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Is market gardening compatible with food sovereignty? Insights from a case study of small-scale micro-irrigated vegetable production in southwest Burkina Faso

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Abstract

An expansion of motorized market gardening is currently occurring throughout West Africa, in the same region where the Nyéléni Declaration was signed in 2007. With greater access to water – made possible by the adoption of diesel-powered water pumps– smallholder farmers have been able to rapidly expand their dry season food production. In many ways this phenomenon embodies a food sovereign future: smallholder-led vegetable production for local markets, and relatively little government or multinational influence. Other aspects, however, reveal tensions with the principles of food sovereignty, including the use of Green Revolution technologies such as motorized pumps, improved and imported seed varieties and agro-chemicals. The article examines the explosion of market gardening in the Upper Comoé River Basin, Burkina Faso to analyze the implications of this emerging trend for Via Campesina, the leader of the global movement promoting food sovereignty. We compare key global food sovereignty formulations with the productive activities of market gardeners in the Upper Comoé sub-basin in southwestern Burkina Faso, and find that food sovereignty – as outlined by Via Campesina - leaves little room for incorporating market gardening-based livelihoods that depend on Green Revolution technologies. We argue that Via Campesina can create conceptual space for the inclusion of technology dependent market gardening livelihoods by (1) focusing on how market gardening livelihood formation is a historical and self-determined process, and (2) treating its core principles as elements to strive towards rather than as criteria that must be met. Doing so could help Via Campesina incorporate organizations that represent Green Revolution technology dependent livelihoods in underrepresented areas of the movement such as sub-Saharan Africa (SSA), the Middle East and Central Asia.

1. Introduction

Karim could be confused with one of millions of other African smallholder farmers who make a primarily agriculturally based income tending a small plot of land. He and his family grow three hectares of maize and one hectare of vegetables in a small village in southwestern Burkina Faso. They plow their field with a pair of oxen, and weed it with hand-held hoes. Karim never attended school. He and his family live in a mud hut without electricity or running water.

But there is much more to Karim's story than this brief sketch can convey. He and his family cultivate the three hectares of maize and one hectare of vegetables during the *dry* season, in addition to the crops they grow during the wet season. These dry season crops are not primarily destined for the household, but are sold to merchants who resell them in local and national markets. Karim purchases improved vegetable seeds from a private distributor who receives them directly from Europe. They grow two improved varieties of maize and apply

herbicides before planting. Pest pressure is high, so they apply multiple applications of different, crop-specific chemical pesticides. They also make multiple applications of mineral fertilizers. These expenditures are made with very little support from the government or non-governmental organizations.

Vital to this production strategy is access to water. Upstream reservoirs release water down the Comoé river, where Karim uses a diesel powered pump and a series of plastic pipes to direct water over 100 meters to his riparian gardens. Water releases are scheduled via a water allocation plan developed by a stakeholder-led participatory water committee. However, this committee has not forestalled water-related conflict; on several occasions, market gardeners have organized demonstrations to demand greater water releases.

Karim and his family are at the center of dynamic changes in rural livelihoods. Agrarian livelihoods are increasingly dependent on Green Revolution technologies. Although these livelihoods can be food–based and peasant-driven, it is not immediately clear whether they are congruent with the principles of the global food sovereignty movement. Via Campesina, the leader in the global movement for food sovereignty defines the concept by stressing certain core principles, such as self-determination, local production and consumption of foods, and environmentally sustainable production methods, among others. This paper explores the tensions that arise when considering peasant livelihoods such as Karim's that achieve some but not all of the core principles of the food sovereignty movement. We examine one area in particular – the use of Green Revolution technologies such as improved seed varieties, chemical inputs, and motorized irrigation. We develop a case study of the Upper Comoé sub-basin in Burkina Faso given the presence of emerging market gardeners that are dependent on these Green Revolution technologies. We assert that the question over how to properly frame food sovereignty in terms of the use of Green Revolution technologies has broad implications for Via Campesina, particularly as it relates to their desire to expand to areas such as sub-Saharan Africa (SSA), the Middle East and Central Asia where the use of Green Revolution technologies is increasingly important.

The paper is organized as follows. The next section introduces the research setting. Section three outlines our research methods. The fourth section briefly examines Via Campesina and its definition of food sovereignty. In this section we identify areas where the definition is conceptually narrow, leaving little space to encompass market gardening. This sets the context for section five where we lay out the case for why market gardening is compatible with food sovereignty, and the contrarian argument for why it is not compatible. We discuss how market gardening compatibility hinges on how the adoption of technologies is conceptualized – as either the prudent self-determined adoption of technologies constructed in relationship with the state, or an unsustainable growing practice destined to replicate the failures of the Green

Revolution. We discuss the implications of whether market gardening is compatible with food sovereignty in the conclusion.

