Food Sovereignty: A Critical Dialogue

Seasonal hunger in coffee communities: Integrated analysis of livelihoods, agroecology, and food sovereignty with smallholders of Mexico and Nicaragua

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Abstract

Food sovereignty has recently gained momentum in social movements, farmer cooperatives and NGOs, as a framework that places farmer's and nature's rights as central to food and agricultural policy. Food sovereignty's strength is that it outlines an alternative policy to the contemporary global agro-industrial food system. However, it is only more recently that the concept of food sovereignty is being translated into unique policies, practices, and research approaches at different levels (i.e. international, national and local), and amongst different stakeholders, including governments, NGOs, research and development institutions and farmer cooperatives. In this paper we will present a participatory action research project undertaken with two coffee farmer cooperatives in Chiapas, Mexico and northern Nicaragua, which are implementing food security and food sovereignty projects through agroecological practices. In doing so, we will discuss how the integration of a diverse set of concepts including agroecology, sustainable livelihoods, political ecology, and food sovereignty, guided the exploration of these complex and dynamic issues at an empirical level. We also present an analysis of how NGOs, cooperatives and farmers perceive and translate the principles of food sovereignty and agroecology into practice. As smallholder farmers who are linked to both the global commodity market and to diverse subsistence production systems, they represent interesting examples of how the concept of food sovereignty is molded and framed to fit the realities of livelihoods in two different contexts.

Introduction

The Food and Agriculture Organization of the United Nations estimates that there are close to 1 billion people that go hungry worldwide (FAO, 2012). Of these, approximately 40% are small-scale farmers, who are farming in marginal lands of developing countries (IFAD-UNEP, 2013). Until recently, it was assumed that smallholder coffee farmers, who were generating cash from a commodity crop, were relatively food secure, when compared to purely subsistence farmers. This notion has been disproved by studies in the last decade, which demonstrate that, at least in Mesoamerica, many smallholder coffee farmers suffer annual periods of seasonal hunger (Caswell et al, 2012). These periods can range from 1 to 6 months and are the result of a complexity of factors that include farmer's capacity to produce food crops; coffee prices and timing of payments; management approaches to coffee and food crops (e.g. conventional, organic or hybrids); and access to support network, among others (Caswell et al, 2012; Morris et al, 2013a).

The majority of coffee farmers globally – some 14-25 million – are smallholder farmers who exist embedded in complex and dynamic ecological, social, economic and political realities that

drive decisions and livelihood outcomes such as food security, food sovereignty[1], and management approaches of eco and agroecosystems (Eakin et al, 2006). In Mesoamerica, smallholder coffee farmers tend to participate in what Pimbert et al (2001) call 'plural economies' whereby farmers manage their agroecosystems for both subsistence production and for local and global markets (Ponette, 2007; Eakin et al, 2006; Hausermann and Eakin, 2008; Jaffee, 2007; Martinez-Torres, 2006; Mendez et al, 2010a; Isakson, 2009; Morris et al, 2013a, b). This plural economy is reflected in the diversity of crops and distinct agroecosystems stewarded by these farmers. As growers farming in mountainous regions where natural ecosystems inherently harbor high levels of biodiversity, traditional farming practices have evolved to take advantage of the services these ecological systems can provide (Altieri, 2004). Hence, many farmers manage their coffee in different types of agroforestry systems, tend homegardens, and manage swidden plots, or *milpas* for corn, beans, squash and other food products (Moguel and Toledo, 1999; Gliessman, 1998; Altieri, 2004).

In late 2001 the global price of coffee plummeted to levels not seen in 100 years, exacerbating the already impoverished livelihoods of small-scale coffee farmers around the world (Bacon, 2005; Eakin et al, 2006; Bacon et al, 2008a). The crisis renewed attention to the vulnerabilities of coffee farmers and was a driver for exploring the inequalities of the global coffee agrifood system. Additional emphasis was placed on alternative trade networks and certification schemes aimed at improving small farmer livelihoods and protecting the biodiverse rich environments they steward (Bacon et al, 2008a). Despite advances made over the past decade, seasonal hunger is still prevalent in many coffee growing communities (Fujisaka, 2007; Mendez et al, 2010a; Morris et al, 2013a; Bacon et al, 2008b). In an effort to address this issue, development projects focused on improving food security and food sovereignty through the promotion of agroecological practices are being implemented in coffee communities of Mesoamerica by coffee cooperatives, local and international NGOs (Heifer, 2008; CAN, 2010). An analysis of these initiatives could yield important lessons and potential solutions to seasonal hunger in coffee communities. The last decade has seen important conceptual debates regarding how best to study and resolve food security issues globally (Chapell and LaValle, 2011; Holt-Giménez et al, 2013; Mendez et al, 2013; Tomich et al, 2011; Lenne and Wood, 2011; Godfray et al, 2010). A recent proposition from the field of agroecology argues for the need to utilize a transdisciplinary, participatory and action-oriented perspective to address issues of food security and food sovereignty (Méndez et al, 2013)

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[1] In this paper we will discuss both concepts- food security and food sovereignty-with the understanding that the two concepts represent distinct political ideologies for improving agrifood systems. See below for more information.

In this paper we use the concepts of political agroecology and sustainable livelihoods as frameworks to analyze food security and food sovereignty in smallholder coffee communities and landscapes. Our case study used a participatory action research (PAR) approach to work with two multistakeholder initiatives, one in Chiapas, Mexico and one in Las Segovias region of Nicaragua. We first briefly discuss the definitions and multiple dimensions of food security and food sovereignty. We then present an integrated conceptual framework which guided field research. In doing so, we share the process of collaborative research conducted with these two multistakeholder initiatives and describe how a PAR process facilitated the translation of this integrated framework and guided the exploration of these complex and dynamic issues at an empirical level. As a collaborative research process that is still underway, a comprehensive analysis of results is ongoing. For this paper we present results related to farmers' perceptions of definitions, causes and solutions to food security and food sovereignty as distinct concepts. We also discuss the two projects in detail, highlighting the successes and challenges of each and analyzing how the strategies contribute (or not) to building food sovereignty in these regions.

Integrating Conceptual Frameworks

Food Security or Food Sovereignty
In this paper we discuss both concepts- food security and food sovereignty-with the understanding that they represent distinct political ideologies for improving agrifood systems. Literature on this is extensive (see Rosset, 2003; Fairbairn, 2011; Wittman, 2011; Windfuhr and Jonsén, 2005), and beyond the scope of this paper. Instead we briefly present what we see as benefits and limitations of each concept and describe why and how we used both to guide our research.

In this paper we use both food security and food sovereignty for two reasons. First, because the two farmer cooperatives we are working with, along with their partners, use both terms. Second, we use the concept of food security because although its normative goals do not align with the socio-economic and political values of food sovereignty, it provides a host of indicators that are useful for understanding severity of hunger and malnutrition, in particular at the household level. The following food security indicators commonly used by UN agencies were used in our research: months of adequate household food provisioning (MAHFP), household dietary diversity index, coping strategies index, and height/weight/age of children under 5 yrs.

As defined by the Food and Agriculture Organization food security is "a situation that exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences" (FAO, 2003: 28). Food

security's four main principles are availability, access, utilization and stability (FAO, 2003; Barrett, 2010). However, development work has focused heavily on the condition of availability, targeting increases in productivity and/or food imports, notwithstanding the fact that availability does not guarantee access and access does not guarantee utilization (Barrett, 2010). When access is addressed there is a strong focus on economic access with initiatives promoting high value market crops over subsistence production.

Despite almost 3 decades since Amartya Sen's (1981; 1984) groundbreaking empirical studies showed that food availability is a limited indicator of food security and that food access, which is dependent on entitlements, agency and power, is a stronger determinant of hunger and famines, there is a paucity of initiatives that address these root causes. Where access is addressed, mainstream development projects privilege economic access rather than control over systems of production and consumption or access to entitlements and power to make decisions[2]. Furthermore, almost 4 decades since the publication of Francis Moore Lappe's *Diet for a Small Planet* and countless publications arguing that the problem of hunger and malnutrition is not about production[3] but about inequality and distribution (Chapell and LaValle, 2011; Lappe et al, 2008; Holt-Giménez et al, 2013), there is still a focus on increasing production as the solution to hunger (Tomich et al, 2011; Lenne and Wood, 2011; Godfray et al, 2010). Food security is not only dependent on the availability, access and utilization of food, but also on the availability, access and utilization of natural resources (including land, water, seeds, etc.), financial resources (credit, loans, etc.), socio-political resources (family and social networks, institutions, government, etc.) and cash or non-cash[4] economies (local, regional and global).

Food sovereignty as a policy framework not only addresses the limitations of the food security concept but outlines a whole new paradigm guided by the following key principles: 1) food as a basic human right; 2) gender equality; 3) genuine agrarian reform; 4) protecting natural resources; 5) reorganizing food trade; 6) ending the globalization of hunger, 7) social peace, and 8) democratic control (Wittman, 2011; Pimbert, 2008). In response to a lack of representation

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[2] Economic access is worked on via promotion of high value crops. Although this can provide cash to purchase food, there is no guarantee that this income will be used for food. Alcoholism is endemic in many coffee communities and with coffee payments disbursed in one or two lump sums per year, it is not a simple task to budget for the whole year. In the town of Jaltenango, also known as Jalte*trago* or Jaltedrink, where the coffee cooperative receives coffee, it is common knowledge that in the month of March when coffee payments are made, business booms in the local bars, and it is not uncommon for farmers to spend much of their yearly earnings in a few days' time. Paying the female of the household is not an option in most cases.

[3] Increases in production at the local level using agroecological techniques are an important strategy for food security and food sovereignty. However, there is a difference between looking at global aggregate levels of production and household levels of production.

[4] barter, work exchanges, volunteerism, etc.

of farmers, peasants, fishermen, landless workers, and women, social movements -most notably La Via Campesina- have developed and continue to adopt and adapt the food sovereignty paradigm (Martinez and Rosset, 2010). Despite increasing academic attention to food sovereignty, relatively few studies have focused on assessing food sovereignty on the ground, and with the aim of identifying challenges, opportunities and ways forward (for examples of ways to measure food sovereignty see Ortega-Cerda and Rivera-Ferre, 2010; Reardon et el 2011; Bell Sheeter 2004). Our research attempts to fill part of this gap, with this paper presenting preliminary empirical results of a broader study.

