

Report on Market Chains for
PAER

Submitted

By

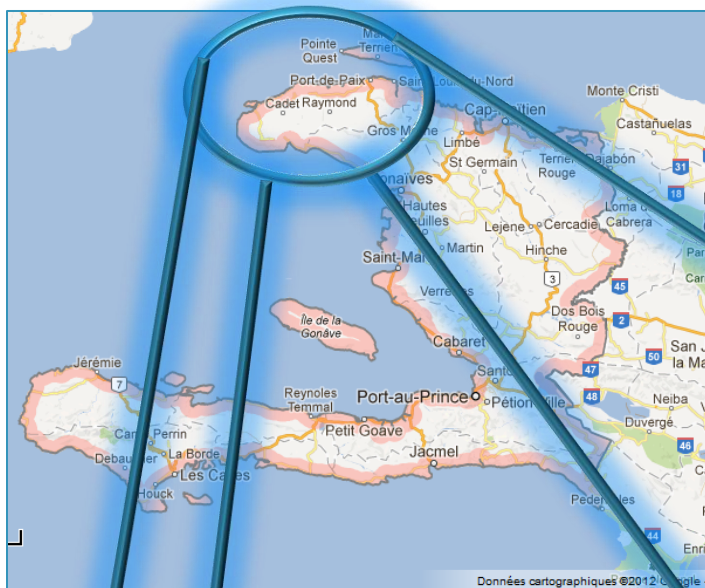
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IFAD

INTERNATIONAL
FUND FOR
AGRICULTURAL
DEVELOPMENT

2014-2015



Map Haiti and
PAER Target
Area



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Preface

The objective of this report is to provide project PAER participants and implementing partners with an entry point for understanding the production and marketing strategies among the targeted beneficiaries, to detail programme activities and expected outputs and outcomes. There are some 700,000 women, men, and children in the Department of the North West and the commune of Anse Rouge. The majority live perilously close to the nutritional margins of survival: by international standards, 23% of their children are chronically malnourished; 10% are acutely malnourished (CNSA 2014). The irony of their situation is that they live in territory that was once part of the most productive agricultural colony on earth: French Saint Dominique. Yet, today--after 45 years and over US\$100 million of production-targeted interventions from the international development agencies and the Haitian Governments -- they practice the most rudimentary productive technologies (see Schwartz 2009). There is no electric grid in the region; precious little water; roads and transport are such that that it is far easier and arguably less expensive to ship merchandise to urban Port-au-Prince from Miami--715 miles away--than from the target region--less than 100 miles away. The opportunities to raise income through market access is clear and present. But in economically intervening on the behalf of these farmers, indeed in seeking partnership with them and encouraging them to elevate their own investments in remunerative market access enterprises, it is critical that we understand how they have survived thus far.

What we know is that farmers in the region have deeply entrenched production and social patterns that have evolved over more than 200 years of independence, predominately in the absence of assistance from the State or outside agencies. These patterns are, as with people everywhere, adapted to the natural and economic environment. The pages that follow present an overview of these patterns with regard to subsistence and marketing strategies and the associated social relations. They give special emphasis on the IFAD and GOH recommended value chains targeted for intervention. The farmers very real and precarious struggle for survival in what is a harsh regional environment and economy makes the responsibility to understand these patterns of production that much more critical. At the very least, may the project do no harm. Specifically, this section presents,

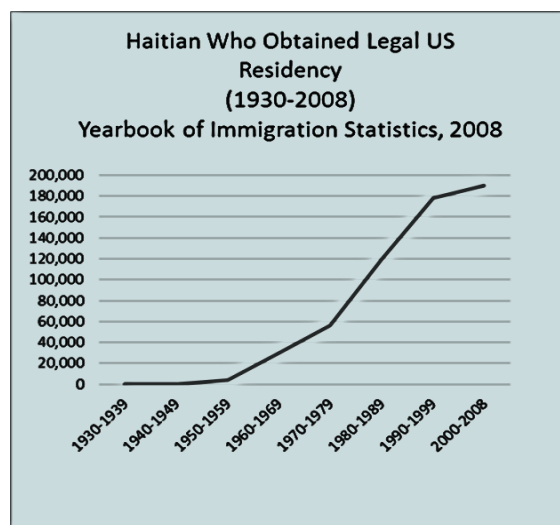
- History & interventions in the region
- Demographic features and trends
- Geography & Environment
- Production strategies
- Social relations of production
- Regional market system
- Selected market chains
- Local organizations