2. Research context

The Upper Comoé is one of few permanent rivers in Burkina Faso, West Africa. The river originates in southwestern Burkina Faso, crossing the border with Cote d'Ivoire to flow into the Gulf of Guinea. The Burkina Faso portion of the basin includes the Upper Comoé and its main tributary, the Yanon. Water from the two rivers is captured into three reservoirs, the Lobi and Moussoudougou on the Comoé, and the Toussiana on the Yanon. These reservoirs provide water for (1) a sugar company, *La Nouvelle Société Sucrière de la Comoé*, (SN-SOSUCO); (2) a water company that supplies the urban center of Banfora, *L'Office nationale de l'eau et de l'assainissement* (ONEA), (3) a 350 hectare irrigated perimeter near the village of Karfiguela, and (4) dry-season market gardeners like Karim along both the Comoé and the Yanon (see Figure 1). Other users include local fishermen, cattle herders, and downstream communities (Roncoli et al. 2009).

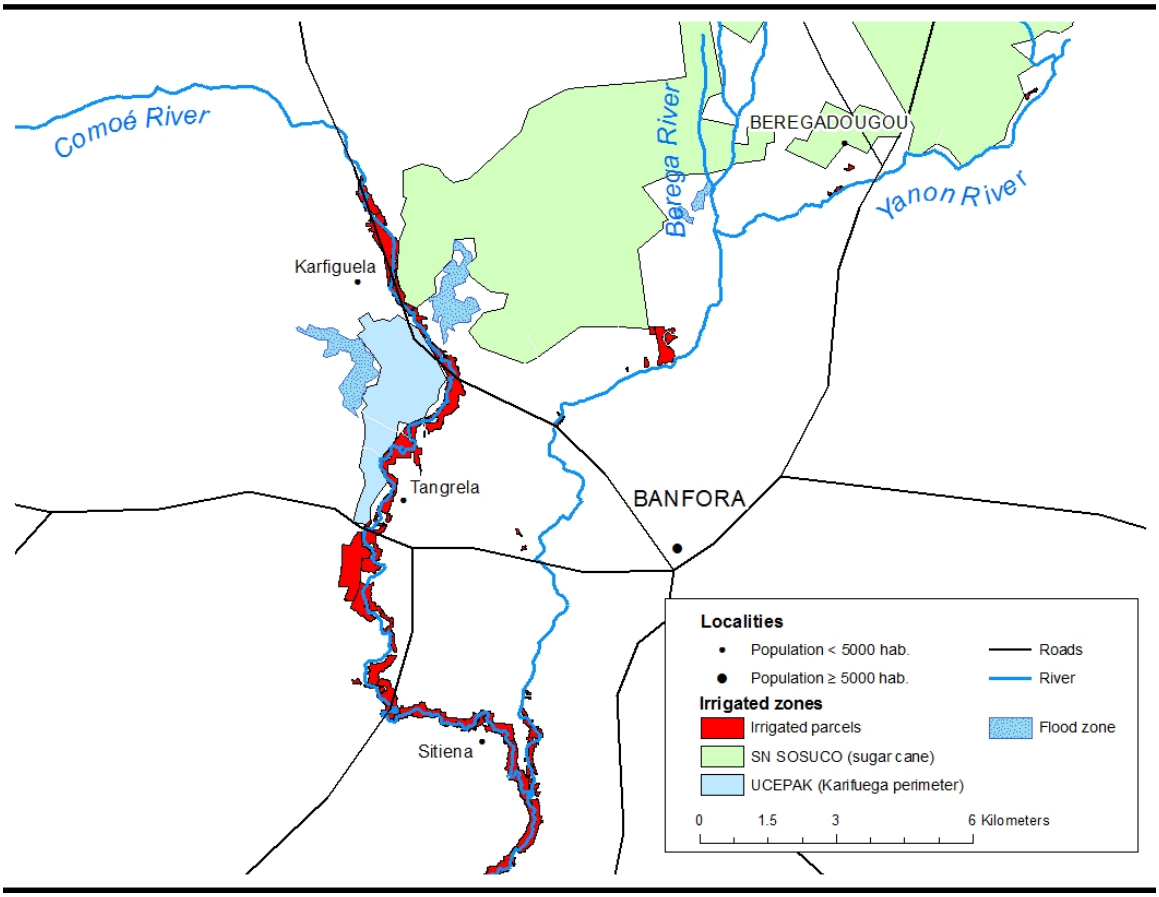

Figure 1: The Upper Comoé sub-basin in southwestern Burkina Faso

As in most of Sudano-Sahelian Africa, food production in the Upper Comoé basin is inextricably linked to water. The Upper Comoé basin is located in one of the more moist areas of the Burkina Faso; the largest town in the region, Banfora (pop. ~65,000), receives an average of 1100mm of rain annually (Roncoli et al. 2009). The large majority of precipitation falls from late June through early October, providing a window for the production of rainfed crops, including maize, cotton, sorghum, and rice. This relatively abundant rainfall has afforded the southwestern part of the country a status as a breadbasket for the country. The southwest of Burkina Faso is one of the highest producing cotton growing areas in all of sub-Saharan Africa. The region is also home to several irrigated perimeters, where smallholders produce rice for national production. Until recently most food and fiber production was rainfed and grown on both upland fields and seasonal wetlands – with the exception of irrigated perimeters. This has changed, however, with the introduction of diesel-powered water pumps.

