	02/2011	01/2014	0	0	4	0%	0%	Descriptive document of the project

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
8	Climate Change Adaptation for small coffee and tea producers (Adaptación al cambio climático para pequeños productores de café y té) “AdapCC “	Café Direct and GIZ	PRODECOOP, CECOCAFEN, CAFENICA, CIAT	Café direct and German Ministry of cooperation	2008	2010	0	0	29	0%	0%	3 Excel sheets with the project's logical frame, activities, budget and a systematization document about risks and opportunities analysis

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
9	Increase in resilience and adaptation to climate change of the vulnerable families of the high and medium zones of the micro-basin of the river Quebrada Grande de Cuje (Aumento de la resiliencia y adaptación al cambio climático de familias vulnerables de las zonas alta y media de la microcuenca)	Action Against Hunger	Municipal Government of Totogalpa	UNDP, COSUDE	2014	2015	3	4	19	16%	21%	Complete project form

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
10	Constructing capacities for a climate resilient agriculture in the Dry Corridor of Central America (El Salvador, Honduras, Nicaragua) (Construyendo capacidades para una agricultura resiliente al clima en el corredor seco de Centroamérica (El Salvador, Honduras, Nicaragua))	INPRHU, Zamorano Institute		USAID	01/2013	12/2013	0	0	1	0%	0%	Summary sheet of the project

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
11	Constructing resilience to droughts in the vulnerable rural families of the communities prone to droughts in Central America (Construyendo resiliencia a la sequía de familias rurales vulnerables en comunidades propensas a sequía en Centroamérica)	Action Against Hunger	Centro Humboldt, Plan Internacional (NGO), Regional Concertation for Risk Management, INTA, CARE, Oxfam, FAO, PMA	ECHO	01/2012	12/2014	2	0	4	50%	0%	Logical frame of the project

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
12	Vulnerability reduction of communities in the face of the effects related to climate change in the Northern region of Nicaragua (Reducción de las vulnerabilidades de las comunidades ante los efectos relacionados con el cambio climático en la zona norte de Nicaragua)	Nicaraguan Red Cross	Holland Red Cross	European Commission	01/2008	12/2010	0	1	9	0%	11%	Project summary

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
13	Territorial approach against climate change, means of adaptation and vulnerability reduction (Enfoque territorial contra el cambio climático, medidas de adaptación y reducción de vulnerabilidades "TACC")	UNDP MARENA	Municipalities, Local producers' organizations	UNDP and COSUDE	12/2011	12/2014	27	23	29	93%	79%	Project document
14	Adaptation to the changes in the markets and to the effects of climate change (Adaptación a cambios en los mercados y a los efectos del cambio climático) "NICADAPTA"	MEFCCA CEU eTD Collection	GRUN, SOPPEXCCA, CECOCAFEN	FIDA, DSF, ASAP, BCIE, Nicaraguan Government	2007	2013	127	205	268	47%	76%	Final report on the project design

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
15	Sensibility and adaptation of coffee to climate change in Central America (Nicaragua, Costa Rica, Honduras) (Sensibilidad y adaptación del café al cambio climático en Centroamérica “Cafadapt” (Nicaragua, Costa Rica, Honduras)	Regional Agriculture and Livestock Fund- (FONTAGRO) Fondo Regional de tecnología Agropecuaria	CATIE, CIRAD, CIAT, Icafé, IHCAFE, National Agrarian University	Fontagro and BID	05/2011	05/2014	0	0	32	0%	0%	Powerpoint presentation and annual operative plan

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
16	Research program on climate change, agriculture and food security "CCAFS"	CIAT	15 members of CGIAR in the world	Future Earth	2013	2023	0	0	29	0	0	Powerpoint presentation of the project

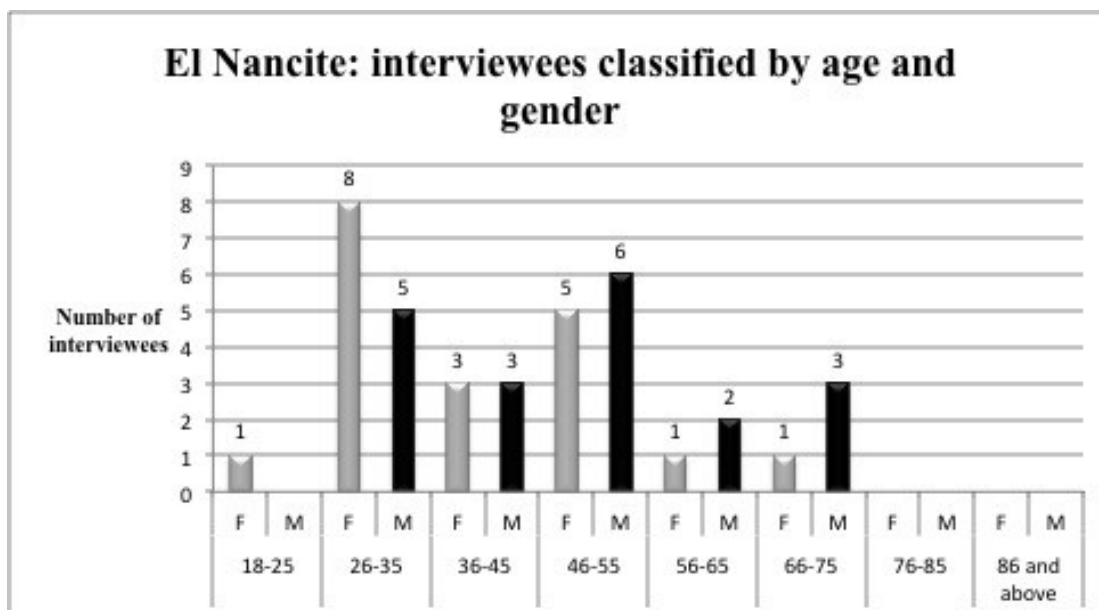
N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
17	Inter-governmental program on climate change: opportunities and challenges in agriculture: (regional program with countries of Central and South America and the Caribbean “PRICA ADO” (Programa Inter-gubernamental de Cooperación en Cambio Climático: Oportunidades y Desafíos en la Agricultura)	IICA	CIAT, MARENA, INTA, Ministry of Environment and Mining, Universities	Governments of involved countries	2011	2017	0	0	5	0	0	Project document

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
18	Integration of risks and opportunities of climate change in development processes and programs of the (United Nations Integración de los riesgos y las oportunidades del CC en los procesos de desarrollo nacional y programación de las Naciones Unidas) “RIOCPNU”	UNDP	UNDAF, SNU, Gobernanza Forestal (GOFO), SPAR (Servicio Público Agropecuario y Rural), MARENA, NGOs and cooperation agencies	UNDP	04/2009	05/2010	0	0	23	0%	0%	Evaluation report