Introduction

PAER targets but is not limited to the six (6) Haitian communes in the extreme North West of Haiti. In defining the opportunities to encourage investment and entrepreneurialism in the area, it is useful to begin by framing the limitations and recent history of similar efforts. Much of the area is dry. On average, farmers endure severe drought one in every eight years. When the rains do come they are frequently torrential. There is not a single paved road in the entire region and those roads that exist are at times impassable. State institutions, weak in Haiti, are especially feeble in the region. Local supra-household organizational structure is almost non-existent. Exceptions are associations and churches, both of which are most often created in direct response to outside charity and spiritual campaigns and have a 50 year history of being vehicles for capturing funds intended for local development resulting in little improvements of the local living standards.

Perhaps more economically challenging than anything else is that in the political and economic instability that has prevailed in Haiti since the 1970s, agro-entrepreneurs have overwhelmingly invested, not in the local economy, but in getting themselves and their children out of the region, such that of 8 community leaders living in the region in 1990, they had 44 children over the age of 18 years: not a single one had remained in the area. 19 were living in Port-au-Prince; 25 were in the US and Canada (see Schwartz 1991). Investment in out-migration has created an economic vacuum. As elsewhere in Haiti,ⁱ enterprises that thrived in the region during the pre-1980s have since collapsed. Rum, sisal, coffee, goat skins, aloe, and castor oil are no longer aggregated in significant quantities to justify exportation. There are no longer any private sector enterprises or significant regional investors from which PAER can leverage capital or entrepreneurial expertise.

Figure 1

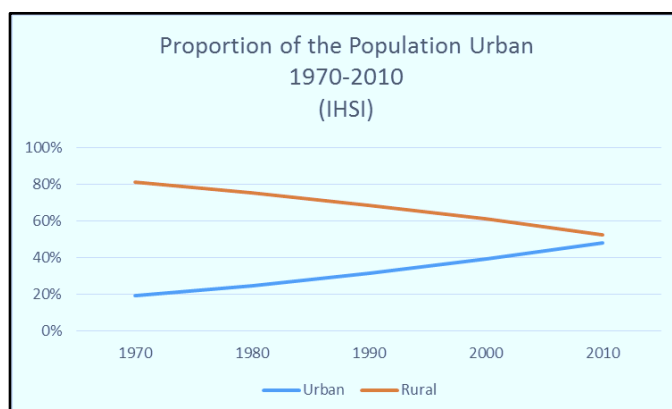


IFAD understands the extent of these obstacles to the success of promoting entrepreneurial enterprise and market access, having invested in the region since 1978 (see IFAD 2013). There are capped wells and irrigation projects that attest to successes. Yet, standards of living are by all accounts far lower today than they were 40 years ago (for a summary see Schwartz 2012, Chapter 5). There are a number of lessons to learn from other failed investments. While this is not the place to elaborate at length, evaluations of the failures consistently point to lack of institutional memories, weak community involvement, poor monitoring and evaluation mechanisms, and a near total lack of accountability regarding unscrupulous management of funds (USAID 1983a, 1983b; 1994; CARE 1994; Schwartz 2000, 2009, 2012). Indeed, one might argue—and most Haitians living in the region would agree-- that past development has left a regional legacy of rent-seeking

and disinterest. In 1970s, communities had to pay half of the costs for cash and food for work projects (USAID 1981). Today community financial participation is non-existent.

Nevertheless, there are encouraging economic strengths and points of entry. Some are inherent in the market system that prevails in the region. Others derive from the few development successes alluded to above, most notably IFAD's PPI-1 and PPI-2's partnership with German Agro Action Allemande and the long term and diligently executed investments in infrastructure, French Initiative Development and their Haitian partner NGO, ADEMA's equally diligent investments in infrastructure, health and education. These prospective points of entry and other promising opportunities are discussed below. First however, we provide a description of the region.