Although these are certainly indicators that can help understand a household or community's relative food sovereignty (these indicators are included in the International Food Sovereignty Indicators, see http://foodsovmaps.info/) we developed an integrated framework that would represent the main principles of food sovereignty and help guide research on the ground. Leaders in the food sovereignty movement emphasize that agroecology is a key strategy to achieving food sovereignty (Via Campesina, 2013; Altieri and Toledo, 2011; Martinez-Torres and Rosset, 2010; Cohn et al., 2006), hence it is important to use the concept of agroecology to frame research that seeks to analyze food sovereignty. This is where the integration of political agroecology and sustainable livelihoods guided the construction/identification of additional indicators in addition to non-indicator based knowledge production (i.e. participant observation, focus groups, seasonal calendars, key informant interviews, stakeholder analysis, most significant change methodology, etc.). All indicators used were reviewed and edited with stakeholders involved through a PAR process which will be discussed below.

Political Agroecology

Agroecology, as a practice seeks to mimic ecological structures and functions in agricultural landscapes in order to maximize provisioning, regulating, supporting and cultural services for a sustainable agriculture and livelihood (Altieri, 2002; Altieri, 2004). As an analytical and normative concept, agroecology emerged as a response to the negative environmental, social and economic externalities of the agro-industrial system (Rosset and Altieri, 1997; Vandermeer, 2010). Agroecology as a science has been defined as "the application of ecological concepts and principles to the design and management of sustainable agroecosystems" (Gliessman, 1998: 13). The concept of agroecology has since evolved from its strong roots in ecology at the farm level to a recent, more holistic definition proposed by Francis et al (2003:100) as the "ecology of food systems, encompassing ecological, social and economic dimensions". A food system, as defined by Pimbert (2001:4), "comprises the set of activities and relationships that interact to determine what and how much, by what method and for whom, food is produced, processed, distributed and consumed". The expansion of the definition places agroecology as not just a technology to be implemented at the farm level, but as an approach to pursue sustainability in

agriculture and the food system (Gliessman, 2007) through transdisciplinary, participatory and action-oriented processes (Mendez et al, 2013). Although agroecology provides an integrative conceptual and methodological framework with which to explore the issue of food security and food sovereignty, the integration of the concept of political ecology contributes to strengthen this framework when analyzing power dynamics across the agrifood system.

In order to both understand and steer agrifood system change, agroecology must integrate the role that power relations and politics play in driving management practices (Gonzalez de Molina, 2013; Amekawa, 2011). Agroecology is not only governed by ecology or technology but is restricted or aided by power relations, institutions and structures that govern socioecological change. In order for there to be a transformation of local and global agrifood systems there need to be changes in agroecosystem management as well as changes in social, political and economic systems and structures. As agroecology emphasizes the need for this transformative change through transdisciplinarity, participation and action-oriented processes, it is important to integrate key principles of political ecology.

Political ecology seeks to understand the complex interactions between economics, politics, technology, social tradition and the biological environment by analyzing issues of access, control and power (Peet et al, 2011). Geographical perspectives of political ecology have analyzed these complex interactions from varying spatial scales, including both social and environmental dimensions (Zimmerer et al, 2003; Zimmerer, 2007). This is especially useful when analyzing multi-spatial and multi-level relationships, in particular decision making processes and power structures within farmer cooperatives and the coffee agrifood system. This is of notable importance for analyzing food security and food sovereignty in the coffee agrifood system because it includes a diversity of actors that exert different levels of power, across transnational borders. Political ecology advocates the use of historical research to understand trends and patterns that repeat themselves throughout history, which can help highlight structural drivers of chronic food insecurity. In essence, political ecology takes a systems based and contextual approach to understanding human-environment interactions at different scales (temporal, geographic, institutional, management). It is an interdisciplinary field that not only uncovers the nuances of a problem but also advocates for change (Robbins, 2004). Coffee farmers, as isolated and localized as they seem to be, are connected to global markets and global governance structures through their participation in the marketing of a global commodity. Furthermore, the food systems that coffee communities depend on are linked to a global food system. Therefore it is important to go beyond looking at local issues in isolation and exploring how events at regional or global scales may be affecting local elements, and vice versa (Pimbert et al, 2001; Eakin et al, 2009; Zimmerer, 2007; Ericksen et al, 2009). For example, Eakin et al (2009) explore how local and global events interact in what the authors call

"teleconnections" and create feedbacks that affect social, economic, and ecological outcomes. In their study of the Vietnamese coffee sector they find that with the fall of the Soviet Bloc and subsequent integration of Vietnam to the global market, coupled with the disintegration of the International Coffee Agreement, huge investments went into developing a coffee sector which eventually flooded the market with coffee, bringing coffee prices down. This sparked further expansion of coffee around the world with negative effects on natural capital of local farmers resulting in increased vulnerability (Eakin et al, 2009).

Political ecology is an appropriate concept for this context because it emphasizes the importance of transnational livelihoods, a strategy that is all too common in coffee communities that see members migrate abroad for work (Bebbington and Bratterbury, 2001). It is also relevant because it highlights the importance of social networks in driving socio-ecological outcomes, as Pimbert et al (2001:5) state, "rural people's economic behavior is embedded in a complex, often extensive web of social relations and globalized networks of economic and political organizations. Issues of cultural identity, social capital, gender, and locality are central to this focus". Coffee farmers and their cooperatives are embedded in relationships with buyers, certifiers, and development organizations whose reach span the translocal and global.

To integrate the concepts of political ecology and agroecology I draw from Amekawa (2011:122) who states that "the political ecology perspective refers to the heterogeneous ways in which political and institutional dimensions of agroecology are exhibited within the wider societal context". Amekawa (2011) proposes that the political ecology of agroecology follows two discourse types that are very much in line with the critical-constructivist discourse of political ecology. The first has to do with agroecology's critique of the dominant agro-industrial food model. The second has to do with the exploration and implementation of alternatives to this problem. The first line of discourse critiques the failures of Green Revolution technologies, profit driven agricultural development, the input substitution debate, and the use of biotechnology (Rosset and Altieri, 1997). The second line of discourse examines the diverse ways that agroecology is an alternative to these problems. Amekawa (2011) points to the organic and fair trade movements, the Campesino a Campesino movement, and the food sovereignty movement spearheaded by the Via Campesina as examples of alternatives. We use the concept of political agroecology to guide our examination of key drivers of socio-ecological outcomes by emphasizing analyses of interactions at different scales by distinct actors and how these affect access, agency, power, and transformation (see Figure 1).

Livelihoods

The concept of a livelihoods framework evolved in the early 1990s out of a need to understand, from a multidisciplinary perspective, the different ways in which people make a living in order to better guide development interventions that would alleviate poverty and improve livelihoods (Chambers and Conway, 1992; Scoones, 1998; Bebbington, 1999; Ellis, 2000). It also represented a practical critique to the income-based definitions of poverty. The livelihoods framework is both an analytical tool as well as a prescriptive or normative one. As an analytical tool it aims to contextually understand the complexities of rural livelihoods. As a prescriptive tool it veers away from the conventional single-sector focused development strategies, usually biased towards economics and income, and recognizes the need for integrated sustainable development approaches.

The following table provides a chronology of the development of the livelihoods concept.

Table 1. Evolution of livelihoods concept

Key authors	Key contribution and/or definition of livelihoods
Sen 1984	Concept of entitlements. Issue with food security is one of access, not of availability. Future definitions of livelihoods build on notion of entitlements.
Chambers and Conway 1992	Definition: "A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from shocks and stress, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term."
Carney 1998	Definition: "The capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is considered to be sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base."
Scoones 1998	Definition draws from Chamber and Conway (1992): "A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base." Concept of sustainable livelihoods, breaks down

	assets into capitals.
Bebbington 1999	Focuses on capitals and capabilities; emphasizes importance of moving beyond just analyses of assets or capitals towards understanding agency and access, both factors embedded in the dimensions of power and politics. Emphasizes notion of making a livelihood meaningful.
Ellis 2000	Definition: "A livelihood comprises assets (natural, physical, human, financial, and social capital), the activities, and the access to these (mediated by institutions and social relations) that together determine the living gained by the individual or household". Amends Chamber and Conway 1992 and Scoones 1998 breakdown of livelihood strategies from migration, intensification/intensification, and diversification to migration, natural resource based activities and non-natural resource based activities.
Scoones 2009	Builds on previous definitions of livelihoods but emphasizes need to insert more political analyses as central part of livelihoods analyses, with particular focus on knowledge, politics, scales and dynamics.
Amekawa 2011	Integrates Scoones (1998) Sustainable Livelihoods framework with an agroecology framework. Amekawa's main critique of SL is its assumption that agriculture is no longer a source of a sustainable livelihood.

Although, as pointed out by Scoones (2009), the livelihoods perspective in rural development thinking did not arrive with the important publication by Chambers and Conway, this publication is widely cited as the first to comprehensively present the livelihoods framework as an analytical and prescriptive approach to development (Scoones, 1998; Bebbington, 1999; Ellis, 2000; Amekawa, 2011). Since then the livelihoods approach has been influenced by a diversity of disciplines and development approaches including anthropology, geography, political ecology, economics, agroecosystem analysis, farming systems research, and participatory rural appraisal (Scoones, 2009). In their influential work, Chambers and Conway (1992) critique the conventional analysis of development where only production, employment, and cash income are indicators of well-being. Chambers and Conway assert that these indicators do not represent the complex and diverse realities of livelihoods but are popular because they fit into the industrialized notions of development and are easy to measure. Instead they propose the following three normative and practical/descriptive concepts that can be used for analysis in research as well as practically for decision-making: capability, equity, and sustainability.

Likewise, Scoones (2009) addresses this same contention in the use of a limited livelihoods approach that fits the neo-liberal logic put forth by professional economists from post-World

War II development institutions. According to Scoones, the mono-disciplinary "framing in terms of predictive models, of supply and demand, inputs and output, micro and macroeconomics" does not offer a nuanced contextual view of livelihoods (2009: 173). Some economists embrace the notion of assets and the input-output-outcome logic of the livelihoods framework because it fits easily into economic quantitative analysis, but critics point to the lack of attention towards the politics and power context of livelihoods which are essential to understanding issues of access, control, agency and transformation (Scoones, 2009). These issues of access, control, agency and transformation within the livelihoods framework stem directly from Amartya Sen's important contribution on the notion of entitlements. Sen's (1984) empirical studies of large famines found that people starved to death not because of a decrease in the availability of food, but because of a "shift in entitlements resulting from exercises of rights that are perfectly legitimate" (Sen, 1984: 311), or in other words, a lack of access to food. Legitimacy of course is a subjective notion and, as Sen describes, in the case of famines, the legitimacy of entitlements is backed by legalities rather than by a moral system. Unfortunately, as is often the case, those who have authority over these legalities tend not to suffer from food insecurity and hence may not see the need to change these legalities. The main contribution from Amartya Sen to the livelihoods concept, as well as to the food security concept, is that individual entitlements, access, and agency are key drivers of food and livelihood security.