N°	Name of the project	Executing organizations		Funding	Project dates		Integration of the gender perspective in the text of the project document					
		Main organization(s)	Associated organizations	Origin of funding	Start	End	Nb. of times the word gender is used	Nb. of times the word woman or women is used	Number of pages of the document	% Mention to gender /page	% Mention to woman or women /page	Document used for the analysis
19	Appropriation of productive capacities that contribute to the strengthening of family production units in the municipality of Mozonte. (Apropiación de las capacidades productivas que contribuya al fortalecimiento de las unidades de producción de familias del municipio de Mozonte).	UNAG		UNAG and IS-44	03/2013	02/2016	1	23	22	5%	105%	Project document

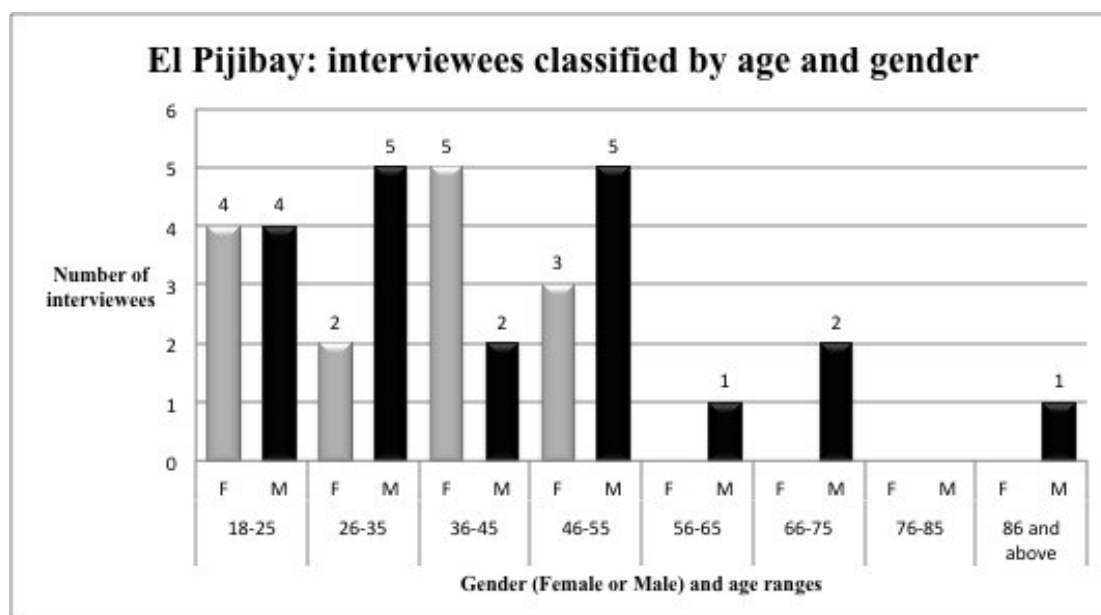
Appendix 10. Interviewees classified by age and gender

Graph 1. Interviewees in El Nancite classified by age and gender



(Source: interviews in El Nancite, 2014)

Graph 2. Interviewees in El Pijibay classified by age and gender



(Source: interviews in El Pijibay, 2014)

Graph 3. Interviews with independent researchers and activists as well as representatives of organizations



(Source: interviews in Nicaragua, 2013 and 2014)

Appendix 11. Coding of interviews with independent researchers and activists as well as institution staff

Table 22. Coding of the understanding of the interviewees of some key concepts (diagnosis)

The original analysis was done in Spanish, and the text in Spanish appears in italics. The numbers refer to specific interviewees who are not displayed here for anonymity reasons. One number relates to one single person. The table does not contain exact transcriptions of the interviews, unless it is explicitly stated with the use of quotation marks.

Adaptation to climate change	Climate change	Gender	Effects of climate change
Is to prepare for a changing climate <i>Es prepararse a un clima más cambiante (1)</i>	Extreme climate events (hurricanes, droughts, storms excessive rainfalls). There is an acceleration in natural phenomena <i>Eventos climáticos extremos (huracanes, sequías, tormentas, exceso de precipitaciones)</i> <i>Hay una aceleración en los fenómenos naturales (1), (2), (4)</i>	Gender crosscuts family relations. It is a long process. Gender is given insufficient attention <i>El género pasa por las relaciones y las relaciones familiares. Es un proceso muy largo.</i>	Makes life more difficult, makes income generation more difficult in sector such as potato and bean production. <i>Dificulta la vida, la generación de ingresos los rubros como la papa y el frijol. (1)</i>
To reach sustainable development capable of producing without harming ecosystems <i>Alcanzar un desarrollo sostenible capaz de producir sin dañar los ecosistemas (1)</i>	Climate change causes poverty <i>El cambio climático causa pobreza (2)</i>	There is a need for a more cultivated and educated society to understand gender <i>Se necesita una sociedad más culta más educada para entender lo de género (1)</i>	In coffee producing regions, everybody talks about its effects on the coffee sector <i>En la zona cafetalera todo el mundo habla de los efectos en el café (la roya) (1)</i>

Adaptation to climate change	Climate change	Gender	Effects of climate change
Smallholder farmers are playing the role of adaptation <i>Los pequeños productores están jugando el papel de adaptación (4)</i>	There is a need to take into account sensitivity, exposition and adaptive capacities <i>Hay que tener en cuenta la sensibilidad, la exposición y las capacidades de adaptación. (1)</i>	To relate gender to climate change is more complicated <i>Relacionar el cambio climático con género es más complejo (2)</i>	Being far from water sources <i>Lejanía de las fuentes de agua. (1)</i>
Adaptive capacity has to do with existing culture and inequity <i>La capacidad de adaptación tiene que ver con cultura, inequidades que existe (5)</i>	There is an environmental problem, climate change comes from outside. <i>Hay un problema medioambiental, el cambio climático viene de afuera (2)</i>	20 years ago gender was fashionable, since 2-3 years ago, climate change is fashionable <i>Hace 20 años el género estaba de moda, hace 2-3 años el cambio climático está de moda (2)</i>	
Women's benedictions that make them an important element to avoid climate change because of their logic which indicates them what to do <i>Bendiciones de la mujer que es una pieza importante para evita el cambio climático porque su lógica le indica lo que tiene que hacer (5)</i>	People talk about climate change as something that is going to come... something that comes from outside because of shard industry <i>La gente habla del cambio climático como una cosa que va a venir... que se está provocando desde afuera por la industria fuerte (4)</i>	Working on gender in the poorest communities is difficult because women have difficulties to participate, schedules, meetings <i>Trabajar el género en las comunidades más pobres es difícil, a las mujeres se les impide participar, los horarios, las asambleas (3)</i>	
Poverty is a limitation for resilience capacities <i>La pobreza es una limitante en la capacidad de resiliencia (6)</i> CEU eTD Collection	There are deforestation problems, people cut trees <i>Hay problemas de deforestación, despale, (8)</i>	In the topic of gender, people do not have basic concepts. A conceptualization should be initiated. Gender and climate change are two novel topics <i>En el tema de género la gente no tiene conceptos básicos. Habría que inicializar la conceptualización. Género y cambio climático son dos temas novedosos (10)</i>	