Figure 2

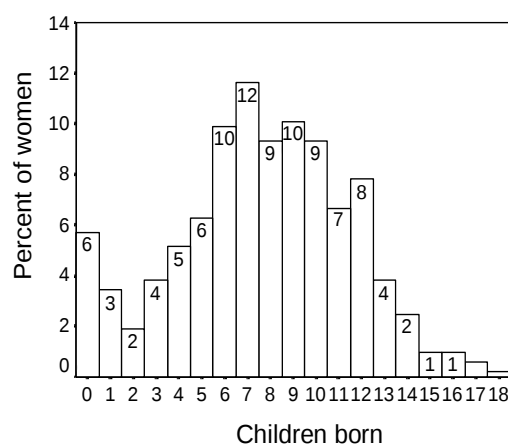


Demography

The population of the North-West Department and the Commune of Anse Rouge is predominantly rural: 537,606 people live in rural areas versus 199,308 in urban areas (see Table 1 below). The farmers are distributed across the landscape in small villages and hamlets or in scattered homesteads. The average household size is 5.2 people; 53% of homes are located in compounds with at least one other household.ⁱⁱ Despite the continuing rural orientation, cities and towns of the region have all experienced meteoric growth over the past 50 years. The population living in urban areas of the North West Department grew from 11% in 1982 to 23% in 2003 (IHSI 2003). The major city and Departmental seat, Port-de-Paix, went from 30,000 in 1982 to over 100,000 people today. The town of Jean Rabel, the county seat for the commune of Jean Rabel, went from 3,000 in 1982 to over 10,000 today. The process is fueled by extremely high fertility (7 births per woman; see Figure 3) and dynamic and constant flow of people out of the region, from rural areas to town to the regional cities to Port-au-Prince and then overseas. The process is such that of 69 of the elite living in the village of Jean Rabel in 1960, in 2001 we found that 31 had left Jean Rabel before their death, 21 of these had emigrated to Miami. Of 287 of their offspring, 76% had left Jean Rabel and 57% had emigrated to the United States. Despite the flow out of the region, high birth rates mean that the rural population continues to grow at 1-2% per year.

Figure 3

Completed fertility in Jean Rabel for women over 45 years of age



(Source: Schwartz 2009)

Table 1: Towns and Cities in the North West and Anse Rouge (estimates based on IHSI)*

Town/City	Population 2005	Town/City	Population 2005
Bombardopolis	2,107	Basin Bleu	3,480
Baie-de-Henne	1,971	Gros-Morne	12,072
Môle-St-Nicolas	5,559	St Louis du Nord	17,700
Jean-Rabel	9,779	Anse-à-Foleur	4,765
Chansolme	9,561	Anse-Rouge	4,437
Port-de-Paix	99 580		

* All figures are from IHSI – RGPH 2003 except Port-de-Paix . The latter estimate is based on unofficial sources as well the consultant's estimates derived from metropolitan surface areas. The assumption, based on the consistency of household size (~5 persons per hshld) and urban living space in Haiti, is that the size of urban areas will correspond with total population: thus the real metropolitan area of Port-de-Paix is 4 km², Gonaives 11 km², Jean Rabel 0.7 km², Gros Morne 1.0 km², Port-au-Prince 150 km². etcetera. All of which approximately corroborate the cited figures.

Table 2: Jean Rabel Population Growth 1971 to 1997 (Source IHSI 2012; Schwartz 2001)

Year	Population	Number of years	Population increment	Mid-point population	Rate of Increase	Population density (km ²)	Source
1971	46,378	21	13,006	39,875	1.55%	99	Census
1982	67,925	11	21,547	57,152	3.43%	145	Census
1997	130,320	15	62,395	99,123	4.20%	279	NHADS