Scoones (1998) working paper presents a sustainable livelihoods framework building on the work of Chambers and Conway (1992) by adding the concept of different types of capitals: natural, economic, human, social, and physical. He discusses three main livelihood strategies: agricultural intensification (increasing output) or extensification (more land under cultivation), diversification (usually through off farm income), or migration (usually temporary or seasonal). It is often the case that households use a combination of all three strategies.

Bebbington (1999) provides another influential contribution to the evolution of the concept of livelihoods. In this paper he critiques the livelihoods framework on three main points: 1) the need to bridge the more materialist focused approaches with the more hermeneutic and actor-centered approaches, i.e. ways people make livelihoods meaningful; 2) the need to move away from livelihood analyses that focus solely on natural resource based livelihoods towards one that includes non-farm activities; and 3) the need to place more emphasis on social capital as a means to accessing resources. The inclusion of meaning to the livelihoods concept opens the theoretical space to analyze farmer's perceptions (Bacon, 2005).

Almost a decade later frequent use of the concept for rural development planning and research, Scoones (2009) sees the need for the livelihoods concept to be 're-energised' since over the last 10 years it has been dismissed by international organizations and rural

development thinkers as too complex. Scoones (2009) sees this happening by paying attention to the changed local and global contexts affected by economic globalization and global environmental change and how this affects the production of knowledge, politics, scale and dynamics. In the case of the production of knowledge, because the livelihoods concept is both analytical and normative, care must be taken to be reflexive of the normative prescriptions. What is a good or bad livelihood? Who is to say that continuing an agriculturally based livelihood is good or bad? Are the normative notions of bottom-up and participatory approaches shadowed by the need to operationalize a livelihoods analysis within the confines of a rural development project cycle? Can partnerships between farmer cooperatives, NGOs and academia help break away from these confines and facilitate longer term relationships for research and action?

Historically, rural development strategies have focused on improving productivity and markets for agricultural products with little attention to off-farm activities. The livelihoods concept changed this by calling for a more holistic, multi-sector view towards rural livelihoods that include both on-farm and off-farm livelihood activities, with emphasis on off-farm (Ellis, 2000; Bebbington, 1999). However, current critiques of the sustainable livelihoods approach focus on just this, the fact that the approach does not give enough attention to the importance and contributions of on-farm diversification to the social, economic, natural, and political assets of a household's livelihood as well as a households ability to be more resilient and less vulnerable with on-farm diversification (Amekawa, 2011). This view is fueled by the normative call for a re-peasantization or re-agriarianization of livelihoods as rallied by some development organizations, social movements, and local communities (Amekawa, 2011; Altieri and Toledo, 2011; Martinez-Torres and Rossett, 2010; Pimbert et al, 2001). These actors see the relocalization and revitalization of their agrifood systems as an important strategy to increase resilience to current local and global environmental changes such as climate change, inability of current global food system to meet their food needs, biodiversity loss, and commodity market volatility (Eakin et al, 2006; Hauserman et al, 2008; Amekawa, 2011; Altieri and Toledo, 2011). Furthermore, many studies have shown that farmers purposefully continue to participate in both market and subsistence agriculture because it spreads risk and provides a safety net should one succumb to market or natural disaster (Eakin et al, 2006; Hauserman et al, 2008 Jaffee, 2007).

Integrating Political Agroecology and Sustainable Livelihoods
The following is an integrated framework that incorporates aspects of sustainable livelihoods, political ecology, agroecology, food security and food sovereignty. This framework draws from Scoones' (1998) SL framework as well as Ericksen's (2008) food systems conceptualization (see Fig. 1).
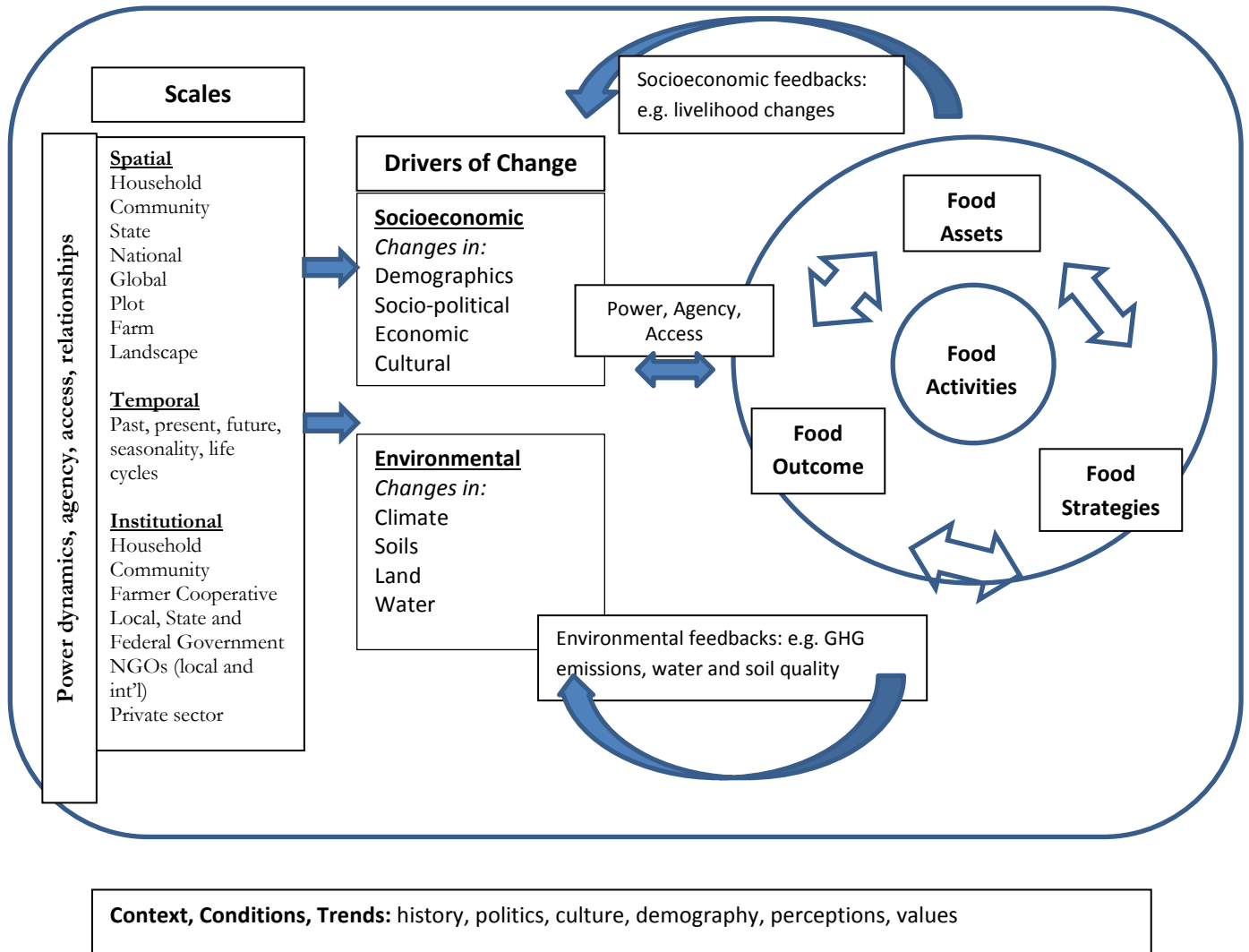
Figure 1. Integrated framework linking household food and socio-environmental systems

The addition of the "scales" column and the "context, conditions, trends" row addresses some recommendations made by Scoones (2009), in particular the importance of understanding how scale, politics, and dynamics affect decision making and access of the different actors involved. The scales column also identifies the common actors involved in driving socioecological outcomes and highlights the fact that power dynamics and relationships between these actors and scales shape the social and ecological landscape (Zimmerer et al, 2003; Zimmerer, 2007). The framework also broadens the 'transforming structures and processes' column from the SL

framework so that it includes all potential drivers of change – socioeconomic and environmental – and highlights the interaction between these. Livelihood assets, strategies and outcomes – in this case food - are placed together to emphasize the dynamic relationship between these facets of a livelihood, i.e. the outcome of a strategy will ultimately affect the assets, ideally by building or maintaining resiliency. An important natural resource based livelihood and food strategy in our research context is participation in development projects. Drawing from agroecology and food systems, the distinct food activities inherent to a food system – production, processing and storage, distribution, and consumption - encompass the assets, strategies and outcomes. In turn, these food activities and food outcomes generate feedbacks that influence socioecological drivers of change and contribute to the coproduction and coevolution of social and ecological systems (Norgaard 1984, Berkes and Folke, 1998).

The integrated framework presented above guided a participatory process for understanding food security and food sovereignty in our partner coffee communities. Ongoing analysis looks into creating typologies of farmers based on their livelihood and food assets and outcomes. This with the goal of representing the heterogeneity of farmer livelihoods and food sovereignty in a way that is meaningful and accessible for decision making by farmers, farmer cooperatives, and other stakeholders involved in socio-ecological changes. We are also exploring the relationship between levels of agrobiodiversity and food and livelihood indicators. In this paper, we will present empirical results regarding farmers' definitions, causes and solutions to food security and food sovereignty and discuss the strengths and weaknesses of the two development projects as strategies for building food sovereignty.

Participatory Action Research

The use of participatory action research helped translate these concepts to their application in a way that integrated the trans-local context in a process of co-production of knowledge. Participatory Action Research (PAR) has its origins in social psychology (Kurt Lewin, 1947), alternative pedagogy (Paolo Freire, 1970, 1973, 1984), participatory development approaches (Robert Chambers, 1983) and radical sociology (Orlando Fals Borda, 1991). It emerged as a response to the traditional top-down approach to research and rural development. PAR is a process that involves researchers and other social actors as participants in an integrated process of research, reflection, and action for the purpose of social change or the resolution of an identified problem (Bacon et al, 2005). This approach differs from other research approaches in that it emphasizes the importance and legitimacy of local knowledge and participation in the identification of problems and solutions, is interactive rather than extractive, and the researcher is more a facilitator than a key protagonist. Kindon et al (2010:9) assert that "PAR represents a counter-hegemonic approach to knowledge production".