Adaptation to climate change	Climate change	Gender	Effects of climate change
<p>The main approach of adaptation should be reducing vulnerability <i>El enfoque principal de la adaptación debería ser reducir la vulnerabilidad (12)</i></p>	<p>Climate change can be felt through disasters <i>El cambio climático se siente a través de los desastres (2) (3), (9)</i></p>	<p>There are no hardcore gender projects. The Gender perspective is crosscutting- <i>No hay proyectos duros de género. El enfoque de género es transversal 10</i></p>	
<p>Resilient farms have been constructed by changing traditional production systems against agro-ecological systems (no slash and burn, no chemicals, organic fertilizers, diversification of productions <i>Se han logrado construir fincas resilientes al cambiar el sistema productivo tradicional a sistemas agroecológicos (no quema, no químicos, fertilizantes orgánicos, diversificación productiva) (1)</i></p>	<p>The environment is the result of climate change <i>El medio ambiente es el resultado del cambio climático (4)</i></p>	<p>In Nicaragua, gender has been decaffeinated, depoliticized. They put a patch on it. There is no in-depth knowledge of what it means. People believe that the gender perspective is an arrival point, when in reality we are seeking equal rights (access, and exercise of rights) <i>El tema de género en Nicaragua se ha descafeinado y despolitizado. Se hace un remedo. No se conoce a profundidad lo que significa género. La gente cree que la perspectiva de género es un punto de llegada, cuando lo que buscamos es la igualdad de derechos (acceso y ejercicio de derechos) (12)</i></p>	
<p>Waste management does not have to do with adaptation <i>El tema de la basura no tiene que ver con adaptación (13)</i></p>	<p>There are few people dedicated to the topic of climate change, which requires an important level of efforts <i>Hay poca gente dedicada al tema de cambio climático, lo que requiere un gran nivel de esfuerzo (7)</i></p>	<p>Women; Economic and social empowerment initiatives are needed for women <i>Mujeres: Son necesarias iniciativas de empoderamiento económico y social para las mujeres (2)</i></p>	

Adaptation to climate change	Climate change	Gender	Effects of climate change
	We all generate problems or causes of climate change <i>Todos generamos problemas o causas para el cambio climático (4)</i>	Apart from saying that women are vulnerable, gender is not addressed <i>Más allá de decir que las mujeres son vulnerables no se aborda el tema de género (7)</i>	
	Natural phenomena: late beginning of the rainy season, enlarge period of <i>canícula</i> <i>Fenómenos naturales: entrada tarde del invierno, periodo prolongado de la canícula (4)</i>	The discourse on women of the government is an opportunity. There is a need to take advantage of the discourse <i>El discurso del gobierno sobre la mujeres es una oportunidad. Hay que sacar provecho del discurso.(5)</i>	
	Climate change is perceived though productive and economic aspects <i>El cambio climático se percibe desde lo productivo y lo económico. (4)</i>	<i>Se le da poca importancia (2)</i>	
	There is evidence for the fact that women have more work with climate change. Women do not have enough acces to resources <i>Se evidencia una mayor carga a las mujeres con el cambio climático. Las mujeres no tienen suficiente acceso a los recursos (5)</i>	Women and the most vulnerable should be empowered. Work on gender implies working with rural women <i>Se debe empoderar a las mujeres y a los más vulnerables. El género se trabaja desde las mujeres rurales (4)</i>	
CEU eTD Collection	<i>Para las mujeres significa cambios extremos en el clima, mencionando con mayor énfasis el tema de la violencia de las mujeres, no le dan tanto énfasis al cambio climático. 6</i>	They keep saying that gender is equal to women <i>Se sigue diciendo género igual a mujer (5)</i>	

Adaptation to climate change	Climate change	Gender	Effects of climate change
	Water scarcity, decreasing rainfalls for cattle-ranching, production scarcity <i>Escasez de agua, baja precipitación para la ganadería, escasez de producción(4)</i>	There is a need for training <i>Hace falta formación (7)</i>	
	Global warming is provoking an important climate impact on women's agricultural production <i>El calentamiento global provoca un impacto climático fuerte en la producción campesina de las mujeres (4)</i>	There is a need to see practical necessities as a means to get to what is strategic <i>Hay que ver las necesidades prácticas como un medio para trascender a lo estratégico (12)</i>	
	We women, have been the ones who contributed to the destruction of the environment <i>Las mujeres somos las que hemos incidido en la destrucción del medioambiente (8)</i>		
	Climate change is seen as if it was our fault, especially because funding is targeted to that. <i>El cambio climático está visto como si fuera nuestra culpa, especialmente porque los fondos son enfocados a esto (5)</i>		

Adaptation to climate change	Climate change	Gender	Effects of climate change
	In the communities, biodiversity and natural medicines have been lost, water has been contaminated, the wells have become more profound <i>En las comunidades se ha perdido la biodiversidad, la medicina natural, contaminación de aguas, los pozos se han vuelto más profundos (8)</i>		
	Social vulnerability is seldom debated, related to prevention of violence, or women's empowerment <i>La vulnerabilidad social se aborda muy poco, la prevención de la violencia y el empoderamiento de la mujer (2)</i>		
	There is business in all this <i>Hay un negocio en todo estos (4)</i>		
	Waste and sugarcane burning, the agricultural frontier is advancing <i>Basura y quema de la caña, la frontera agrícola avanza (2), (4)</i>		

Table 23. Coding of the perceptions of climate change and its consequences (diagnosis and prognosis)

The original analysis was done in Spanish, and some text in Spanish appears in italics. The numbers refer to specific interviewees who are not displayed here for anonymity reasons. One number relates to one single person. The table does not contain exact transcriptions of the interviews, unless it is explicitly stated with the use of quotation marks.

Question	Category mentioned by the interviewees	Interviewees who mentioned this category	Important comments made by interviewees in relation to the categorie(s) they mentioned (in response to the question: why do you perceive them as the most affected)
Who perceives most the effects of climate change?	Women	(1), (2), (3), (5), (8), (11) (13), (14) + women from the Caribbean regions of Nicaragua (1)	Single mothers (1) Women have to fetch wood and walk further to find wood (8) Destruction of women's livelihoods (1). Many women have small agribusinesses (1). Women recognize risks: "risk pevention should be done from the kitchen because it is there that women spend most of their time" (<i>"Se hace la previsión del riesgo en la cocina por ser el lugar donde permanece la mayor parte del tiempo la mujer"</i>) (11) Impact on her life and her carework with her family (1) There are no laws that protect women's rights (1) Women's roles should be analyzed (1) Women are more in charge of domestic animals (1) Global warming is provoking an important climate impact on women's agricultural production (4)
	Men	(2), (3), (11)	Their livelihoods are more affected (11) Men perceive climate change though their relation with land, with landslides with the decrease in soil fertility, through plant diseases (11)
	Poor	(3), (5), (6), (14)	To be poor means less capacities to be resilient (6)

Question	Category mentioned by the interviewees	Interviewees who mentioned this category	Important comments made by interviewees in relation to the categorie(s) they mentioned (in response to the question: why do you perceive them as the most affected
	Indigenous people	(2), (8), (14) + indigenous people from the Northern Caribbean region mostly	
	Smallholder producers (women and men)	(1), (2), (10)	They are the most sensitized on environmental degradation(2) If the person does not belong to a program, she/he feels less the effects of climate change (2) They play an important role in adaptation to climate change (4)
	Technical staff	(3)	There have been training workshops from inside the institutions (3)
	Entire population	(4)	There is a business in all this (reaching everybody with the message) (4)
	Promoters in the communities	(8)	They start to become conscious (8) If people are more organized, they feel the effects of climate change more (2)
	Old people and children	(13)	
	Wealthiest people	(1)	Poor people have little to lose (1)

Comment: 50% of the interviewees considered that women were the most affected by climate change!