In the context of the Sudano-Sahelian region, the Upper Comoé basin is a relative latecomer to mechanized water pumps and dry season agriculture. Since the 1970s, the adoption of mechanized water pumps has revolutionized dry season agriculture throughout the region. As early as the late 1980s, World Bank-funded agricultural development projects (ADP) heavily subsidized the purchase of diesel-powered water pumps in Nigeria. Between 1983 and 1989, the Kano State ADP distributed over 40,000 water pumps at subsidized prices to farmers (Kimmage 1991). In neighboring Niger, small-scale dry season agriculture with water pumps did not significantly advance until the mid 1990's when the World Bank financed the *Project Pilote de Promotion d'Irrigation Privée* (PPIP). By 2008 the project facilitated the adoption of over 10,000 mechanized water pumps (Ehrnrooth et al. 2011). But the march of motorized water pumps, and the revolution in local livelihoods and growing practices has received relatively little attention or scrutiny in the literature. Some authors simply describe these systems while others promote drip irrigation strategies for both poverty alleviation and water conservation (Pasternak et al. 2006, Woltering et al. 2011). But these and other studies (Burney et al. 2010; Burney and Naylor 2012) examine primarily NGO and International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) projects, and neglect the broader context of market gardening, its growing importance to rural livelihoods in the regions, and its evolution since the introduction of motorized pumps.

3. Methodology

The research presented in this paper is based on fieldwork conducted in Burkina Faso and the Upper Comoé sub-basin from January 2007 through July 2013. We focus our research on the political ecology of water and the decision-processes of a newly installed participatory water governance committee, the *Comité Local de l'Eau – Haute Comoé* (CLE–HC). The establishment of local decentralized water committees is part of a broader global movement towards

integrated water resource management, to which Burkina Faso is seen as a global leader (GWP 2006). The CLE-HC was established in 2008 due to conflicts over water allocation, and is seen as the model committee in Burkina Faso.

Over the research period a considerable expansion of market gardening along the riverbanks has taken place. For the purposes of this paper we draw from 140 interviews conducted since 2011 of market gardeners, rice growers, vegetable traders, seed and pesticide sellers, pastoralists, fishermen, local politicians, NGO representatives, government officials, and extension agents. Interviews were conducted in French by the authors, and in Dioula and Fulfulde by a research assistant. Since 2011 we typically travelled to the research site twice a year for a period of three to six weeks in order to conduct our research.

We also draw on participant observations and ethnographic data of producer-led organizing for mobilizations from improved access to water, stakeholder meetings to resolve water disputes, and productive practices in market gardens. A team of research assistants also measured the extent of market gardens in the region in July 2012 by walking with GPS units and taking points. These data were used to assess the extent and location of market gardening in the area, as illustrated in Figure 1.

4. Food sovereignty and the peasant way(s)?

Via Campesina, or, "the peasant way," is widely viewed as the most important transnational social movement in the world, and has been instrumental in shaping the concept of food sovereignty (Borras 2004; Martinez-Torres and Rosset 2010). The history of the movement has been the subject of substantial academic work (Edelman 2003; Desmarais 2007; Borras 2008; Martinez-Torres and Rosset 2010), and is beyond the scope of this paper. We briefly situate Via Campesina and the core concept of food sovereignty below.

Via Campesina is comprised of 150 local and national organizations from 70 countries and is organized into 9 semi-autonomous regions, each with their own Secretariat (Via Campesina 2013). An International Coordination Committee meets twice a year to discuss trends in global agriculture and how to frame campaigns and conferences to attend to these trends. Decisions are made by consensus. Specific campaigns have been waged on land reform and the protection of genetic resources, among others. Recently gender issues have become a key focus of the organization (Rosset and Martinez 2005).

Via Campesina was formed in 1993 and emerged as a major global player in agricultural policy in the mid-90s as "a direct result of the fact that the interests of farmers and small to medium-sized farmers were not represented in the GATT negotiations on agriculture" (Rosset and Martinez 2005, pg. 8). The circumstances of its genesis inform the elaboration of their principles and their definition of food sovereignty. Via Campesina defines food sovereignty as,

"the right of peoples to healthy and culturally appropriate food produced through sustainable methods and their right to define their own food and agriculture systems. It develops a model of small scale sustainable production benefiting communities and their environment. It puts the aspirations, needs and livelihoods of those who produce, distribute and consume food at the heart of food systems and policies rather than the demands of markets and corporations. Food sovereignty prioritizes local food production and consumption. It gives a country the right to protect its local farmers from cheap imports and to control production. It ensures that the rights to use and manage lands, territories, water, seeds, livestock and biodiversity are in the hands of those who produce food and not of the corporate sector. Therefore the implementation of genuine agrarian reform is one of the top priorities of the farmer's movement" (Via Campesina 2013).