PAR as a research approach has many strengths that address issues of power, subjectivity, reflexivity and knowledge that more reductionist-oriented research approaches do not. The notion of empowering local people through the validation and participatory development of knowledge as well as through capacity building and participation in research are important elements of PAR. This stems from Paolo Freire's teachings that dialogue is a strategy for building critical consciousness and action. Through an iterative process research is defined in collaboration with key stakeholders in order to ensure issues of local interest and importance are addressed and to ensure a mutually beneficial process. Issues of power are addressed through an emphasis in acknowledging distinct power relations, sharing of methods and data, and maintain and open and transparent dialogue between the participants in the process. Fortman (2008:134) states that "PAR acknowledges the centrality of power in the social construction of knowledge". The reflection component of all PAR processes is key to addressing issues of power, knowledge and subjectivity. Periodically throughout the research process a session of reflection is held with participants in order to reflect on a number of things, including the research questions, design, power relations, knowledge construction processes, participation, etc. (Kindon et al, 2010).

In being true to the importance of subjectivity and reflexivity, PAR experts are also critical of the PAR approach. Many critiques focus on the lack of participation from local communities in the research process (Rocheleau, 1994, Selener, 1997) while others caution against the romanticisation of local knowledge (Bebbington, 1996). Rocheleau (1994:5) states that "neither participation nor environmental criteria automatically guarantee just, equitable, and ecologically viable futures, but both constitute essential ingredients of a common future worth sharing". Furthermore, she states that "beyond the concerns over more-of-the-same, participation and sustainability might even serve as Trojan horses to bring a new level of global economic and environmental restructuring processes directly to rural communities, bypassing national institutional buffers and preempting critical review" (ibid., 1994:4). Kindon et al (2010) discuss the post structuralist critique of power and assert that PAR is not power neutral and that indeed some PAR approaches can result in negative power outcomes like the legitimization of local elite power structures (see also Goebel, 1998), or the reauthorization of researchers as the only experts. it is important to look at the power relationships within different social groups as well as between them – the household, community, cooperative, NGO, private sector, governments, academics. As Hickey and Mohan state (2004: 15), "the locus of transformation must go beyond the local and involve multi-scaled strategies that encompass the institutional and structural and are operationalized at all levels". In short, the principle of participation must always be problematized. An awareness of these issues is important for the researcher to carry throughout the research process.

Translating concepts to practice: research site context, methods and PAR process

The two coffee cooperatives we collaborated with are distinct in many ways but share a history of supporting food security and food sovereignty projects by promoting agroecological practices in an effort to minimize or eliminate *los meses flacos*[5]*,* or the thin months.

Mexico

Campesinos Ecologicos de la Sierra Madre (CESMACH) is a first level coffee cooperative located in the Sierra Madre mountain range in the state of Chiapas. The cooperative consists of over 400 farmer members who live in 30 communities nestled in the buffer zone of the Triunfo Biosphere Reserve (Figure X.). The reserve harbors a diversity of ecosystem types including cloud forests, tropical rainforest and pine-oak forests which host important species such as the jaguar, quetzal and pavon. Average yearly rainfall is

Fig. 2
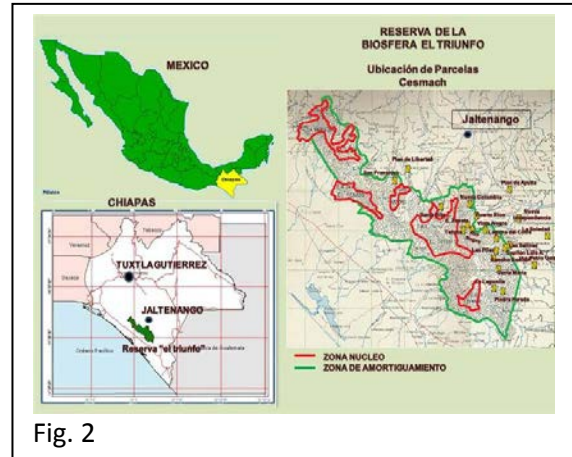
between 1000 mm to 4750 mm with the latter zones representing the highest rainfall in the country. Altitudes range from 400 to 2750 meters above sea level (masl), coffee is grown between 900 and 1800 masl. The main land use is shade grown coffee, maize-bean, and some livestock, with coffee being the sole source of cash for the majority of households. Due to the rugged terrain and limited roads most of the communities are two to three hours from the coffee cooperative office and warehouse in the town of Jaltenango (Angel Albino Corzo). During the rainy season (June-October) many communities are periodically inaccessible due to floods and landslides damaging precarious rural roads.

CESMACH was founded in 1994 by a group of farmers who had received training on organic coffee growing by extension agents from the Reserve. The farmers' main interests in forming the cooperative were to eliminate dependence on *coyotes* (middlemen), provide an alternative to high interest rates from loan sharks, and to organize technical assistance for production and marketing of fair trade and organic coffee. As part of their overall mission CESMACH seeks to organize farmer families to develop an alternative path to improved farmer livelihoods through agroecological production, social justice, and economic viability. CESMACH is well known in the region for terminating a contract with Starbucks and Conservation International (CI) where CI

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[5] a term common in coffee communities of Mesoamerica, refers to predictable periods of food shortages that occur in cycles each year causing hunger, malnutrition and other health problems.

was providing technical assistance for shade grown coffee which would then be certified and sold to Starbucks. Early on CESMACH retained control of much of the production, processing, and storage. However, the cooperative broke off relations with CI and Starbucks when they were told that the large agrifood distributor, AMSA (United Agroindustry of Mexico), would be taking over the processing, storage and distribution. CI and Starbucks cited that increase in demand required a large distributor, but other options, such as a cooperative distributor comprised of several cooperatives was not considered. CESMACH took a risk by losing such a large market, but through tireless work seeking smaller fair trade buyers, their market was secured. Through this experience, CESMACH was reminded of the importance of their autonomy and commitment to work through cooperative channels, even when they might not be compatible with the international coffee market.

Since 2002 CESMACH has promoted rural development projects outside of the coffee sphere in education, health and more recently food and agriculture. In 2008 they partnered with Heifer International to work with 154 member families in 14 communities on a food security and food sovereignty project. This project aimed to diversify production systems for both market and subsistence using agroecological practices. The main components promoted were small livestock for meat and eggs, beekeeping for market, and beasts of burden for farm work, in particular to transport coffee sacks from plots to village.

Nicaragua

PRODECOOP (Promotora de Desarrollo Cooperativo de Las Segovias) is a second level coffee cooperative located in Estelí, Nicaragua which brings together 38 first level cooperatives with a collective member base of 2300 farmer families located throughout the Segovias region in northwestern Nicaragua (Fig X). The Segovias region encompasses the departments of Nueva Segovia, Estelí and Madriz. This area is dominated by a dry-arid ecosystem and is part of the Dry

Fig. 3

Corridor of Central America. Average rainfall varies widely between 800 mm and 1300 per year and altitudinal range is 600 to 1600 masl (Bendana Garcia, 2011). Where there is forest cover it is Pine oak or cloud forest. Smallholder coffee farmer's play an important role in conserving the remaining cloud forest within their shade coffee systems (Jha et al, 2011). In many cases a family will live in the semi-arid ecosystem and produce food crops here and have their coffee

plots at a higher and wetter geography. Las Segovias region is dominated by coffee, tobacco, maize, beans and subsistence production systems.

PRODECOOP was legally constituted in 1992 by a small group of professionals that sought to start exporting smallholder coffee to fair trade markets and offer a multiple services to their cooperative member base including marketing, cooperative development, technical assistance, capacity building, credit, and coffee quality improvement. Since 1993 PRODECOOP has promoted rural development projects throughout the region. In 2010 they partnered with the Community Agroecology Network (CAN), an international NGO based out of California, and CII-ASDENIC, a local NGO based out of Estelí, to implement a food security and food sovereignty project. The first phase worked with 18 base cooperatives and 860 families with the aim of diversifying production systems, improving storage of basic grains and preserving native seed varieties.

Data Collection

Field data was collected between August 2011 and June 2013 with extended fieldwork in Chiapas between October 2012 and June 2013. We used a mixed methods approach, which included the collection of quantitative and qualitative data through focus groups, surveys, semi-structured interviews, informal interviews, participant observation, the Most Significant Change methodology (a qualitative evaluation method that collects testimonials about change; Davies and Dart, 2005) and textual analysis of the grey and peer-reviewed literature. The MSC methodology is especially appropriate to this research context because it is based on stories, not on numbers, dates or weights, and therefore allows more liberty and control on the part of the informant to describe an event. These methods were employed at several levels – household, community, cooperative, and NGOs. In Mexico, 79 households in 11 communities that participated in the food security and sovereignty project were surveyed. Later, a stratified sample of 31 households from these 79 were surveyed again to collect more in-depth data on food and agriculture, including collection of biophysical data in coffee plots, basic grain plots and homegardens. In Nicaragua, 44 households were sampled from 9 base cooperatives. Interviews were also conducted with farmer cooperative staff and NGO representatives. Information obtained from different methods was triangulated to better assess validity.

The integrated conceptual framework was translated into the following summary of information collected during fieldwork:

- Assets: natural (land use, landholding), social (community networks, social capital, cooperatives), human (skills, knowledge, education), financial (incomes, expenses, credits, loans), physical (grain storage, livestock, inputs)

- Agricultural management systems: soil fertility, pests, weeds, seeds, yields, etc.
- Inventory of edible plant and animal species
- Information on subsistence and markets
- Food security and sovereignty indicators: MAHFP; dietary diversity index; coping strategies index; anthropometric measurements of children under the age of 5; land tenure; access to seeds, access to credits and services; government programs; subjective perceptions
- perceptions of food security, food sovereignty and quality of life[6]
- Projects: what worked, what didn't and why; MSC
- Climate change: carbon estimates, perspectives on climate changes, effects, and responses

The Par Process

As a participatory action research endeavor, collaboration of all stakeholders was an integral part of the whole process (see table for list of main stakeholders). The starting point for the PAR process in both sites was very different. In Chiapas, Mexico the introduction to CESMACH was provided by Green Mountain Coffee Roasters. In Nicaragua, the lead author was folded into a multiyear PAR process that began in 2009 with CAN, PRODECOOP, and Santa Clara University. This aided the PAR process immensely since the third author and Maria Eugenia Flores Gomez, the CAN coordinator for this project in Nicaragua provide the background data and contributed feedback on research instruments, data, and relationship and trust building that enabled highly productive fieldwork in a short period of time.