Table 24. Coding of the most perceived effects of climate change (diagnosis, attribution of causality)

The original analysis was done in Spanish, and the text in Spanish appears in italics. The numbers refer to specific interviewees who are not displayed here for anonymity reasons. One number relates to one single person. The table does not contain exact transcriptions of the interviews, unless it is explicitly stated with the use of quotation marks.

Livelihoods	Infrastructure	Water resources	Harm to capital	Changes in the climate	Expansion of the agricultural production towards the Atlantic regions
(1), (4), (11)	(2)	(1), (14), (2)	(1), (4)	(1), (2), (4),	(4)
Harm to local traditions and habits, dispersion of the community, harm to biodiversity <i>Daños a las costumbres y hábitos locales, dispersión de la comunidad, biodiversidad (1) (4)</i>	Harm to roads, hospitals, health centers, homes <i>Daños ocasionados en carreteras, hospitales, centros de salud, viviendas (2)</i>	Water sources to be found far <i>Lejanía de las fuentes de agua (1), (14)</i>	Perceived through productive and economic aspects <i>Se percibe desde lo productivo y lo económico(1), (4)</i>	Excess and deficit of rainfalls <i>Exceso y déficit de precipitaciones (1)</i>	
Livelihoods are more affected <i>Medios de vida son más afectados (11)</i>	CEU eTD Collection	There is more environmental degradation <i>Hay más deterioro ambiental (2)</i>		Extreme climate events (droughts, enlarged period of <i>canícula</i> , late arrival of the rainy season (2) <i>Eventos climáticos extremos (sequías, período prolongado de la canícula, entrada tarde del invierno)</i>	

Livelihoods	Infrastructure	Water resources	Harm to capital	Changes in the climate	Expansion of the agricultural production towards the Atlantic regions
				<p>People talk about climate change as something that is going to come... that is provoked from outside from by the strong industry</p> <p><i>Se habla del cambio climático como algo que va a venir... que se está provocando desde afuera por la industria fuerte (4)</i></p>	

Table 25. Coding of the solutions given by the interviewees to climate change (prognosis and call for action)

The original analysis was done in Spanish, and the text in Spanish appears in italics. The numbers refer to specific interviewees who are not displayed here for anonymity reasons. One number relates to one single person. The table does not contain exact transcriptions of the interviews, unless it is explicitly stated with the use of quotation marks.

Solutions proposed by the interviewees	Interviewees who mentioned this solution	Comments by interviewees
<u>Agro-forestry</u>	(2)	
<u>Political advocacy</u>	(2), (5), (7)	Apply laws and promote incentives <i>Aplicar leyes y promover incentivos (2),(7)</i> Worldwide advocacy action on the harm that has been caused <i>Acción mundial de incidencia sobre los daños que se han causado (5)</i>
<u>Renewable energy</u>	(1)	It is an intelligent adaptation. When energy production is not based on oil, the person is adapting and becomes less harmful <i>Es una adaptación inteligente, en la medida que que la producción de energia no se basa en el petróleo, la persona se adapta y es menos dañino (1)</i>
<u>Organization</u>	(2),(5),(8), (9), (11)	Solidarity among women is necessary in the face of crisis situations. Being organized increases women's resilience. <i>Es necesaria la solidaridad de las mujeres frente a situaciones de choque. La organización aporta a la capacidad de resiliencia de las mujeres (5)</i>

Solutions proposed by the interviewees	Interviewees who mentioned this solution	Comments by interviewees
<u>Participation in programs</u>	(2), (4), (5), (10), (11)	<p>Solutions and measures have to come from the context of the community <i>Las soluciones y medidas tienen que venir desde el contexto de la comunidad</i> (2)</p> <p>Provide incentives <i>Brindar incentivos</i> (2), (4)</p> <p>To analyze the effects of climate change on health <i>Analizar el impacto del cambio climático en la salud</i> (5), (10)</p> <p>Look for an integral response that takes into account psychosocial aspects <i>Buscar una respuesta integral que tome en cuenta los aspectos psicosociales</i> (5)</p> <p>Inclusive production systems that consider women as agents for change <i>Producción inclusiva que considere a las mujeres como agentes de cambio</i> (4)</p>
<u>Strengthening of institutions</u>	(2), (7), (11)	<p>There has been work on the type of institutions that should exist <i>Se ha trabajado sobre la institucionalidad que debe existir</i> (7)</p> <p>The participation of institutions such as INAFOR and MAGFOR should be ensured <i>Se debe garantizar la participación de la instituciones como INAFOR, MAGFOR</i> (2)</p>

Solutions proposed by the interviewees	Interviewees who mentioned this solution	Comments by interviewees
<u>Environmental measures</u>	(2), (3), (5), (8), (10), (11), (12), (13), (14)	<p>Reforestation <i>Reforestación (2),(5),(8),(12)</i></p> <p>Protection of water sources, rainwater harvesting <i>Cuidado de las fuentes de agua, cosechas de agua (2), (10), (3)</i></p> <p>Planting by following the level curves <i>Siembra en curvas de nivel (5)</i></p> <p>Water reservoirs, river basin management plans <i>Reservorios de agua y planes de cuencas (11)</i></p> <p>Identification of the recharge zone (of the basins) <i>Identificación de zonas de recarga (3)</i></p> <p>Cookstoves are help but the reinforce roles <i>Los fogones son una respuesta asistencia que refuerza los roles (12)</i></p> <p>Women benefit from improved cookstoves <i>Las mujeres se benefician con los fogones mejorados (11)</i></p> <p>Women's participation en river basin management plans <i>Participación de las mujeres en planes de cuencas (13)</i></p> <p>Improved cookstoves are not adopted because of the cultural habits of the people. Cookstoves are part of a 'womanist' approach <i>Los fogones mejorados son poco apropiados por los patrones culturales de la gente</i> <i>Los fogones son un enfoque mujerista (12)</i></p>