It is clear from this definition that food sovereignty is simultaneously an oppositional concept to dominant trends in the capitalist transformation of agriculture – most notably land consolidation, the deagrarianization of the rural poor, and the globalization of agriculture – and an outline for an alternative agrarian vision. Underlining the oppositional character of the movement, Paul Nicholson, a key Basque leader in Via Campesina calls food sovereignty the "principal alternative to the neoliberal model" (Wittman and Nicholson 2009, pg. 679). Via Campesina organizes campaigns against these trends, such as the Global Campaign for Agrarian Reform and the Campaign against Pesticides and for Life (Via Campesina 2013). Via Campesina further elaborates its alternative vision in specific declarations, such as the Nyéléni Declaration, which is discussed in greater length below.

A primary element in the above definition is the right to self-determination. The idea of rights and self-determination are also emphasized in the International Assessment of Agricultural Knowledge, Science, and Technology for Development (IAASTD) report's definition of food sovereignty. They define food sovereignty as, "the rights of people and sovereign states to democratically determine their own agricultural and food policies" (IAASTD 2009, pg. 10).

The focus on rights raises a number of issues, including what to do about the structures that could ensure such rights (Patel 2009). It raises another issue as well, which is important for this analysis: what are the specific criteria or core principles that represent the movement. It is easy to imagine a multiplicity of different "self-determined" livelihoods that embody very distinctive normative visions for the future. However, as Patel asserts (2009, pg. 669), "a simple appeal to rights-talk cannot avoid tough questions around the substance and priority of those rights." Via Campesina outlines this substance with a vision that goes beyond the notion of self-determination to identify what Patel calls core principles. Some of these principles from the definition above include "local food production and consumption," "small-scale sustainable production," and "protect[ion] from cheap imports."

The principles listed in the definition and in other key Via Campesina documents, however, are vague, and incomplete, leaving room for interpretation about what constitutes a livelihood congruent with food sovereignty. Are livelihoods that embody only some of these principles and not others considered congruent with the movement? This is further complicated since Via Campesina is a movement of organizations with different class and ideological fissures and who represent different geographical areas (Borras 2008). The scripting of declarations and definitions often gloss over some of the more contentious divides, such as those between farm workers and farm owners. Moreover the specific visions of each member organization may be regional, instead of global, reflecting their particular geographical perspectives.

The vision for food sovereignty may be too vague and incomplete, but it is also risks being too narrow. By framing an opposing vision to the capitalist transformations of agriculture, the food sovereignty movement risks creating a vision of the 'peasant way' that does not fully encompass the realities of local livelihood formation. As Bebbington (2000, pg. 500) reminds us, rural people are constantly engaged in "the challenge of securing a viable way of guaranteeing the material basis of their livelihood and, at the same time, building something of their own." Livelihood formation and transformation is a dynamic historical process grounded in particular places.

Livelihood formation and reproduction constantly occurs in relationship with many of the global agricultural trends Via Campesina opposes. Some of the livelihoods to emerge from this dynamic process may stretch too far outside of Via Campesina's core principles. These could include, for example, rural smallholder livelihoods based on the production of transgenic crops, or monocultures of cash crops. We assert, however, that many of the livelihoods built in relationship with these global trends are broadly congruent with the global food sovereignty movement. This presents a number of challenges and questions: how can one distinguish between those livelihoods that are congruent with the vision for food sovereignty as articulated by Via Campesina, and those that are not? In order to be congruent with this vision of food sovereignty does a livelihood have to be fully congruent with all principles, or simply moving the direction of those principles? Does it matter whether certain organizations representing farmers embody certain food sovereignty principles while different organizations embody others? Or should member organizations more or less abide by all principles or risk undercutting Via Campesina campaigns? Could being too prescriptive potentially alienate certain organizations that would otherwise extend Via Campesina's reach intro underrepresented areas? Or do these principles help to identify those organizations that share similar interests?

It is clear from this brief discussion that the vagueness and narrowness of Via Campesina's vision for food sovereignty could have large implications for the success of its campaigns and

the composition of the movement. The rest of this paper explores the relevance of how livelihoods are conceptualized and how core principles are used with a case study of market gardening in southwest Burkina Faso.

5. Food sovereignty and market gardening in the Upper Comoé sub-basin

This section analyzes whether market gardening as an emerging rural livelihood in the Upper Comoé is compatible with Via Campesina's vision of food sovereignty. We structure arguments for and against compatibility through a comparison of the productive practices of market gardeners with the core principles of Via Campesina's vision of food sovereignty as outlined in the Nyéléni declaration. Comparing these two contrasting arguments reveals the difficulties and tensions that arise when positioning the core principles of food sovereignty in relation to rural livelihoods in particular places. We first develop the case for incompatibility by discussing the adoption of Green Revolution technologies and their likely impacts on environmental sustainability and human health. We then present the compatibility case by discussing farmer-directed technological innovation, and market gardening's role in providing locally produced and healthy foods.