Table 2. List of stakeholders

Stakeholder	Description and General Responsibilities
Mexico	
CESMACH	Members of Board of directors, Cooperative Staff (General Manager, Community Development Coordinator and Technicians), Farmer Promoters
Heifer International	Country Director and Project Coordinator
Nicaragua	
PRODECOOP	Cooperative Staff (Community Development Coordinator and Technicians), Farmer Promoters
CII-Asdenic	NGO staff

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[6] a quality of life indicator and perception of income versus expenses was taken from the Campesino a Campesino methodology to monitoring and evaluation developed in Cuba (Alvarez, 2002)

CAN-Community Agroecology Network	NGO Staff and consultants
Mexico and Nicaragua	
University of Vermont-Agroecology and Rural Livelihoods Group	PhD student, Professor
Green Mountain Coffee Roasters (GMCR)	Members of Corporate Social Responsibility Team

Prior to beginning any formal work a field visit was done with each cooperative and associated stakeholder to introduce the idea of collaborating in a research project. The scope of the collaborative research at this point was kept open enough so as to provide space for sharing of interests and priorities of each stakeholder, but it was kept specific to the themes of rural livelihoods with emphasis on food security and sovereignty. In these initial meetings the concepts of livelihoods, agroecology and participatory action research were presented and discussed. Subsequently, negotiations went back and forth amongst the stakeholders over several months in the development of a memorandum of understanding that outlined the focus of the research, the objectives, the responsibilities of each stakeholder and a calendar of activities. This process was important as a first step to the PAR approach because it allowed, through multiple spaces, for voices and interests to be articulated and agreed upon.

The next important step was the development of themes and questions for the field instruments. The objectives collaboratively developed for the MOU were used as a reference for the development of the instruments. The main instrument used in both sites was a household survey. In Mexico, this was developed through various shared drafts and then finalized in a meeting with the CESMACH board of directors, staff and farmer promoters. This process allowed for questions to be framed in a culturally appropriate way that would be as comprehensible as possible to the interviewee. It also allowed for certain particular subjects of interest to be addressed. In the case of CESMACH they were interested in understanding management practices in non-coffee agroecosystems. In Nicaragua the survey instrument used was built off of the designed by the third author in partnership with PRODECOOP and their NGO partners. It was used for a participatory baseline study that included 244 households. Additional questions were added as part of the editing process. As part of the PAR process we hired and trained farmer promoters to conduct the household surveys. They also played an important role in editing survey instruments and participating in focus groups.

Farmers' perceptions and development projects

Perceptions of Food Security and Food Sovereignty

Table 3 summarizes responses given by farmers when asked to define food security and food sovereignty.

Table 3. Summary of farmer responses

	Mexico (n=79)	Nicaragua (n=44)
Definitions of Food Security	1. daily access, availability, and quantity, no months of scarcity (32%); 2. health, prevent illness (20%); 3. free of chemicals, organic (16%); 4. subsistence production (14%); 5. eat well to be happy, to have a good life (9%); 6. storage (4%); 7. sustain the family (4%); 8. cash to purchase food (2%).	1. daily access and availability, enough quantity and quality (42%); 2. having corn and beans (12%); 3. dietary diversity (12%); 4. free of chemicals, organic, no junk food (9%); 5. produce your own food (9%); 6. nutritious foods (7%); 7. basic grain storage to extend harvest (5%); 8. cash to purchase food (2%); 9. seeds adapted to zone (2%).
Definitions of Food Sovereignty	1. enough, healthy food (29%); 2. equality; all have enough healthy food (27%); 3. don't know (23%); 4. diversity of food (13%); 5. freedom to eat his own harvest; liberty to choose (7%); 6. to secure life (2%).	1. permanent, stable healthy food (18%); 2. food produced in my community or cooperative; right to food from our community and country (18%); 3. don't know (18%); 4. right to produce healthy food; right to food produced sustainably (9%); 5. protect and consume our seeds (9%); 6. revitalize "criollo" foods; value our local products (7%); 7. produce enough so as not to depend on cash economy; promote barter systems (4%); 8. freedom to eat his own harvest; liberty to choose (4%);

		9. be organized to achieve food sovereignty (4%);
		10. begins with group of people conscious of what they consume (2%);
		11. community grain banks to extend harvest into thin months (2%);
		12. diversity of food (2%).

In Mexico, all farmers had some understanding of food security, but almost a quarter of those interviewed had no knowledge of the term food sovereignty. However, those that did cited equality as an important aspect. The majority of farmers' definition of food security is indeed very much in line with the mainstream development definition. However, they also cited food that is free of chemicals and subsistence production as important parts of food security. Notably, only 2% of farmers cited cash to purchase food as an important part of food security. In Nicaragua, farmers' responses show that they associate self-sufficiency and autonomy with food sovereignty, while availability, access and quality are associated with food security. In Nicaragua only one farmer stated that food security means economic access to food, with most discussing producing their own, having adequate storage, and food being organic as the key descriptors

In Mexico, 79 farmers were asked if they would rather buy all of their food, purchase all of their food or a bit of both. Only one said he would want to purchase all of his food, 19 said they would want to produce all of their food, and 41 said they would prefer to both purchase and produce their food. In Nicaragua again, of 44 farmers, only one farmer said he would want to purchase all of his food, 21 said they would want to produce all of their food and 21 said they would prefer to do a mix of the two.

Table 4. Farmers' perceptions of causes and solutions for food security and food sovereignty

	Causes	Solutions and Coping Strategies
Mexico	*Food Security*	
	-high food prices in rainy season	What they did to *solucionar*:
	-lack of nutritious food, lots of *comida chattarra*, junk food	-diversify their livelihoods (other work)
		-access to more credit from cooperative
	-physical access to markets for food limited by seasonal flooding, landslides	-get loans from neighbors or family
		-get store credit
	-low production of basic grains	-produce more of their food

	-less production of basic grains -volatility of coffee market increases vulnerability -high dependence on coffee -not enough cash, no local jobs	-harvest wild plants from coffee fields What else could be done: -project for homegardens -more loans -establish savings -start small business -find work off farm, emigrate
	Barriers to Food Sovereignty	*Steps toward building Food Sovereignty*
	-No land -Need to produce more -Need more cash -Limited physical access to markets to purchase food -High food prices	-no responses
Nicaragua	*Food Security*	
	-lower yields due to changes in climate, pests, low soil quality -changes in climate, sometimes too much rain sometimes not enough -high dependence on coffee -high cost of inputs -abandoned food production -high cost of food -food produced in community is sold to intermediaries and leaves the community -lack of credit to invest in better agricultural management	What they did: -loans and credits to purchase food -diversifying production with vegetables and tubers -reduce diversity of diet, eat less, only eat rice and bananas -skipping meals -purchase food from CADA -work as day laborer on other farm -rely on community networks for support -sell farm products locally -selling forward harvest -sell agriculture asset like animal or tools What else could be done: -strengthen CADAs so that they supply more food at fair price -market other products that I grow -make cisterns to store water -produce, consume and sell bananas

		-plant mixed vegetables, homegarden -consume other products like vegetables -improve production of coffee and basic grains -better money management -long term credits at low interest rates
	Barriers to Food Sovereignty	*Steps toward building Food Sovereignty*
	-No land -Need to produce more quantity and diversity using improved sustainable practices -Depend on food from away -Need access to credits -Need to instill values of food sovereignty to children -Need to continue to promote food security in order to achieve food sovereignty -Need more cash	-they are organized -we eat what we grow -we produce using techniques that increase our adaptability to climate change -grow varieties adapted to zone -have rights to food equally in family

When comparing farmers' responses from both countries it is notable that farmers from Nicaragua have a more articulate and nuanced definition of the two terms. Forty two percent of the farmers cited availability, access and quality as definition of food security. Their definition of food sovereignty also included many of the key principles articulated in national and global movement such as equality and autonomy. This difference could be attributed to the difference in level of presence of development aid and in social movement reach. The Sierra Madre of Chiapas is extremely isolated physically and there is very little presence of international aid in the region. There is also little connection between these communities and regional or national movements (such as the EZLN in other parts of Chiapas). Therefore, the concepts of food security and food sovereignty are indeed very new to these communities. In contrast, Nicaragua has received very high amounts of international aid and a constant presence of development organizations in most parts of the country. The current government has passed a Food Security and Food Sovereignty law which has helped bring attention to the issue. In addition, farmer cooperatives associated with the Via Campesina and Campesino a Campesino movement play an important role in socializing these concepts. With these two distinct

contexts it is perhaps not surprising that many farmers in Mexico see access to projects and development aid as a strategy for food security. In contrast, several farmers in Nicaragua stated that they and their communities need to be careful about agreeing to participate in projects both because they have seen many projects fail and because they do not want projects to become a livelihoods strategy.

Food Security and Food Sovereignty Projects

Mexico

In 2005, the Chiapas-based Heifer representative approached CESMACH with the idea of collaborating on a food security and food sovereignty project. After several planning workshops at the cooperative and community level, the project was initiated under the title "Building our Future: Towards Improving Campesino Families' Livelihood from the Sierra Madre of Chiapas" in 2008. Heifer Mexico had not previously worked with coffee cooperatives and was drawn to CESMACH for their level of farmer organization, their work in marginalized area of Chiapas[7], and their established relationships with other cooperatives, NGOs and the Biosphere Reserve.

The goal of the project was to: "improve the livelihoods of small coffee producers from the Sierra Madre of Chiapas through the promotion and revitalization of agroecological production systems and the increased consumption of nutritional food through diversification of production systems and building of social cohesion amongst members of the cooperative" (Heifer, 2008). The project aimed to do this by:

- Diversifying farming production and the use of food with a focus on agroecology as a supplementary option to coffee growing with 549 families in Sierra Madre de Chiapas
- Increasing income per family unit through promotion and sale of production surplus of at least one component in the third year of project implementation
- Strengthening organizational processes and capacities for 366 peasant families of Sierra Madre de Chiapas in order to reinforce social bonds between families and their cooperative association (Heifer, 2008).