Solutions proposed by the interviewees	Interviewees who mentioned this solution	Comments by interviewees
<p><u>Awareness raising, empowerment, training</u></p> <p>CEU eTD Collection</p>	<p>(1), (2), (4), (5), (6), (7), (8), (9), (10), (11), (12), (13)</p>	<p>In addition to provide services, there should be support for tackling gender relations</p> <p><i>Más allá de proveer servicio, se debe apoyar como procesos para tocar las relaciones de género (6)</i></p> <p>Training promoters based on real experience. Rural schools</p> <p><i>Promotoria vivencial, escuelas de campo (2)</i></p> <p>Develop leadership, association initiatives</p> <p><i>Desarrollar el liderago, inciativas asociativas (4)</i></p> <p>Women are engaged</p> <p><i>Las mujeres son comprometidas (9)</i></p> <p>The more women are trained, the stronger they are in the face of climate change</p> <p><i>En la medida que las mujeres se capacitan son más fuertes frente al cambio climático (5)</i></p> <p>Women are the ones who better appropriate knowledge nd capacities because men migrate</p> <p><i>Las mujeres son las que más se apropian de los conocimientos y las capacidades debido a la migración de los hombres.</i></p> <p>Improved cookstoves are not adopted because of the cultural habits of the people. Cookstoves are part of a assistentialist approach that reinforce gender roles.</p> <p><i>Fogones mejorados, los que son poco apropiados por el patrón cultural de la gente, son una respuesta asistencialista que refuerza los roles de género (10)</i></p> <p>Women benefit from cookstoves</p> <p><i>Las mujeres se benefician de los fogones (11)</i></p> <p>To train women to make them stronger in the face of climate change</p> <p><i>Capacitar a las mujeres para hacerlas más fuerte frente al cambio climático (5)</i></p>

Solutions proposed by the interviewees	Interviewees who mentioned this solution	Comments by interviewees
<u>Silvipastoralism</u>	(3, (11)	
<u>Solution: Production systems</u>	(2), (3), (4), (5), (10), (4), (12)	<p>Diversification of agriculture <i>Diversificación de los cultivos (5), (10)</i> To give local and resistant seeds <i>Dar semillas criollas y resistentes (2), (10),(5)</i> A seed bank is a strength for the community and promotes the safeguarding of local knowledge seed bank Enhance productivity <i>Contar con un banco de semillas es una fortaleza de las comunidades y se promueve el rescate del conocimiento local</i> <i>Mejorar la productividad (10)</i> To limit the advancement of the agrarian frontier <i>Limitar el avance de la frontera agrícola (4)</i> Farm plans <i>Planes de fincas (3)</i> Higher places should be found for agricultural production <i>Se deben buscar sitios de mayor altura para cultivar (10)</i></p>
<u>Monitoring of climate / research</u>	(2), (7)	<p>Installation of pluviometers <i>Instalación de pluviómetros (7)</i> Agroclimatic indicators for cattle-ranching, shrimp production and staple grains <i>Indicadores agroclimáticos enfocados a la ganadería, camaronicultura, granos básicos (2)</i></p>

Solutions proposed by the interviewees	Interviewees who mentioned this solution	Comments by interviewees
<u>Associations</u>	(4), (5), (1)	<p>Entrepreneurial associativity with a focus on agribusinesses and cooperatives <i>Asociatividad empresarial con enfoque de agronegocios- cooperativas (4)</i></p> <p>Fair trade, solidary economy <i>Comercio justo, economía solidaria (5)</i></p> <p>Dynamic economy provides opportunities for women but also puts them in situations of risk <i>La economía dinamizada es una oportunidad para las mujeres pero tambien las induce a riesgos (1)</i></p>
<u>Risk reduction</u>	(11)	<p>Risk reduction, disaster prevention and ecosystems management approach <i>Enfoque de reducción de riesgos, manejo de desastres y recursos ecosistémicos. (11)</i></p> <p>Take into account sensitivity, exposition and adaptive capacities <i>Tener en cuenta la sensibilidad, la exposición y las capacidades de adaptación (11)</i></p>

Table 26. Coding of the climate change adaptation actions to be taken suggested by the interviewees (call for action)

The original analysis was done in Spanish. The numbers refer to specific interviewees who are not displayed here for anonymity reasons.

One number relates to one single person.

	To face the causes of vulnerability in livelihoods	Better response capacity	Addressing climate related risks	To face climate change
Type of actions	Agro-forestry (2)	Political advocacy: apply Laws and promote incentives (2), (7) There is a need for a worldwide action on the harms that have been caused (5) Work in order to strengthen institutionalization	Give local resistant seeds, have a seed bank (2), (10), (5)	Re-located communities to secure places (1)
	Silvo-pastoral systems (3) , (11)	Organization (contributes to the capacities of resilience of women) (5) Solidarity among women in the face of crisis situations (5)	Adoption of resistant cultures (10), (11)	
	Production systems: local seeds (10), (5) Diversification of productions, to plant following the level curves (5), (10)	Participation in programs, initiatives that give incentives (2), (4)	Construction of infrastructures (3), (5), (8), (11), (14)	
	Entrepreneurial associativity with a focus on agrobusinesses and cooperatives (4)	Awareness raising, empowerment, training (1), (2), (4), (5), (7), (8), (9), (10), (11), (12), (13)		
	CEU eTD Collection	Monitoring of climate /research: installation of pluviometers, agro-climatic indicators (2), (7), (13)		
		Farm plans (3)		
		Increase productivity (3), (5), (4), (10), (11), (12)		

Table 27. Coding of the understanding of gender by the interviewees (intersectional aspects)

The original analysis was done in Spanish, and the text in Spanish appears in italics. The numbers refer to specific interviewees who are not displayed here for anonymity reasons. One number relates to one single person.

Gender equal women	Difficulties for women	Work on gender	Mainstreaming gender	Climate change and women
They keep saying that gender is equal to women <i>Siguen diciendo género igual a mujer (5),(6),(4),(7), (3)</i>	They cannot participate, schedules <i>Se les impide participar, horarios (3)</i>	To work on gender in the poorest communities is more difficult <i>Trabajar género en las comunidades más pobres es difícil (3)</i>	The gender perspective is crosscutting <i>El enfoque de género es transversal (10)</i>	Women have more work with climate change <i>Mayor carga para las mujeres con el cambio climático (5),(12)</i>
Gender has to be tackled from the perspective of rural women <i>El género se trabaja desde la mujer rural (4)</i>	They do not have access to resources <i>No tienen acceso a los recursos (5)</i>	They put a patch, it has been decaffeinated, depoliticized <i>Se hace un remedo, se ha descafeinado y despolitizado (12).</i> The topic of gender is given little importance. <i>Se da poca importancia al tema género (2)</i>	People think that the gender perspective is a point of arrival, whereas what we are looking for is equality of rights (access and exercise of rights) <i>Se cree que la perspectiva de género es un punto de llegada, cuando lo que buscamos es la igualdad de derechos (acceso y ejercicio de derechos (12)</i>	For women, it means extreme changes in the climate, there is major emphasis in the topic of gender violence, so there is not so much emphasis on climate change <i>Para las mujeres el cambio climático significa cambios extremos en el clima, mencionando con mayor énfasis el tema de la violencia de las mujeres, no le dan tanto énfasis al cambio climático (6)</i>