5.2. The case for incompatibility

This section argues that market gardening is incompatible with food sovereignty since it involves Green Revolution technologies, which can be harmful to the environment and human health. The non-use of Green Revolution technologies, environmental sustainability and human health are all core principles of Via Campesina's vision of food sovereignty.

5.2.1. Green Revolution technologies, environment and health

Market gardening in the Upper Comoé is dependent on a suite of technologies including motorized pumps, plastic tubing, improved seeds, and chemical inputs. These can all be broadly placed into the category of "Green Revolution technologies," and as such, lie in opposition to the core principles of food sovereignty. The Nyéléni Declaration clearly states that Via Campesina is working against, "Technologies and practices that undercut our future food producing capacities, damage the environment and put our health at risk. These include…the so-called 'old' and 'new' Green Revolutions."

The use of agro-chemicals places market gardening in opposition to other core principles of Via Campesina's global vision for food sovereignty. The Nyéléni Declaration highlights both health and sustainability in its definition of food sovereignty as "the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods." The Declaration also stresses environmental protection stating that Via Campesina is fighting

for a world where "we are able to conserve…rural environments…based on ecologically sustainable management of land."

Environmental sustainability can be defined broadly to encompass carbon emissions from diesel-powered water pumps, and market gardeners' dependency on imported seeds, fuels and inputs, among others. Arguments can be made for each of the points. However, agro chemicals are the most relevant to Via Campesina's vision of food sovereignty, and the most questionable in terms of its compatibility with the core principles of the movement.

Agro-chemical use is widespread among market gardeners in the Upper Comoé. Gardeners report heavy use of herbicides to clear and prepare their gardens, multiple applications of mineral fertilizers to sustain yields, and multiple applications of pesticides to fend off pest attacks. Gardeners report using all different types of herbicides and insecticides – from those provided by the cotton company, to official government approved pesticides available for purchase from local merchants, and illegal imports from Ghana. Mineral fertilizers are the primary tool used to fertilize gardens, and are either diverted from cotton production or grain production, or purchased in local markets. Gardeners report little use of animal or green manures.

The use of agro-chemicals itself is not necessarily contrary to "food produced through ecologically sound and sustainable methods," nor to "ecologically sustainable land management." This depends on numerous variables including the types of chemicals used, the agroecological context in which they are used, the total amount applied, and the number of times they are applied over a specific period of time, among others. Moreover, it is difficult to assess the sustainability of market gardening in the Upper Comoé in general, and conducting such an analysis is beyond the scope of this paper. But there is sufficient reason to believe that certain practices could affect the sustainability of production. Continual cultivation of the same plots without significant use of animal and green manures could exhaust soil quality leading to a downward cycle of increased dependence on mineral fertilizers. Moreover, the heavy use of chemicals could pollute river waters, particularly since these chemicals are used most heavily when the river is almost completely dry.

A related area where the use of agro-chemicals runs contrary to Via Campesina's food sovereignty vision is their likely impacts on human health. Healthy foods and human health are key principles of Via Campesina's vision. As noted above the Nyéléni Declaration's definition of food sovereignty singles out healthy food as important. Later in the Declaration it states that Via Campesina is working against "technologies and practices that…put our health at risk."

Many of the pesticides used by market gardeners are safe for human consumption. Gardeners purchase these pesticides from local merchants who get them from government-approved

distributors. Most West African countries belong to a regional effort to regulate the types of pesticides that are allowed entry in their countries. This regulation serves to keep the most toxic and least well reported pesticides from the marketplace.

However, not all pesticides used have been approved for their use on food. Gardeners reported substantial use of cotton pesticides on vegetable crops. Since humans do not consume cotton, a different class of pesticides is approved for its use. Though the direct impacts of this on the vegetables being produced are unclear, this could comprise the health of those who consume vegetables with cotton pesticide residues.

5.3. The case for compatibility

The case for compatibility is a more difficult position to argue. Market gardeners use productive practices that clearly lay outside of the Via Campesina's core food sovereignty principles. Nonetheless the argument developed below asserts that market gardening is compatible with food sovereignty given that the adoption of Green Revolution technologies is situated in a historical process, which farmers have directed towards their particular goals. This farmer-directed process is consistent with Via Campesina's core argument for the right to self-determination. Moreover, market-gardening livelihood is congruent with other core food sovereignty principles such as small-scale production and the production and consumption of local and healthy foods.

5.3.1. Farmer-directed technological innovation

As stated earlier, market gardening in the Upper Comoé is dependent on a suite of Green Revolution technologies. The adoption and use of these technologies has been constructed over the past 50 years in relationship with state-led interventions to modernize agriculture. Smallholder farmers have modified these technologies to suite their needs while simultaneously achieving state goals of improved agricultural exports and national food security. Farmer-directed technological use is congruent with the goal of self-determination outlined in Via Campesina's definition of food sovereignty presented in section four.