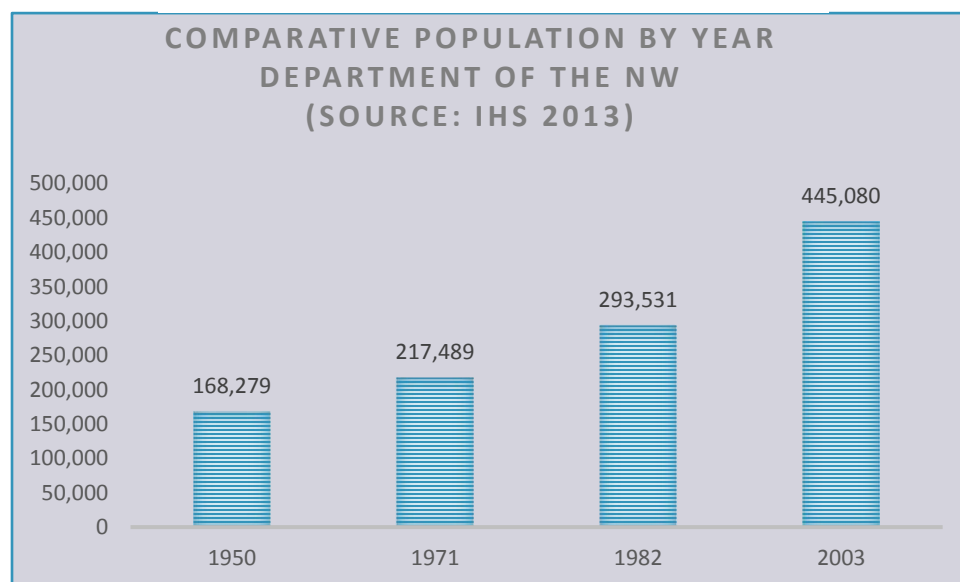
*Rates calculated from previous population estimates

*Rate of population increase estimate = midpoint population/ (total population increment/number of years)

Table 3: Communes: Population, Area, and Sections (Source: IHIS 2012)ⁱⁱⁱ

Commune	Km ²	Rural	Urban	Population
Anse-à-Foleur	62	22,416	6,420	28,836
Anse-Rouge	434	27,354	14,058	41,412
Baie-de-Henne	203	23,618	2,419	26,037
Bassin Bleu	215	54,174	6,372	60,546
Bombardopolis	203	31,226	3,156	34,382
Chansolme	53	26,414	2,560	28,974
Jean-Rabel	488	129,564	12,070	141,634
La Tortue	180	34,917	2,175	37,092
Môle-St-Nicolas	227	28,540	3,775	32,315
Port-de-Paix	351	84,341	110,312	194,653
Saint Louis du Nord	188	75,042	35,991	111,033
TOTAL	2604	537,606	199,308	736,914