Gender equal women	Difficulties for women	Work on gender	Mainstreaming gender	Climate change and women
Projects, womanism <i>Proyectismo y mujerismo (12)</i>	They ignore the juridical frame in general <i>Desconocen el marco jurídico general (5)</i>	There is a need for a more cultivated and educated society to understand gender <i>Se necesita una sociedad más culta, más educada para entender lo de género (1)</i>	There should be crosscutting axes that are mainstreamed in all climate change policies: access and exercise of sexual and reproductive rights , access de basic services (communication, roads) <i>Deberían haber ejes transversales que crucen todas las políticas de cambio climático: acceso y ejercicio de los derechos sexuales y reproductivos; acceso a los servicios básicos (comunicación , vías de acceso) (12)</i>	Women have contributed to the destruction of the environment <i>Las mujeres son las que han incidido en la destrucción del medioambiente (8)</i>
	CEU eTD Collection	Gender- goes through relations and family relations. It is a long process. There is a need for economic and social empowerment processes <i>El género pasa por relaciones familiares, Es un proceso muy largo. Se requieren iniciativas de empoderamiento económico y social (2)</i>		Women are an important piece to avoid climate change because their logic indicates them what to do. <i>Las mujeres son una pieza importante para evitar el cambio climático porque su lógica les indica lo que tienen que hacer (5)</i>
		Gender and climate change have been fashionable <i>Género y cambio climático han sido una moda (2)</i>		

Gender equal women	Difficulties for women	Work on gender	Mainstreaming gender	Climate change and women
		<p>Women's organizations have experience, they are experts in alternative knowledge management methodologies</p> <p><i>Las organizaciones de mujeres tiene experiencia, expertas en metodologías alternativas de gestion del conocimiento (12)</i></p>		
		<p>Lack of training and consciousness on gender</p> <p><i>Falta formación y toma de conciencia sobre género (7),(12).</i></p>		
		<p>People do not have basic concepts of gender. The conceptualization should be initiated. People do not know what gender and climate mean.</p> <p><i>No se tienen conceptos básicos sobre género , hay que conceptualizarlo, no se conoce lo que significa (10), (12)</i></p>		

Gender equal women	Difficulties for women	Work on gender	Mainstreaming gender	Climate change and women
		<p>Apart from saying that women are vulnerables, the issue of gender is not tackled</p> <p><i>Más allá de decir que las mujeres son vulnerables no se aborda el tema de género (7)</i></p>		
		<p>Men and women are pushed to participate, it is a struggle to make women's role evident</p> <p><i>Se impulsa que hombres y mujeres participen, es una lucha para que se note el papel de la mujer (13)</i></p>		

Appendix 12. Nodes used for the coding of the interviews with community inhabitants

Table 28. Nodes used for the coding of the interviews with community inhabitants

	Guiding questions	Nodes related to practices	Nodes related to politics	Nodes related to knowledge	Nodes related to subjectivities
Diagnosis	<p>How is climate change defined in the narratives? What is identified as ‘wrong’ in the situation in terms of the human, social, environmental and material impacts of climate change? How is this diagnosis gendered, racialized or how does it integrate other intersectional factors?</p> <p>CEU eTD Collection</p>	<ul style="list-style-type: none"> - (Changes) in cattle-ranching - Changes in agricultural production - Access to credit in past and present - Expansion of agricultural frontier - Agro-exportation - Arrangements to access to cows (<i>mediania</i>) - Arrangements to access to land or pastures - Coffee production - Deforestation - Exclusion - Firewood fetching - How did the family arrive in the community? - Hurricane Joan - Hurricane Mitch - Inheritance of land and animals - Migration to Costa Rica - Past of the community - Process of decapitalization - Selling laborforce 	<ul style="list-style-type: none"> - Expansion of agricultural frontier - Agro-exportation - (Changes) in cattle-ranching - Changes in agricultural production - Access to credit in past and present - Coffee production - Cooperatives and agrarian reform - Economic growth - Deforestation - Exclusion - Hunger and poverty - Hurricane Joan - Hurricane Mitch 	<ul style="list-style-type: none"> - Use of chemicals - Indigenous knowledge - Level of education - Climate change 	<ul style="list-style-type: none"> - Changes in gender relations - Changing values - Exclusion - Gender - Handicap - Health - Inheritance of land and animals - Mother Earth - Peasant without land - Inequality in pay - Women victims

	Guiding questions	Nodes related to practices	Nodes related to politics	Nodes related to knowledge	Nodes related to subjectivities
Attribution of causality	Who/what is/are responsible for the negative impacts of climate change according to the discourses? How is this attribution of causality gendered, racialized or how does it integrate other intersectional factors?	<ul style="list-style-type: none"> - Use of chemicals - Coffee production - Deforestation - Droughts - Firewood fetching - Gender violence - Harvests - Hurricane Joan - Hurricane Mitch - Land property - Production system of the 80s - Production systems 	<ul style="list-style-type: none"> - Coffee production - Cooperatives and agrarian reform - Economic growth - Deforestation - Droughts - Hunger and poverty - Hurricane Joan - Hurricane Mitch - International cooperation 80s - Land prices - Land property - Sandinista war 	<ul style="list-style-type: none"> - Use of chemicals - Indigenous knowledge - Level of education 	<ul style="list-style-type: none"> -Blaming - Coffee production - Defores-tation - Gender - The Vulnerables - Leadership - Men assuming women's roles -Women assuming men's roles - Peasant without land - Women victims

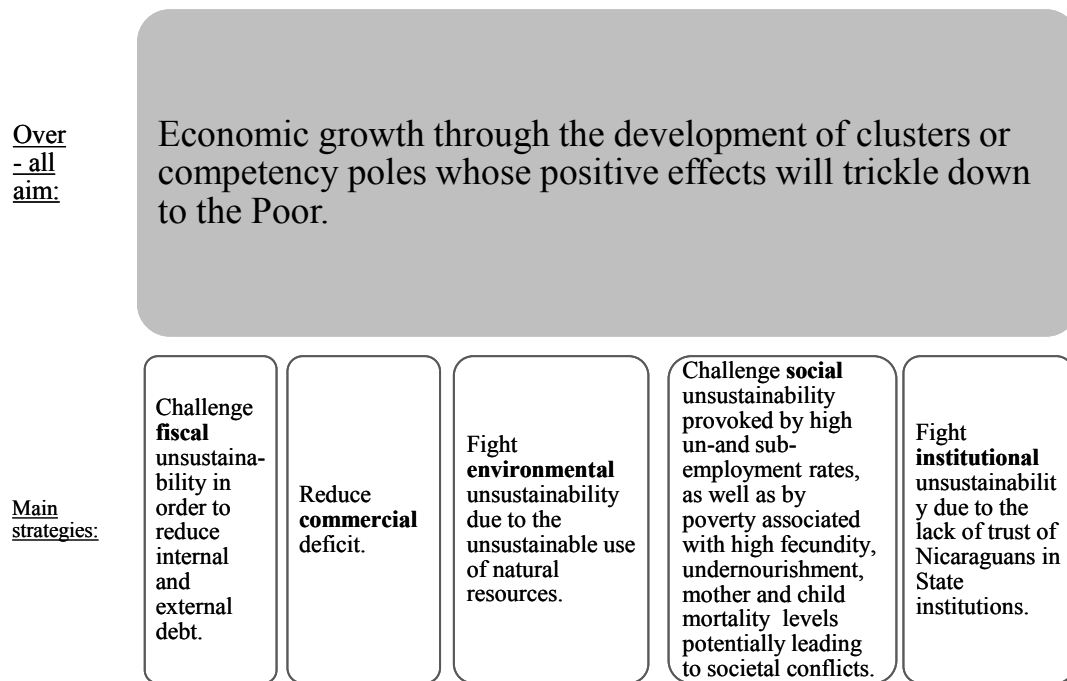
	Guiding questions	Nodes related to practices	Nodes related to politics	Nodes related to knowledge	Nodes related to subjectivities
Prognosis	What should be done according to the discourses? What are the coping mechanisms that are put forward in order to deal with climate change's impacts? How is the prognosis gendered, racialized or how does it integrate other intersectional factors?	<ul style="list-style-type: none"> -Birth control - Productive bonus - Grain storage systems - Climate change projects - Wood-saving cookstoves - Extra-agricultural work - Garden production - Inheritance of land and animals - Land property - Migration to Costa Rica - Participation - Private credit - Project that works with youngsters of the community - Rainwater harvesting - Transforma-tion of products - Usura 0 (governmental credit support) - Selling laborforce - Water management 	<ul style="list-style-type: none"> - Productive Bonus - Transoceanic canal - Grain storage systems - Climate change projects - Credit programs (CRISOL) - Garden production - Future of the territory - Housing - Land prices - Land property - Organic agriculture - Organizations in the community - Participation - Post-neoliberalism - Religion - Seeds - Strategy of accumulation 	<ul style="list-style-type: none"> -Birth control - Climate change projects - Wood-saving cookstoves - Indigenous knowledge - Rainwater harvesting - Studies - Studying children - Water management 	<ul style="list-style-type: none"> - Changes in gender relations - Christian values - Ethics - Future of the territory - Health - Formal vs real equality - Inheritance of land and animals - Mother Earth - Sense of belonging - Women's empowerment