One main actor in this dynamic process of chemical input and improved seed adoption in southwest Burkina Faso is the state-run vertically integrated cotton company, *La Société des Fibres Textiles Burkinabè* (SOFITEX). Beginning in the 1960s, SOFITEX brought animal traction, agricultural inputs, and credit to the rural countryside radically changing agricultural production.[1] To paraphrase the former cotton farmers' union leader, François Traoré, there is

[1] SOFITEX began in the colonial era as the *Compagnie Française pour le Développement des Fibres et Textiles* (CFDT). In 1979 the Burkinabè government took control of the company and renamed it SOFITEX. The CFDT, and its later incarnations as Geocoton, retained shares in SOFITEX until the mid-2000s (Gergely and Poulton 2009; Dowd-Uribe 2011).

not a community in rural southwestern Burkina Faso that does not owe its development to cotton (Dowd-Uribe 2011).

SOFITEX's input provisioning system has successfully brought chemical inputs to the Burkinabe countryside allowing for cotton yields to increase while also allowing for the use of these inputs in other agricultural endeavors. SOFITEX sells agricultural inputs as a package. At the beginning of the growing season farmers tell cotton sector officials how many hectares of cotton they plan on growing. SOFITEX then remits on credit the recommended amount of improved seeds, fertilizers and pesticides needed to grow that amount of cotton, irrespective of farmers' wishes. Herbicides have recently been added to the package. Debts are then recuperated when the farmer resells his cotton back to the cotton company after harvest. This has engendered a system where if a farmer wants to grow cotton he must find a way to use or sell the remitted agricultural inputs. Cotton sector officials attribute this integrated system of provisioning inputs on credit with huge increases in cotton production over the last 30 years – which has been described as one of sub-Saharan Africa's agricultural success stories (Gabre-Madhin and Haggblade 2004)

This system of input provisioning gives farmers a means to access inputs they otherwise would not be able to afford, and to use them as they desire. A thriving trade in inputs occurs annually after the cotton company distribution of inputs. Most farmers use these inputs to grow grains, or they sell them to merchants for resale in regional markets at lower prices than other inputs. With the explosion of market gardening in the region, cotton pesticides and inputs are now being directed to vegetable growing. Input use in market gardening can be viewed as an opportunistic way to redirect cheap inputs to more profitable uses.

Research and extension services associated with the Karfiguela perimeter have further promoted the use of chemical inputs to improve productivity. The construction of the 350-hectare perimeter in 1976 transformed rice production from primarily female-led production of traditional varieties to a male-dominated modern productive system dependent on improved seeds and chemical inputs (van Koppen 2000). Decades of state extension services have brought improved production techniques, herbicides, mineral fertilizers and improved seeds to rice farmers.

Decades of influence from Karfiguela perimeter extension services and SOFITEX have engendered a number of changes to local farming systems. First, chemical inputs are known, used, and have been shown to increase productivity. Second, improved seeds exist, come from other places, and are known to be more productive than local varieties when grown with chemical inputs. Third, it is commonplace to redirect cotton inputs to other more productive uses.

It is in this context that the introduction of diesel-powered motorized pumps accelerated market gardening in the region. An African Development Bank funded project, *Projet d'Appui au Développement Local dans la Comoé, Léraba, et Kenedougou* (PADL– CLK) began subsidizing the purchase of water pumps in the Upper Comoé basin and neighboring areas in 2004. A main goal of the project was to promote national food security. Pumps were offered to farmers for purchase at 10-15% of their total value; their final cost was roughly $280 USD.[2] This subsidized price made the purchase of these pumps a possibility for many local farmers; by 2011, approximately 200 pumps had been sold in the basin. The revenue generated from these subsidized pumps has allowed farmers to purchase new water pumps from private sellers for around $600 USD. Most of these pumps have capacity to irrigate between 2 and 5 hectares.

The adoption of motorized water pumps accelerated change in local market gardening. It transformed what were small-scale market gardens that transporting water from the river in clay pots, and later in aluminum watering cans. These patches were planted only one time a year, after the end of the rainy season in November. Local agricultural extension agents and farmers estimate that the total area devoted to vegetable gardening prior to 2004 could not have exceeded 30 total hectares. Our survey of dry season market gardeners, conducted in July 2012, found that Upper Comoé farmers now cultivate over 660 hectares, distributed in individual plots ranging from less than 0.1 to 5 hectares in size. Almost all of these plots are irrigated with diesel powered water pumps.

Market gardeners in the Upper Comoé exercised their rights to self-determine their production strategies via the adoption of improved technologies. Farmers make use of the means afforded to them, including cotton sector credit schemes and cheap black market inputs – to redirect chemical inputs towards high value production of vegetables. Similarly motorized pumps destined for cereal production have been used to grow high value vegetables, which are more profitable than the production of grains. In other words, local people appropriated diesel-powered motorized pumps, chemical inputs and improved seeds to better secure their livelihoods. In these ways market gardening that is dependent on technologies can be seen as self-determined and congruent with Via Campesina's vision of food sovereignty.