Figure 4



Geography

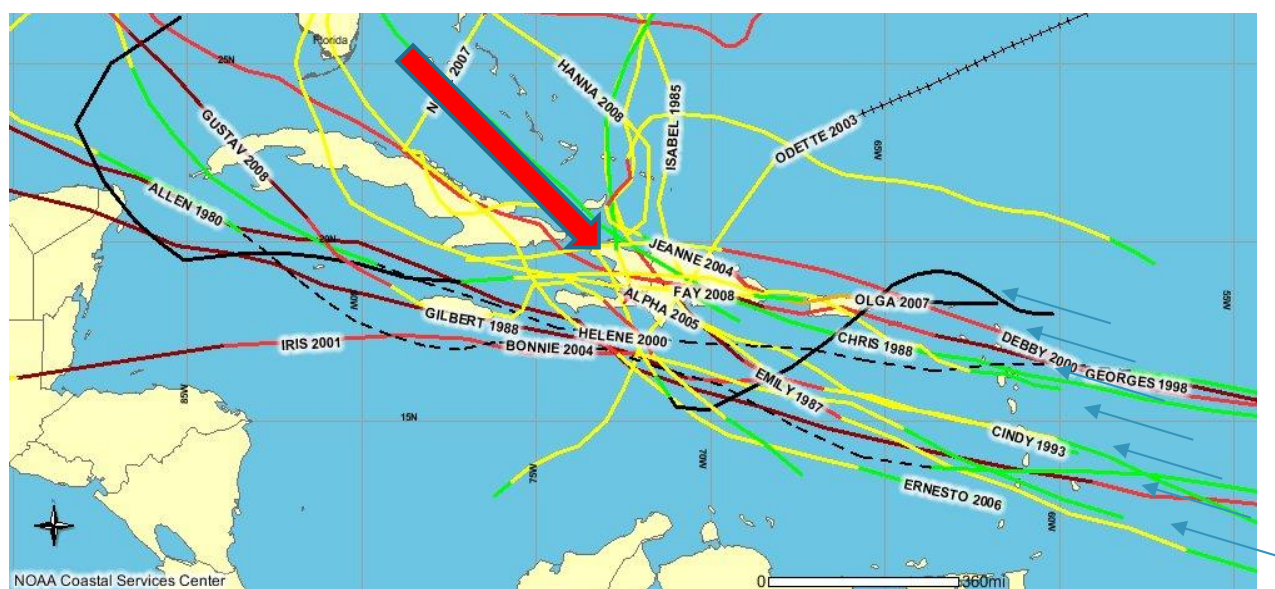
The mainland NW is made up of approximately 40 kilometres wide by 100 kilometres long peninsula, bordered to the north by the windy and rough waters of the Atlantic Ocean and to the South by the placid Gulf of la Gonave. The Montagnes du Nord-Ouest and Terre Nueve mountain ranges extend east into the peninsula ending in Saint Nicolas mountain range (highest altitude point 840 meters high), and the Jean-Rabel mountain range (highest point is 850 meters). Lowlands are found only close to the coast and the most important are the Jean Rabel Valley, the Valley of the Trois-Rivières on the northern part and the Plain of L'Arbre on the southern part of the department. At higher elevations Mare Rouge and Bombardopolis Plateaus are important rain fed agricultural areas. Five rivers in the north (more appropriately called creeks or streams), each corresponding to the major coastal towns and cities, feed into the Atlantic Ocean (La Gorge River is at the most western point in Mole St. Nicolas, Jean Rabel River in Jean Rabel, Trois-Rivières, in Port-de- Paix, St. Louis River in St. Louis, and a river at Anse-a-Foleur). On the South side of the peninsula small rivers reach the Gulf at Anse Rouge and Baie de Henne.

The varying altitudes of the mountains and the position in the cross currents of North vs. South American continental weather systems means that moving north to south one encounters varying microclimates. Areas within twenty miles of one another, such as Baie de Henne and Mole Saint Nicolas, have different rainy seasons. Despite the North/South microclimates, broad ecological zones run the east-west length of the region. The area from the border of the Department du Nord where mountains come to the edge of the sea to the city of Port-de-Paix experiences rains in excess of 1000 mm per year. Moving west, at Trois Rivie a drier zone begins. Desert chaparral is interspersed with fertile plains that depend largely on run off from the mountains. The far western

portion of the peninsula is largely desert with rainfall of 400 mm at lower elevations. However, some areas of the western plateaus, such as Mare Rouge and Bombardopolis to Creve, are areas of high rainfall. Portions of island of La Tortue have the highest rainfall in the region exceeding 2000 mm per annum. Back on the peninsula, the entire coast on both sides is desert or semi desert punctuated at riverine points with narrow strips of irrigated flood plain, such as La Gorge ravine, a ring of springs that encircle the Mare Rouge mountain, and the flood plains of Trois Rivie.

The region is largely deforested. In the humid mountains there are pockets of large trees such as avocados, and colonial introductions such as mangos and bread fruit. As with the rest of the island of Hispaniola, the region lies directly in the path of the Western hemispheres hurricane belt. However, direct hits from hurricanes rarely occur because the island's five mountain ranges to the windward east shield the region from the Southeast to Northwest moving storms, breaking up the winds and leaving only heavy rains.