	Guiding questions	Nodes related to practices	Nodes related to politics	Nodes related to knowledge	Nodes related to subjectivities
Call for action	Who should do something according to the discourses? Specifically what are the roles given to different actors? How is this call for action gendered, racialized or how does it integrate other intersectional factors?	<ul style="list-style-type: none"> - Climate change projects - Harvests 	<ul style="list-style-type: none"> - Role of the church - Climate change projects 	<ul style="list-style-type: none"> - Climate change projects - Feminist organizations - Indigenous knowledge 	<ul style="list-style-type: none"> - Role of the church - Ecofeminist narrative - Indigenous knowledge - The Vulnerables - Leadership - Men assuming women's roles - Women assuming men's roles - Women saviors - Women managing water

(Adapted from Verloo and Lombardo 2007)

Appendix 13. Rationale of the 2003 National Development Plan

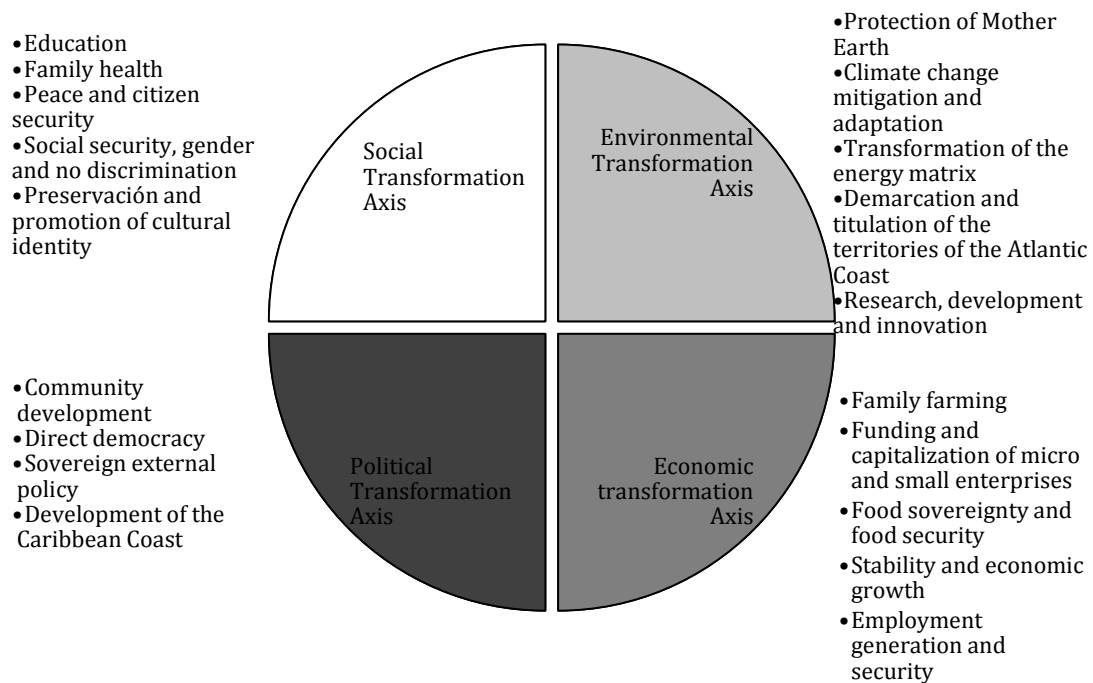
Figure 10. Rationale of the 2003 National Development Plan



(Author's design after Nicaraguan Government 2003)

Appendix 14. Rationale of the 2012 National Human Development Plan

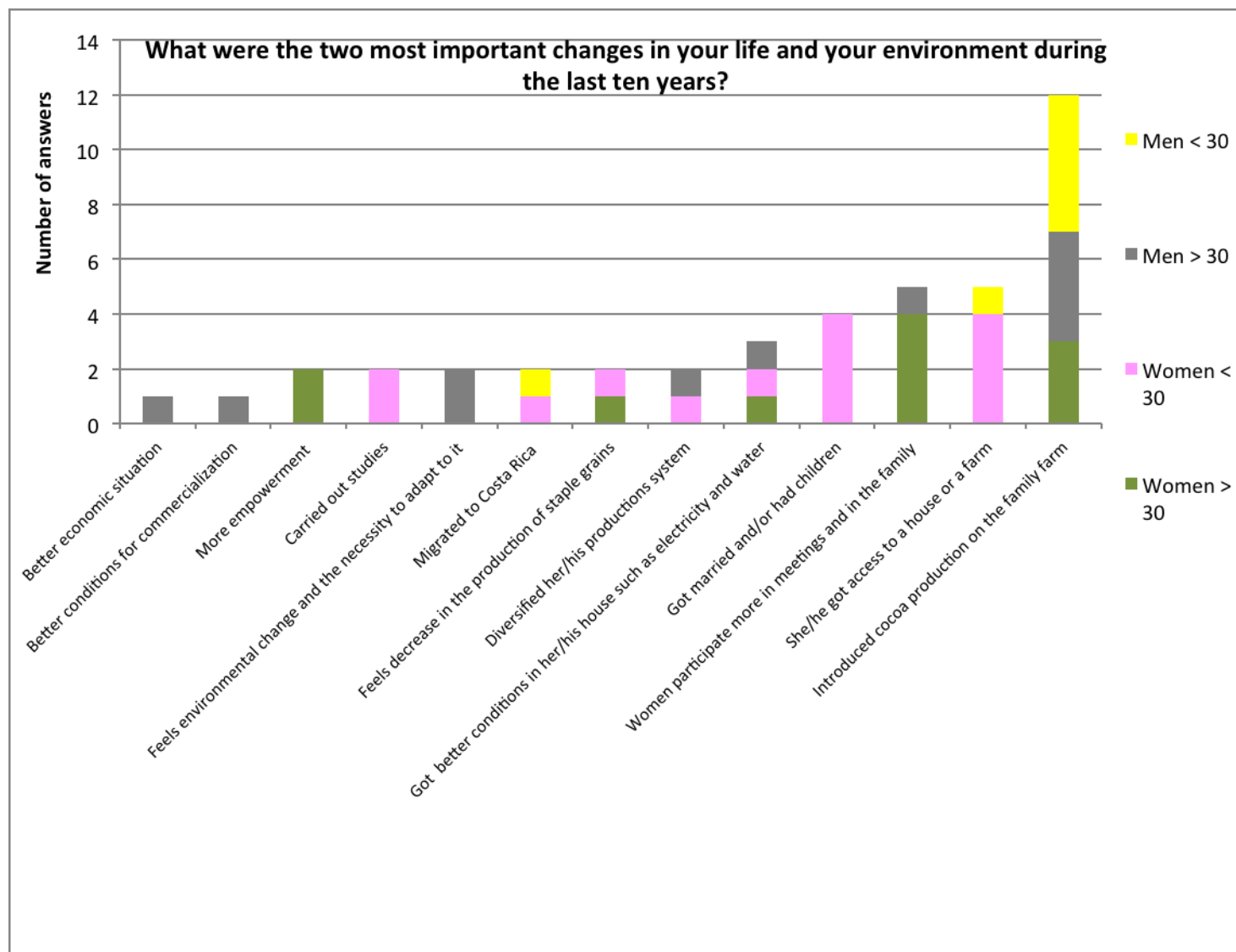
Figure 11. Rationale of the 2012 National Human Development Plan