Specific food security strategies promoted by the project included the distribution of livestock (chickens, pigs, rabbits, horses and mules) modules and beekeeping modules. In theory all the components would provide for household consumption and income generation, but as a pilot

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[7] According to the Mexican Government's marginalization index the four municipalities where the project worked are classified as "very high". Of Chiapas' 118 municipalities, 48 are ranked as "very high marginalization". This ranking is according to a range of indicators such as income, education, quality of services (housing, water, health), and assets (CONAPO, 2011).

project the intention was to identify which was most appropriate for the socio-ecological context. Heifer's role was to provide financing, capacity building and monitoring of the project. CESMACH was in charge of implementing the activities.

Upon interviewing farmers about the project, it became clear that the beekeeping module was successful while the small livestock proved challenging. More than half of the respondents that received small livestock lost the animals to disease due to the fact that they were not adapted to the climatic zone. The small livestock were purchased in a tropical climate from medium scale farms where animal feed and antibiotic use is common. These were transferred to the coffee communities where temperatures are much cooler and feed consists mostly of household scraps and no antibiotics or other medicines are available. Although the intention was to source locally adapted races, the need to document purchases with an official receipt eliminated the possibility of sourcing from the smaller local livestock providers. Changes in personnel at both the cooperative and at Heifer also proved challenging. Just prior to project initiation, the coordinator from the cooperative and the Chiapas Heifer representative left their positions. The Chiapas Heifer position was not filled until the project ended, leaving a huge gap in terms of capacity building and monitoring of activities.

The promotion of beekeeping was successful from the perspective of all the stakeholders (farmers, cooperative and Heifer). Some of the apiaries established are managed by several families while others are managed by only one family. The apiaries are located close to the coffee plots and hence provide important pollinating service to coffee. CESMACH and other cooperatives from the region are establishing a collective storage and distribution warehouse with support from Heifer with the hopes of marketing to international organic and fair trade markets. The success of the beekeeping can be attributed to several factors. In contrast to small livestock which is meant for household consumption, honey is being produced as a global commodity for a certified market, hence following a similar logic as coffee. The timing of management activities do not coincide with coffee activities and occurs just before the maize and bean planting. From the cooperative's perspective it fits easily into their model of procurement, storage and marketing.

As a strategy for increasing food security, if it is successful in increasing a household's income, it may contribute to greater economic access for food. However, as stated by several farmers, there is a problem of both physical access and the quality of the food available. Furthermore, as stated by cooperative staff members, an increase in cash flow does not guarantee the money will be spent on food. As a strategy for food sovereignty, again, if it can increase income so that a household has the power to choose what food they consume, how it was produced and where it comes from, than it can contribute to a household's food sovereignty. However, in

order for an increase in income to contribute to household food sovereignty, the structural problems related to community, regional and global food sovereignty need to be addressed.

Farmers' responses to definitions, causes and solutions to hunger reflect an interest in both producing more of their own food and increasing their income or credits to access food. Only one farmer stated that he would want to purchase all of his food, which demonstrates the desire by most to maintain a connection to the land for their food. Several see access to projects as a livelihood strategy for building food security and food sovereignty. CESMACH attributes the increase in their membership to the recent surge in development projects they are implementing. Interestingly this differs from some Nicaraguan farmer perspectives (see below).

For CESMACH, this has been the first large food security and food sovereignty project they have implemented. Seeing the problems faced by their members, they are prioritizing the issue by initiating a process to develop a strategy and action plan specifically for food security and food sovereignty. This process will be supported by the collaborative research described in this paper as well as partnerships with other NGOs.

Nicaragua

The conceptualization of the project in Nicaragua emerged from a longstanding partnership between individuals from CAN, Santa Clara University and PRODECOOP. The project initiated in 2010 under the title "Food Security and Sovereignty Project in Las Segovias". The goal of this project was to: "decrease hunger and increase food security by building resilient food and agriculture systems" (CAN, 2010). The project aimed to do this by:

- Developing and conducting a participatory diagnostic, identifying best practices, and implementing a Youth Promoter Training Program
- Developing locally specific Food Security Action Plans for each of the nineteen 1st level base cooperatives.
- Beginning implementation and monitoring of the local Food Security Action Plans
- Evaluating and disseminating the results

Some of the specific food security strategies implemented by the project included increased on-farm diversification and planting seasonal crops that are available for harvest during 'thin' months, increased storage capacity for basic grains (individual and collective), and community-based seed banks.

The centers for grain storage and distribution, *Centros de Acopio y Distribucion de Alimentos* (CADA) in Spanish, were initiated by one of PRODECOOP's base cooperatives in 2009 with some seed money from PRODECOOP. It was conceptualized by the base cooperative and later identified as a strategy to be promoted by the project. The main goal of the CADA is to store the surplus harvest for distribution to the cooperative member families and the broader community, especially in the months of seasonal hunger. As one farmer put it, "before I would sell my maize to a middleman just after the harvest, but when it came time to purchase maize I was buying someone else's maize. The CADAs helps keep our maize in our communities". The CADAs are now up and running in 6 base cooperatives and provide a host of food products and other basic needs to the community. The CADAs aim to sell their products for fairer prices, especially by not raising the prices substantially when there is low supply and high demand. The CADAs also work with barter systems allowing community members to trade eggs, vegetables or fruit for products from the CADA. The CADAs contribute to the building of household and community food sovereignty by relocalizing the food system, placing food procurement and distribution in the hands of community members (in this case cooperative members), and creating a space for trade outside the cash economy.

Seed banks were also promoted as part of this project in an effort to promote in-situ conservation of native varieties, provide better storage for seeds to reduce loss, and ensure that farmers who want to grow can access local varieties that are adapted to their zone and are more resilient to climatic changes. The idea for the seed banks came from an exchange with the Campesino a Campesino program in a community outside of Matagalpa that was using community seed banks. Currently there are about 200 farmers participating in the seed banks. The seed banks rely heavily on a barter system whereby farmers collect and deliver their seeds to the seed bank at the time of harvest, and prior to the planting season, that same amount is returned to the farmer. In addition to beans and maize, one of the seed banks is also storing cover crops for the basic grain plots and in doing so promoting agroecological practices.

In addition to promoting the CADAs and seed banks, the project also worked to develop food security and food sovereignty action plans. At the start of the project, baseline data was collected with more than 200 households in order to get an understanding of the food and livelihood situation. This data later informed the development of a food security and food sovereignty action plan for the cooperative. The action plan is meant to institutionalize these concepts so that they become a part of the cooperatives overall goal and do not get lost when funding for a project terminates.

Discussion

An integration of the concepts of sustainable livelihoods, agroecology and political ecology proved useful to undertake a participatory action research process on food security and food sovereignty perceptions and conditions in coffee communities of Mexico and Nicaragua. Together, these concepts provided a means to better understand key social and ecological factors that affect the capacity of households to achieve food security and food sovereignty. The political ecological perspective was important to better capture stakeholder perceptions of food sovereignty, which inherently addresses power dynamics within food systems. The PAR approach allowed us to fully engage with cooperative and NGO partners and to define mutually beneficial objectives, which would produce both research and community relevant results. The open dialogue between researchers and farmers, which is intrinsic of the PAR process, also allowed us to further support farmers in Chiapas through additional trainings related to climate change mitigation.

Our preliminary empirical findings point to both similarities and differences, in terms of farmer perceptions related to their understanding of what food security and food sovereignty entails, in the two sites. Definitions of food security tended to describe access and quantity of food, while definitions of food sovereignty leaned towards the right to choose food types and the quality of the food (e.g. healthy, produced sustainably and locally). That said, Nicaraguan farmers seemed to have a stronger grasp of the differences between the two, including the notions of equity, freedom and rights as part of the definition of food sovereignty.

In terms of identifying causes of seasonal hunger farmers from both Mexico and Nicaragua cited high cost of food, dependence on coffee, and a loss of food production[8] as important factors. Farmers in Mexico also cited the influx of *comida chatarra*, or junk food, and the loss of traditional foodways as a contributing factor to a decrease in food security, in particular nutrition (utilization). In coffee communities that are further from the town of Jaltenango, where CESMACH is based, families continue to produce, process, and consume native maize. However, in some of the less isolated communities families are choosing to purchase Maseca tortillas, in large part due to the fact that they are no longer producing their own corn[9].

 In Nicaragua, farmers also cited changes in climate as an important factor influencing seasonal hunger. Irregular rains and increases in temperature, have affected flowering and bean development in coffee as well as kernel development in maize, which in turn has caused

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[8] Loss of food production is generally due to either, 1) the parcelization of land, hence less area to grow, 2) expansion of coffee area into basic grain plots, or 3) loss of productive land due to flooding and landslides.
[9] There are also families who no longer produce corn but will purchase grain from the community in order to do the processing themselves.

decreases in yields. Many farmers in both Nicaragua and Mexico attribute the current leaf rust (roya) epidemic to changes in climate, specifically higher temperatures.

When asked what could be done to address these causes, what solutions could be developed, and what types of coping strategies they use, again, in Nicaragua there was a more nuanced understanding of the issues and potential solutions. Farmers interviewed in Mexico cited the need for more cash and credit, more food production locally, and more projects from the cooperative as solutions to the problem of seasonal hunger. The majority of women interviewed discussed their interest in support for establishing and/or improving homegardens and small livestock. Some women discussed this as a strategy to control their families' food intake without having to deal with cash management to purchase food. Of the three main agricultural systems managed in these communities – coffee, basic grains, and homegardens – it is the latter where women have more decision making power. As stated by the women interviewed, they see the homegardens as an opportunity to grow fruits and vegetables that can be available during the months of seasonal hunger. Another important source of food in the months of scarcity that are highly valued by farmers are wild leafy greens that grow in coffee plots. These are consumed on an almost daily basis during several months of the year by the majority of farmers interviewed. Although the harvesting of wild plants is often seen by development organizations as a negative coping strategy, in this case, it is an integral part of the local food culture and farmers are grateful to have these foods as a safety net in times of scarcity.

In Nicaragua, solutions proposed for the issue of seasonal hunger included diversification of production in order to diversity diets, strengthening the CADAs, relying on community networks, and selling surplus harvest locally. There were also families that cited the need to skip meals or eat cheaper foods in order to cope. In terms of proposals for how to build food sovereignty, in Mexico there were no responses, which reflects the limited understanding of the term relative to Nicaraguan farmers. In Nicaragua, proposed solutions included relocalizing of food system, use of native varieties that are adapted to the climate zone and hence more adaptable and resilient to climatic changes, and being organized as farmers. In addition, several farmers addressed the need to instill the values of food sovereignty into children by involving them in homegarden activities, cooking, and neighborhood recycling initiatives. Several farmers also cited the importance of equal access to food amongst all members of the household. It is not uncommon for parents, usually the mother, to limit or forgo a meal in order to feed her children. Lastly, some farmers in Nicaragua expressed the need to be cautious when receiving development projects. They cited the importance of community participation in the design of a project and the need to ensure that project activities will continue after support is no longer available.