Figure 5
Hurricanes Since Year 1980



Map by DR-Dave from NOAA

<http://blogs.agu.org/landslideblog/2010/01/15/why-the-haiti-earthquake-takes-us-into-new-territory-for-disaster-response/>

Livelihoods

The geographical features described above--mountains, rain shadows, and the area's location at the crosswinds of two distinct continental weather systems (North and South America)--make for radically different micro-climates distributed over geographically short distances. Livelihood strategies correspond to the different geographical areas (see Table 4). These differences are augmented by the tendency for land in fertile areas to be privately owned while land in arid areas is state land and used communally. In fertile areas where agricultural is intensively practiced livestock is tethered. In arid areas livestock is free-ranged and gardens must be fenced to protecting them from livestock. The different montane vs. lowland climates create the opportunity to distribute risks over the different areas. Many households own or work land in multiple microclimates. Even more significantly, montane micro-climates, their differing rain patterns, and the consequently differently timed harvest seasons means that produce is available year round, something that makes it logical for farmers to sell their crops rather than risk losing them to insect and mold and then store surplus in the form of money, buying foods stuffs in the market as needed. Confronted with politically and economically unfavorable circumstances, distinct climatological features have also, over the past two centuries, given way to specific adaptive strategies and an intense and regionally integrated market system discussed in the next section, the understanding of which is critical to making development projects successful in the region.

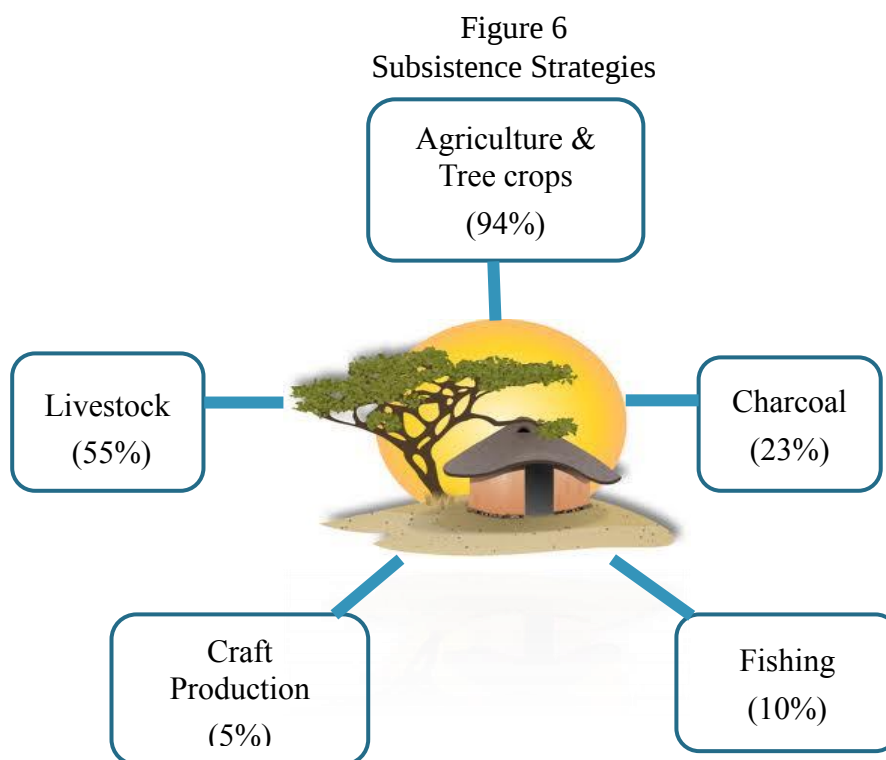
Table 4: Geo-ecological livelihood zones

Geo-ecological livelihood zone	Crops and animals
1) Dry coastal	Livestock: goats, chickens, guinea fowl, pigeons, and cows where water is close; Charcoal from chaparral. Crops: peanuts and where possible manioc and sweet potatoes, millet, corn
2) Dry foothill	Same as above
3) Dry mountain	Same as above
4) Humid mountain	Livestock: goats, cows, pigs, chicken; charcoal from some trees; lumber; Crops: peanuts, beans, millet, sesame, melon, castor beans (for non-edible oil), corn; plantains, bananas, manioc, yellow yams, sugar cane, pigeon peas, fruits trees,
5) Humid plain	Same as above but less peanuts and more plantains
6) High altitude mountain	Livestock: goats, cows, pigs, chickens, guinea fowl, pigeons; Crops: beans, yams, carrots, cabbage, lettuce, spices...(some, but few types of fruit trees). Lumber.