(Oquist 2012 my translation)

Appendix 15. Most important changes in the life and environment of the inhabitants of El Pijibay during the last ten years

Graph 4. The two most important changes in the life and environment of the inhabitants of El Pijibay during the last ten years



Appendix 16. Most mentioned changes in the last ten years by the inhabitants of la El Pijibay- responses related to the increase in the level of participation of women

Table 29. Most mentioned changes in the last ten years by the inhabitants of El Pijibay- responses related to the increase in the level of participation of women

Increase in the level of participation of women in community events and family decisions, empowerment of women.	
1. Woman above 40	“[Before], women were not taken into account in meetings on farming ¹⁴² ”
2. Woman above 40	“Before we did not attend meetings, now they invite us ¹⁴³ ”.
3. Woman above 40	“Before we did not hear about these meetings like the ones we are participating in now to learn about what we didn’t know before ¹⁴⁴ ”.
4. Woman above 40	“I did not use to participate in training workshops, now I participate ¹⁴⁵ ”.
5. Woman above 40	“Now we are more awoken to learn ¹⁴⁶ ”.
6. Woman above 40	“Before we used to fight but we couldn’t succeed, now we are moving forward ¹⁴⁷ ”.
7. Man above 40	“ [Before we didn’t use to be] organized as a family in order to execute working activities [on the farm] ¹⁴⁸ ”.

¹⁴² “[Antes] a las mujeres no se les tomaba en cuenta en reuniones sobre trabajo en las fincas”.

¹⁴³ “Antes no se asistía a reuniones, ahora se nos llama”.

¹⁴⁴ Antes no se escuchaba de estas reuniones que ahora estamos reuniéndonos para aprender algo que no sabía”.

¹⁴⁵ “Yo no participaba en capacitaciones y hoy si participo”.

¹⁴⁶ “Hoy estamos más despiertos para aprender”.

¹⁴⁷ Antes luchamos y no podíamos, ahora vamos para adelante”.

¹⁴⁸ “[Antes no nos organizamos] en familia para realizar las actividades de trabajo [en la finca]”.

Appendix 17. Most mentioned changes in the last ten years by the inhabitants of El Pijibay – responses related to the introduction of cocoa on the farm

Table 30. Most mentioned changes in the last ten years by the inhabitants of El Pijibay- Introduction of cocoa on the farm

Introduction of cocoa on the farm	
1. Man below 40	“Ten years ago I did not have income from cocoa ¹⁴⁹ ”
2. Man below 40	“Ten years ago I didn’t have knowledge on how to prune a cocoa tree. Now I know... ¹⁵⁰ ”
3. Man below 40	“Ten years ago I didn’t know about cocoa, now I know about it and I have cocoa [on the farm] ¹⁵¹ ”.
4. Man below 40	“[The NGO] IPADE supported me with a cocoa cultivation area and now I am dedicating it time for a better future of my family ¹⁵² ”.
5. Man below 40	“ 8 years ago I used to go to Costa Rica but since 6 years ago I am not going anymore because the institution IPADE supported me with a cocoa cultivation area and now I am dedicating it time ¹⁵³ ”
6. Man above 40	“10 years ago I could have had the idea to plant a cocoa tree but I didn’t have the capacity to do so ¹⁵⁴ ”.
7. Man above 40	“10 years ago, we did not have cocoa production. Today [we have it] thanks to different NGOs ¹⁵⁵ ”.
8. Man above 40	“ I have cocoa production ¹⁵⁶ ”.
9. Man above 40	“ I have forestry trees of cocoa ¹⁵⁷ ”.
10. Woman above 40	“Before I did know about these projects that today talk about “cocoa” ¹⁵⁸ ”.
11. Woman above 40	“Before I didn’t used to harvest cocoa, now I do through [the NGO] IPADE ¹⁵⁹ ”.
12. Woman above 40	“[Before], we didn’t use to hear cocoa mentioned in this region ¹⁶⁰ ”.

¹⁴⁹ “Hace 10 años no tenía ingresos por cacao”.

¹⁵⁰ “Hace 10 años no tenía conocimientos de como podar un árbol de cacao. Pues ahora si...”

¹⁵¹ “Hace diez años no conocía el cacao, ahora lo conozco y tengo [en la finca]”.

¹⁵² “[La ONG] IPADE me apoyo con una área de cacao y ahora le dedico un tiempo para un mejor futuro en la familia.

¹⁵³ “Hace 8 años yo salía a Costa Rica pero hace 6 años ya no voy porque la institución de IPADE apoyo con una área de cacao y ahora le dedico tiempo”.

¹⁵⁴ Hace 10 anos podría tener la idea de sembrar un palito de cacao pero no tenía la capacidad para manejarlo.

¹⁵⁵ “Hace 10 años no teníamos el rubro cacao. Hoy gracias a las diferentes ONG [lo tenemos].

¹⁵⁶ Tengo cultivo de cacao.

¹⁵⁷ Tengo arboles forestales con cacao.

¹⁵⁸ “Antes no sabía de estos proyectos que ahora se está mencionando “cacao””.

¹⁵⁹ “Antes no cosechaba cacao, hoy si por [la ONG] IPADE”.

¹⁶⁰ “No se oía mencionar cacao en la zona”.

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