The two multistakeholder projects that we analyzed differed on their approaches and degree of effectiveness. Although they shared similar goals of building food security and sovereignty, the Nicaraguan project seemed to more fully integrate the food sovereignty concept. The strategies promoted in Nicaragua are collectively managed natural and physical capitals. They are CADAs and seed banks, which function with relative autonomy from the national market and have been successfully implemented by farmers in other parts of Nicaragua. The values inherent to these collective initiatives reflect to a certain extent the perceptions of farmers regarding food sovereignty in regards to equity, autonomy, relocalization of food, and relying on community networks. The success of this project is due in part to the integral participation of the farmer cooperative in the conceptualization, design, and implementation of the project. In addition, the two strategies promoted had been successfully implemented in other parts of the country in similar contexts.

Although the project in Mexico aimed to both increase income and food produced for subsistence, the latter faced institutional and environmental challenges. The Heifer project document states that "the project rationale is based on the need to maintain food sovereignty" (2008). When Heifer discusses food sovereignty with communities they present it as distinct from food security. In summary they state that food security aims to provide enough food but does not address where and how it was produced. Whereas food sovereignty in addition to providing enough food, also respects traditional ways of producing food, favors the use of local, native seeds and seeks to provide quality food (Heifer, 2013). Despite their commitment to building food sovereignty in their discourse, translating into practice proved more challenging.

As a response to the need for sustainability beyond the boundaries of project cycles, cooperatives in both Mexico and Nicaragua are in different stages of developing strategy and action plans that are specific to food security and food sovereignty. These strategy and action plans are informed by the PAR processes described above including reflection and analysis of data with farmers and other key stakeholders. The development of these strategies aims to ensure that the building of food security and food sovereignty is not solely dependent on development projects. The strategies also institutionalize the concept, practice and values of food sovereignty. The challenge will be to adequately define the distinctions between food security and food sovereignty so as to ensure that the values and principles of food sovereignty do not become coopted by food security development as usual. Furthermore, these local progressive actions will need to be linked to policy changes so as to remove some of the structural barriers to promoting and maintaining these systems. The advantage to farmer cooperatives acting as leaders in this movement is that their reach facilitates a scaled out approach, linking different levels in order to cover larger landscapes. The advantage to

partnering with researchers is that it allows for in-depth, long term data to be collected and analyzed in order to better inform decisions and strategies for adaptive action as well as inform academic theory based on empirical experiences. A transdisciplinary, participatory and action-oriented approach to addressing issues of food security and food sovereignty offers a space that fosters the creation of solutions rooted in community and informed by translocal experiences.

Literature Cited

Altieri MA. (2002). Agroecology: the science of natural resource management for poor farmers in marginal environments. *Agr Ecosyst Environ* 93: 1–24.

Altieri, M. a. (2004). Linking Ecologists and Traditional Farmers in the Search for Sustainable Agriculture. *Frontiers in Ecology and the Environment*, *2*(1), 35.

Altieri, M.A. and V.M. Toledo. (2011). The agroecological revolution in Latin America: rescuing Nature, ensuring food sovereignty and empowering peasants. *Journal of Peasant Studies* 38(3): 587-612.

Amekawa, Y. (2011) Agroecology and Sustainable Livelihoods: Towards an Integrated Approach to Rural Development. *Journal of Sustainable Agriculture* 35(2): 118 - 162.

Bacon, C. (2005). Confronting the coffee crisis: can fair trade, organic, and specialty coffees reduce small-scale farmer vulnerability in northern Nicaragua? *World Development*. 33(3)497–511.

Bacon, C.M., Mendez, V.E., Gliessman, S.R., Goodman, D., Fox, J. (2008a). *Confronting the coffee crisis: fair trade, sustainable livelihoods, and ecosystems in Mexico and Central America*. Cambridge, MA: The MIT Press.

Bacon, C. M., Ernesto Mendez, V., Gómez, M. E. F., Stuart, D., & Flores, S. R. D. (2008b). Are sustainable coffee   certifications enough to secure farmer livelihoods? The millenium development goals and Nicaragua's Fair   Trade cooperatives. Globalizations, 5(2), 259-274.

Barrett, C. B. (2010). Measuring food insecurity. *Science*, *327*, 825-8.

Bebbington, A. (1996). Indigenous organizations and agrarian strategies in Ecuador. *In* "Liberation ecologies: environment, develpoment, social movements" (R.P.M. Watts, ed.), pp. 86-109. Routledge, London.

Bebbington, A. (1999). Capitals and capabilities: a framework for analyzing peasant viability, rural livelihoods and poverty. *World Development*, *27*(12), 2021–2044. doi:10.1016/S0305-750X(99)00104-7

Bebbington, A. J., & Batterbury, S. P. J. (2001). Transnational livelihoods and landscapes: political ecologies of globalization. *Ecumene*, *8*(4), 369-380.

Bell-Sheeter, A. (2004). *Food Sovereignty Assessment Tool*. Fredericksburg, VA: First Nations Development Institute.

Chappell, M. J., & LaValle, L. a. (2011). Food security and biodiversity: can we have both? An agroecological analysis. *Agriculture and Human Values*, *28*(1), 3-26.

Cohn, A., Cook, J., Fernández, M., Reider, R., and Steward, C. (eds.). 2006. *Agroecology and the Struggle for Food Sovereignty in the Americas*. New Haven, CT: IIED, IUCN-CEESP, and Yale F&ES Publication Series.

Community Agroecology Network. (2010). CAN-PRODECOOP_ASDENIC: Food Security in Las Segovias: 2009-2010 Year 1 Report to Green Mountain Coffee Roasters.

Berkes, F., Folke, C., 1998. Linking social and ecological systems for resilience and sustainability. In: Berkes, F., Folke, C. (Eds.), Linking Social and Ecological Systems. Cambridge University Press, Cambridge, UK

Carney,D., ed. (1998). Sustainable rural livelihoods: what contribution canwemake? London:DFID.

Caswell, M., V.E. Méndez & C.M. Bacon (2012) Food security and smallholder coffee production: current   issues and future directions. ARLG Policy Brief # 1. Agroecology and Rural Livelihoods Group (ARLG), University of Vermont. Burlington, VT, USA.

Chambers, Robert. 1983. Rural Development: Putting the Last First. London: Longman.

Chamber, R., & Conway, G. R. (1992). Sustainable rural livelihoods: practical concepts for the 21st century. *Rep. No. 220. IDS-Univeristy of Sussex, Brighton.* IDS Discussion Paper No. 220. Brighton: Institute for Development Studies-University of Sussex.

CONAPO. (2011). Índice de marginación por entidad federativa y municipio 2010. Consejo Nacional de Poblacion.

Davies, R. and J. Dart (2005) *The 'Most Significant Change' (MSC) Technique: a guide to its use.* http://www.mande.co.uk/docs/MSCGuide.pdf

Eakin, H. (2005). Institutional change, climate risk, and rural vulnerability: cases from   central Mexico. *World Development.* 33(11): 1923-1938.

Eakin, H., Tucker, C., Castellanos, E. (2006). Responding to the Coffee Crisis: A Pilot Study of Farmers' Adaptations in Mexico, Guatemala and Honduras. *The Geographical Journal*. 172(2): 156-171.

Eakin, H., A. Winkels and J. Sendzimir (2009) *Nested vulnerability: exploring cross-scale linkages and vulnerability teleconnections in Mexican and Vietnamese coffee systems*. Environmental Science & Policy 12(4): 398-412.

Ellis, F. (2000). Rural Livelihoods and Diversity in Developing Countries. Oxford University Press, New York.

Ericksen, P. J., Ingram, J. S. I., & Liverman, D. M. (2009). *Food security and global environmental change: emerging challenges*. Environmental Science & Policy 12(4): 373-377.

Fairbairn, M. (2011). Framing transformation: the counter-hegemonic potential of food sovereignty in the US context. *Agriculture and Human Values*. doi:10.1007/s10460-011-9334-x

Fals-Borda, O. 1991. Some basic ingredients. In Action and Knowledge: Breaking the Monopoly with   Participatory Action-Research. New York: Apex Press.

Fals-Borda, O., and M. A. Rahman, eds. 1991. Action and knowledge: Breaking the monopoly with   participatory action-research. New York: Apex Press.

FAO, WFP and IFAD. (2012). The State of Food Insecurity in the World 2012. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition. Rome, FAO.

Food and Agriculture Organization. (2003). Trade reforms and food security: Conceptualizing the linkages. Rome: FAO.

Francis, C., Lieblein, G., Gliessman, S., Breland, T. A., Creamer, N., Harwood, R., Salomonsson, L., et al. (2003). Agroecology : The Ecology of Food Systems. *Journal of Sustainable Agriculture*, *22*(3), 99-118.

Freire, P. 1970. Pedagogy of the oppressed. New York: Seabury Press.

Freire, P. 1973. Extension or communication?. New York: McGraw.

Freire, P. 1984. La educacion como practica de la libertad. Mexico: Siglo XXI.

Fujisaka, S. (2007). *Coffee farmer welfare in Nicaragua, Mexico, and Guatemala*. CIAT-GMCR.

Gliessman, S. (1998). *Agroecology: ecological processes in sustainable agriculture.* Ann Arbor Press: Michigan.

Gliessman, S.R. (2007). *Agroecology: the ecology of sustainable food systems.* (2nd ed.). CRC Press.

Godfray, H. C. J., Beddington, J. R., Crute, I. R., Haddad, L., Lawrence, D., Muir, J. F., Pretty, J., et al. (2010). Food security: the challenge of feeding 9 billion people. *Science (New York, N.Y.)*, *327*(5967), 812-8.

Gonzalez de Molina, M. (2013). Agroecology and Politics . How To Get Sustainability ? About the Necessity for a Political Agroecology Agroecology and Politics . How To Get Sustainability ? About the Necessity for a Political Agroecology. *Agroecology and Sustainable Food Systems*, (December), 37–41. doi:10.1080/10440046.2012.705810

Hausermann, H., & Eakin, H. C. (2008). Producing "viable" landscapes and livelihoods in Central Veracruz, Mexico: institutional and producer responses to the coffee commodity crisis. *Journal of Latin American Geography*, *7*(1), 109-131.