Production, Subsistence, and Technology

Only 578 miles from Miami, and with as much as 50% of the native born population living overseas or in Port-au-Prince, subsistence strategies in the area are alarmingly simple. Drawing on data from commune Jean Rabel, where 1/3rd of the target population is located, more than 80% of houses are made of local stone or wattle and daub, have dirt floors, and are roofed with plaits of grass or palm (Schwartz 2009). The principal three productive activities for generating household revenue and sustenance come from agricultural (94%), livestock rearing (55%), and charcoal

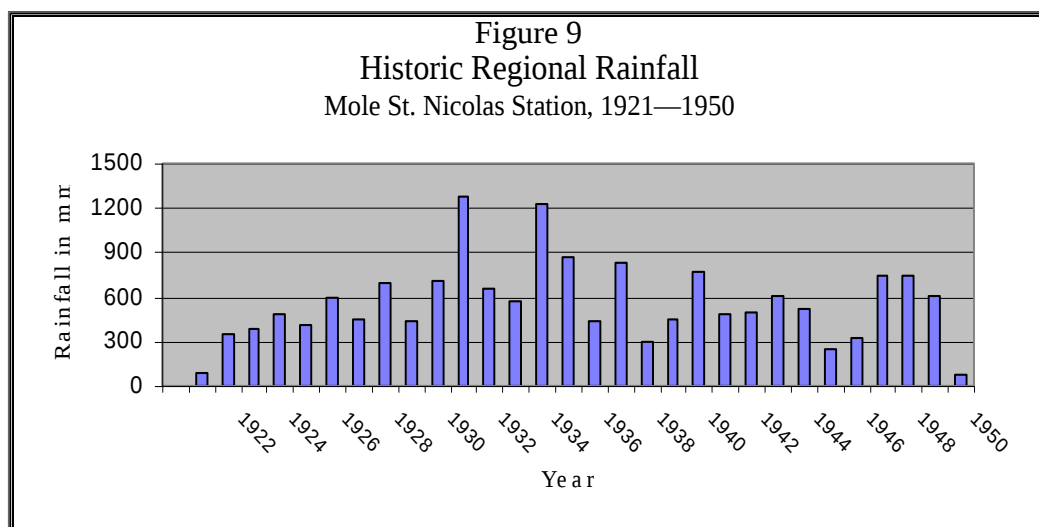
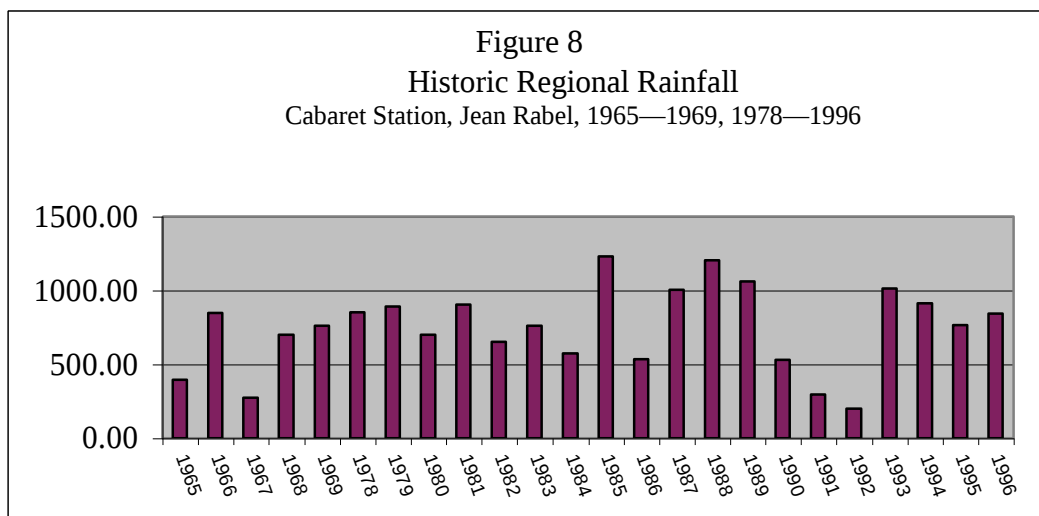
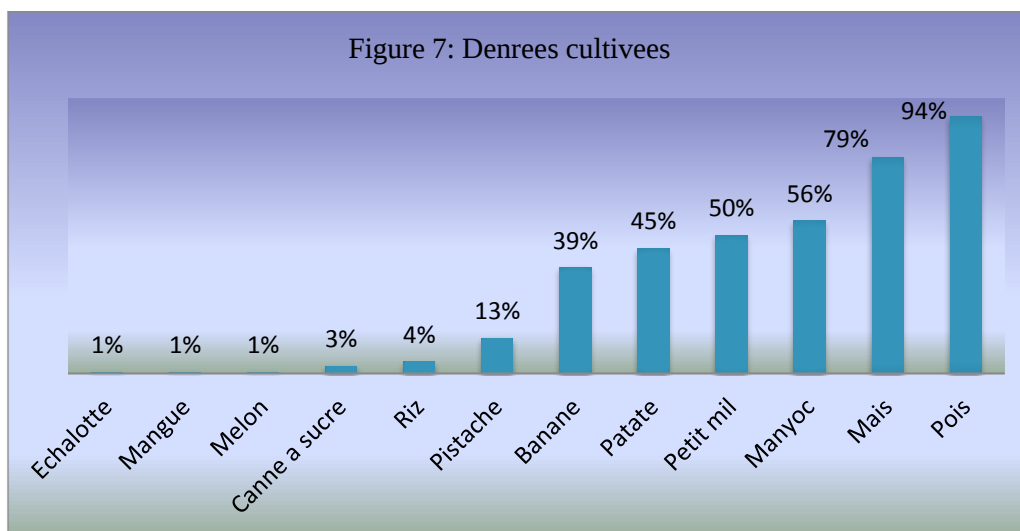
production (23%).^{iv} Another 10% of households in the region are also engaged in fishing. A fourth common productive activity is craft specialization (5%).