5.3.2. Local production of healthy food

Many other features of market gardening are highly compatible with Via Campesina's core principles of food sovereignty. Via Campesina defines food sovereignty as "the right of peoples to healthy and culturally appropriate food." Without market gardeners this goal could not be achieved in Burkina Faso. Market gardens supply the vegetable crops, including cabbage,

[2] Using an exchange rate on July 1st, 2004 of 539 FCFA = $1 USD.

eggplant, onions, hot pepper, tomatoes, and okra, vital for urban household consumption. These products are culturally appropriate as they respond to consumer demand.

The vegetables produced by market gardeners in the Upper Comoé are sold and consumed locally. This is in line with Via Campesina's goal to prioritize "local and national economies." The vegetables are produced by peasant and family farms in line with Via Campesina's goal to "empower[s] peasant and family farmer-driven agriculture." Moreover, many gardeners report that vegetable gardening has become profitable enough that youth are staying in riparian villages to become market gardeners, rather than migrating to cities. This trend is consistent with Via Campesina's goal of "a future for young people in the countryside."

6. Conclusion

Strong arguments can be made that market gardening in the Upper Comoé sub-basin is both compatible and incompatible with Via Campesina's vision of food sovereignty. The incompatibility argument is simple. The Nyéléni Declaration clearly states that Via Campesina is against Green Revolution technologies. The technologies also are contrary to two other core food sovereignty principles – environmental sustainability and human health. The compatibility argument states that the adoption of Green Revolution technologies is congruent with food sovereignty since it is the result of a larger process of self-determination. This argument also stresses that market gardening is consistent with other core food sovereignty principles including the production of nutritious, culturally appropriate and locally consumed food.

Comparing these two arguments reveals the difficulty in characterizing a vision for food sovereignty. It underscores a key challenge for Via Campesina whose core belief is the right to self-determine, but which must set some core principles towards which this right is directed. This space between rights and principles is difficult to negotiate. The movement could give clear principles but run the risk of excluding by overly prescribing. Conversely the movement could under-explore the self-determined livelihoods that could be produced making it a movement of everything that stands for nothing. Via Campesina's core principles are not organized as a checklist, where potential member organizations check-off whether they adhere to each of the described elements. Nonetheless these core principles represent what Via Campesina strives to achieve. As such they signal to producer organizations the movement's politics as well as its core vision for the future.

How these core principles are portrayed and used is important for Via Campesina's challenge to increase its global representativeness. Core principles do not have to be characterized as fixed-end products. Rather we argue that it is more effective to frame these core principles as goals to strive towards. Doing so opens up space to be in greater conversation with organizations whose members' livelihoods may not match all the core principles of the movement.

In addition to reshaping how core principles are framed, we argue that reimagining how livelihoods are constructed can aid the effort to incorporate underrepresented areas. The case of market gardening in the Upper Comoé demonstrates this point. The compatibility of market gardening with food sovereignty hinges on how to conceptualize how this livelihood was formed, in this case, how Green Revolution technologies became a key part of market gardening. The adoption of these technologies can be conceptualized as the prudent self-determined adoption of technologies constructed in relationship with the state. Alternatively it could be described as a suite of unsustainable growing practice destined to replicate the failures of the Green Revolution. When viewed in the former, Via Campesina positions itself as a movement that can be in conversation with organizations whose members have livelihoods at the edge of their vision.

Incorporating organizations can have the double effect of increasing the movement's global representation while simultaneously pulling these organizations towards Via Campesina's core food sovereignty principles. In so doing it identifies an underutilized way to affect change by incorporation, in addition to the more traditional ways of affecting change via mobilizations, campaigns and conferences. This strategy has already been shown to be effective at radicalizing what was a relatively moderate producer organization, as in the case of the incorporation of the regional West African producers organization ROPPA. According to Nico Verhagen, a Via Campesina technical staff, " …the more they [ROPPA] interact with the Via Campesina the more they are radicalizing, this is very clear. Our strategy in Africa should be to open up spaces for dialog with Via Campesina, and invite everyone in" (Rosset with Martinez 2005, pg. 30). If this policy of inviting organizations is realized, a similar transformation could hold for a producers' organization that represents farmers with more modern production practices. Through incorporation into Via Campesina, the organizations would be exposed to a movement that cares deeply about agro-ecology and environmental sustainability. These interactions could potentially move their organizations closer to these goals.

We imagine that Karim does not care whether we view his livelihood practices as compatible with Via Campesina's principles of food sovereignty. He will continue to piece together his livelihood in the ways that are most appropriate to his particular circumstances. Nonetheless Karim's practices are in a dynamic relationship with the neoliberal trends of agriculture that Via Campesina opposes. His livelihood goals are consistent with the broad orientation of Via Campesina even if his production methods are not as well aligned. Focusing on Karim's rights to self-determination is a first step towards finding common ground. Articulating a vision of food sovereignty that encompasses Karim's livelihood can be a second step towards ensuring that organizations and movements composed of farmers with similar livelihood systems and concerns can join the global movement and strengthen their common struggle.