Heifer International. (2008). Building our Future: Towards Improving Campesino Families' Livelihood from the Sierra Madre of Chiapas. Project Report.

Heifer International. (2013). Relatoria: Curso-Taller de Planeacion, Monitorero y Evaluacion. Angel Albino Corzo, Chiapas, Mexico.

Hickey, S., & Mohan, G. (2004). Towards participation as transformation: critical themes and challenges. In S. Hickey & G. Mohan (Eds.), *Participation: from tyranny to transformaiton? Exploring new approaches to participation in development*. New York, New York: Zed Books Ltd.

Holt-Giménez, E., A. Shattuck, M. Altieri, H. Herren and S. Gliessman (2012) *We Already Grow Enough Food for 10 Billion People … and Still Can't End Hunger*. Journal of Sustainable Agriculture 36(6): 595-598.

IFAD-UNEP 2013. *Smallholders, food security, and the environment*. International Fund for Agricultural Development. Food and Agriculture Organization of the United Nations, Rome, Italy

Isakson, S. R. (2009). No hay ganancia en la milpa : the agrarian question, food sovereignty, and the on-farm conservation of agrobiodiversity in the Guatemalan highlands. *Journal of Peasant Studies*, *36*(4), 725-759.

Jaffe, D. (2007). *Brewing justice: Fair trade coffee, sustainability, and survival*. California: University of California Press.

Jha, S., C.M. Bacon, S.M. Philpott, R.A. Rice, V.E. Méndez and P. Laderach. 2011. A review of eco- system services, farmer livelihoods, and value chains in shade coffee agroecosystems. In: B.W. Campbell and S. Lopez-Ortiz, eds. Integrating agriculture, conservation, and ecotourism: Examples from the field. New York: Springer Academic Publishers, pp. 141–208.

Kindon, S., R. Pain and M. Kesby (Eds.) (2007) *Participatory Action Research Approaches and Methods*. Routledge Series in Human Geography. Routledge: Oxon.

Lenne, J.M. and D. Wood. (2011). *Agrobiodiversity management for food security: a critical review.* Oxfordshire: CABI International.

Lappe, F. (1985). *Diet for a small planet*. New York, Toronto: Balantine Books.

Lappe, F., Collins, J., & Rosset, P. (2008). *World Hunger: 12 Myths*. New York: Grove Press.

Lewin, Kurt. 1947. Frontiers in group dynamics: concept, method and reality in social science; social equilibria and social change. Human Relations, Vol 1, 1947, 5-41

Martinez-Torres, M.E. (2006). *Organic coffee: Sustainable development by Mayan farmers.* Ohio: Ohio University.

Martinez-Torres, M. E., & Rosset, P. (2010). La Via Campesina: the birth and evolution of a transnational social movement. *Journal of Peasant Studies*, *37*(1), 149-175.

Méndez, V.E., C.M. Bacon and R. Cohen (Guest Eds.) (2013) *Agroecology and the transformation of agrifood systems: Transdisciplinary and participatory perspectives*. Inaugural Special Issue of Agroecology and Sustainable Food Systems: 37 (1).

Méndez, V.E., C. Bacon, M. Olson, S. Petchers, D. Herrador, C. Carranza, L. Trujillo, C. Guadarrama-Zugasti, A. Cordón and A. Mendoza (2010a) *Effects of Fair Trade and organic certifications on small-scale coffee farmer households in Central America and Mexico*. Renewable Agriculture and Food Systems 25(3): 236-251.

Moguel, P., and V. Toledo. 1999. Biodiversity conservation in traditional coffee systems of Mexico. *Conservation Biology* 13:11–21.

Morris, K.S., V.E. Méndez and M.B. Olson (2013a) *'Los meses flacos': seasonal food insecurity in a Salvadoran organic coffee farming cooperative*. Journal of Peasant Studies 40(2): 457-480.

Morris, K.S., V.E. Méndez, S.T. Lovell and M. Olson (2013b) *Conventional food plot management in an organic coffee cooperative: explaining the paradox*. Agroecology and Sustainable Food Systems 37(7): 762-787

Norgaard, R.B., 1984. Co-evolutionary agricultural development. Economic Development and Cultural Change 32, 525–546.

Ortego-Cerda, M., & Rivera-Ferre, M. G. (2010). Indicadores internacionales de soberania alimentaria. Nuevas herramientas para una nueva agricultura. *Revista Iberoamericana de Economia Ecologica*, *14*, 53–77.

Peet, R., P. Robbbins and M.J. Watts (Eds.) (2011) *Global political ecology*. Routledge: London and New York.

Pimbert, M. P., Thompson, J., Vorley, W. T., Fox, T., & Tacoli, C. (2001). Global restructuring, agri-food systems and livelihoods. *Gatekeeper Series No.100. International Institute for Environment and Development (IIED): London, UK.*, (100). London.

Pimbert, M. (2008). *Towards food sovereignty: reclaiming autonomous food systems*. London: IIED.

Ponette-González, A.G. (2007). 2001: A Household Analysis of Huastec Maya Agriculture and Land Use at the Height of the Coffee Crisis. *Human Ecology*. 35(3): 289-301.

Reardon, J. A., & Pérez, R. A. (2010). Agroecology and the Development of Indicators of Food Sovereignty in Cuban Food Systems. *Journal of Sustainable Agriculture*, *34*(8), 907–922. doi:10.1080/10440046.2010.519205

Robbins, P. (2004) *The hatchet and the seed*. 3-16 In Political ecology: a critical introduction. Blackwell Publishing: Malden, MA.

Rocheleau (1994) *Participatory research and the race to save the planet: questions, critique, and lessons from the field*. Agriculture and Human Values 11(2 and 3): 4-25.

Rosset, P., and Altieri, M. A. (1997). Agroecology versus input substitution: a fundamental contradiction in sustainable agriculture. *Society and Natural Resources* 10: 283-295.

Rosset, Peter. 2003. "Food Sovereignty: Global Rallying Cry of Farmer Movements." Institute for Food and Development Policy Backgrounder 9 (4).

Selener, D. (1997). "Participatory action research and social change," Cornell University Press, Ithaca, NY, USA.

Sen, A. 1981. Poverty and famines: An essay on entitlement and deprivation, Oxford: Oxford University Press.

Sen, Amartya. (1984). Rights and Capabilities. In Sen, Amartya (ed). *Resources, Values and Development*. Oxford: Basil Blackwell.

Scoones, I. 1998. Sustainable rural livelihoods: a framework for analysis. IDS working paper, 72. Brighton: IDS.

Scoones, I. (2009). Livelihoods perspectives and rural development. *Journal of Peasant Studies*, *36*(1), 171-196.

Tomich, T.P., S. Brodt, H. Ferris, R. Galt, W.R. Horwath, E. Kebreab, J.H.J. Leveau, D. Liptzin, M. Lubell, P. Merel, R. Michelmore, T. Rosenstock, K. Scow, J. Six, N. Williams and L. Yang. (2011). *Agroecology: A Review from a Global-Change Perspective*. Annual Review of Environment and Resources 36(1): 193-222.

Vandermeer, J. (2010). *The ecology of agroecosystems*. Burlington, MA: Jones & Bartlett Publishers.

Via CAmpesina. 2013. La Vía Campesina Internacional's new action plan reclaims food sovereignty and agro-ecological production. retrieved August 2013 from

Via Campesina. (2007). Declaration of Nyeleni. http://www.viacampesina.org/en/index.php?option=com_content&task=view&id=282 &Itemid=38. (Accessed May, 2011).

Wezel, A., S. Bellon, T. Dore, C. Francis, D. Vallod and C. David (2009) Agroecology as a science, a movement and a practice. A review. *Agronomy for Sustainable Development* 29(4): 503-515.

Zimmerer, K. S., & Bassett, T. J. (2003). Approaching political ecology: society , nature , and scale in human – environment studies. In K. S. Zimmerer & T. J. Bassett (Eds.), *Political ecology: an integrative approach to geography and environment-development studies* (pp. 1-25). New York, New York: Guilford Publications.

Zimmerer, K. S. (2007) Agriculture, livelihoods, and globalization: The analysis of new trajectories (and avoidance of just-so stories) of human-environment change and conservation. *Agriculture and Human Values* 24(1): 9-16.

Windfuhr, Michael, and Jennie Jonsén. 2005. Food Sovereignty: Towards Democracy in Localized Food Systems. Bourton-on-Dunsmore, UK: FIAN-International; ITDG Publishing.

Wittman, H. (2011). Food Sovereignty: A New Rights Framework for Food and Nature? *Environment and Society: Advances in Research*, *2*(1), 87–105.

FOOD SOVEREIGNTY: A CRITICAL DIALOGUE INTERNATIONAL CONFERENCE PAPER SERIES

A fundamentally contested concept, food sovereignty has — as a political project and campaign, an alternative, a social movement, and an analytical framework — barged into global agrarian discourse over the last two decades. Since then, it has inspired and mobilized diverse publics: workers, scholars and public intellectuals, farmers and peasant movements, NGOs and human rights activists in the North and global South. The term has become a challenging subject for social science research, and has been interpreted and reinterpreted in a variety of ways by various groups and individuals. Indeed, it is a concept that is broadly defined as the right of peoples to democratically control or determine the shape of their food system, and to produce sufficient and healthy food in culturally appropriate and ecologically sustainable ways in and near their territory. As such it spans issues such as food politics, agroecology, land reform, biofuels, genetically modified organisms (GMOs), urban gardening, the patenting of life forms, labor migration, the feeding of volatile cities, ecological sustainability, and subsistence rights.

Sponsored by the Program in Agrarian Studies at Yale University and the Journal of Peasant Studies, and co-organized by Food First, Initiatives in Critical Agrarian Studies (ICAS) and the International Institute of Social Studies (ISS) in The Hague, as well as the Amsterdam-based Transnational Institute (TNI), the conference "Food Sovereignty: A Critical Dialogue" will be held at Yale University on September 14–15, 2013. The event will bring together leading scholars and political activists who are advocates of and sympathetic to the idea of food sovereignty, as well as those who are skeptical to the concept of food sovereignty to foster a critical and productive dialogue on the issue. The purpose of the meeting is to examine what food sovereignty might mean, how it might be variously construed, and what policies (e.g. of land use, commodity policy, and food subsidies) it implies. Moreover, such a dialogue aims at exploring whether the subject of food sovereignty has an "intellectual future" in critical agrarian studies and, if so, on what terms.

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