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References

Borras, Jr., S. 2004. La Via Campesina: An evolving transnational social movement. TNI Briefing Series no. 2004/6. Amsterdam: Transnational Institute.

Borras Jr., S. 2008. La Vía Campesina and its global campaign for agrarian reform. *Journal of Agrarian Change*, *8*(2-3), 258.

Borras, Jr.,S. 2010. The politics of transnational agrarian movements. *Development and Change*, *41*(5), 771-803.

Burney, J. A., and R. L. Naylor, 2012. Smallholder Irrigation as a Poverty Alleviation Tool in Sub-Saharan Africa. *World Development*, *40*(1), 110-123.

Burney, J., Woltering, L., Burke, M., Naylor, R., and D. Pasternak. 2010. Solar-powered drip irrigation enhances food security in the Sudano–Sahel. *Proceedings of the National Academy of Sciences*, *107*(5), 1848-1853.

Dowd-Uribe, B.M. 2011. 'Engineered Outcomes: The State and Agricultural Reform in Burkina Faso'. PhD Dissertation, University of California Santa Cruz, Santa Cruz, California.

Edelman, M. 2003. Transnational peasant and farmer movements and networks. In: M. Kaldor, H. Anheier and M. Glasius, eds. Global Civil Society. London: Oxford University Press, pp. 185–220.

Ehrnrooth, A., Dambo L., and R. Jauber, 2011. "Projets et programmes de développement de l'irrigation au Niger (1960-2010) : Eléments pour un bilan," Centre d'Etudes et d'Information sur la Petite Irrigation. Available at: http://www.reca-niger.org/spip.php?article444

International Assessment of Agricultural Knowledge, Science, and Technology for Development (IAASTD) 2009. Global Report. Washington DC: Island Press.

Gabre-Madhin, E., and S. Haggblade, 2004. Successes in African agriculture: results of an expert survey. *World Development*, *32*(5), 745-766.

Gergely, N., and C. Poulton, 2009. Historical background and recent institutional evolution of African cotton sectors. In Organization and Performance of Cotton Sectors in Africa. D. Tchirley, C. Poulton and P. Labaste (Eds). Washington DC, The World Bank: 31-44.

Global Water Partnership (GWP) 2006. Setting the Stage for Growth. Stockholm: GWP, 84pp.

Kimmage K., and W.M. Adams, 1990. Small-scale Farmer-managed Irrigation in Northern Nigeria, *Geoforum* 21(4): 435-443.

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

Pasternak, D., Nikiema, A., Senbeto, D., Dougbedji, F., and L. Woltering, 2006. Intensification and improvement of market gardening in the Sudano-Sahel region of Africa. *Chronica Hortic*, *46*, 24-28.

Patel, R. 2009. Food Sovereignty. *The Journal of Peasant Studies* 36(3): 663-706.

Petit O., and C. Baron, 2009. Integrated Water Resources Management: From general principles to its implementation by the state. The case of Burkina Faso. *Natural Resources Forum* 33, 49–59

Orlove, B., and S.C. Caton, 2010. Water Sustainability: Anthropological Approaches and Prospects. *Annual Review of Anthropology* 39:401-15.

Roberts, R. L. 1996. *Two Worlds of Cotton: Colonialism and the regional economy in the French Soudan, 1800-1946*. Stanford University Press.

Roncoli, C., P. Kirshen, D. Etikin, M. Sanon, L. Somé, Y. Dembélé, B.J. Sanfo, J. Zoungrana and G. Hoogenboom, 2009. From Management to Negotiation: Technical and Institutional Innovations for Integrated Water Resource Management in the Upper Comoé River Basin, Burkina Faso. *Environmental Management* 44: 695-711.

Rosset, P. and M. Martinez, 2005. Participatory Evaluation of La Via Campesina. The Norwegian Development Fund.

Sally, H., Lévite H., and J. Cour, 2011. Local Water Management of Small Reservoirs: Lessons from two Case Studies in Burkina Faso. *Water Alternatives* 4(3): 365-382.

Schwartz, A. 1996. Que faut-il penser de la régression de la production cotonnière au Burkina Faso depuis la campagne record de 1990-1991 et des mesures de relance prises en 1995? Rapport de mission dans l'aire cotonnière burkinabè, novembre-décembre 1995. Paris, ORSTROM.

Van Koppen B. 2000. Gendered water and land rights in rice valley improvement, Burkina Faso. In: Meinken-Dick R, Bruns BR (eds) Negotiating water rights. ITDC Publishing, London, pp 83–111

Via Campesina 2007. Nyéléni Declaration . Available at: http://viacampesina.org/en/index.php?option=com_content&task=view&id=282&Itemid=38. Accessed on August 1, 2012.

Wittman, H., and P. Nicholson. 2009. Interview: Paul Nicholson, La Via Campesina.

Woltering, L., Pasternak, D., and J. Ndjeunga, 2010. The African Market Garden: development of an integrated horticultural production system for smallholder farmers in West Africa. *Irrigation and Drainage, 2*, 1-10.

Food Sovereignty:
A Critical Dialogue

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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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