Percentages from Schwartz (2009)

The tools used in performing agriculture strategies are, for the vast bulk of the population, no more complex than picks, hoes, and machetes. Animals are free ranged in dry areas but in humid areas where agriculture is more common they are tethered to bushes with rope. One does not even see barbed wire; rather, gardens, homesteads, and the rare corral are enclosed with wooden stick barricades or living fences made of fast growing and malicious vegetation such as dagger-like sisal, cacti, and poison oak (*katoch*, *kandelab*, *pit*, *pigwen* and *bawonet*). Fishing technology is largely rowboats, bamboo fishing traps, and string nets. Only a few specialists use cows or horse traction to plow fields. There are few pumps; farmers with gardens plots near to springs and rivers sometimes manually haul buckets of water to irrigate crops, particularly vegetables in cool highland areas. Irrigated works are scarce, a number of them constructed or rehabilitated by IFAD-financed projects. The use of chemical or processed fertilizers and pesticides is almost entirely confined to highland vegetable gardens and, to a lesser degree, beans (also considered a cash crop). The most important crops in the region are highly drought resistance, intercropped and offer the advantage of providing year round harvests.^v Another 13 different fruits trees add to the adaptability and subsistence security of the strategy. The strategy is emphatically focused on risk avoidance and long-term survival within a regional economy; it is just as emphatically not focused on entrepreneurialism, maximizing profits, and short term exploitation of distant economies.^{vi}

Table 5: The Most Commonly Plant Crops (n = 1,539)^{vii}



Relations of Production and Gender

In the harsh environmental and economic conditions described above people in the region organize labor around the household. Everyone living in the region belongs to a household. Fifty-three percent of households in the area also organize into multi household compounds, primarily based on extended families (extrapolated from Schwartz 2009). Mutual efforts of household members are what make the integrated livelihood strategies described above possible: garden plots scattered across multiple ecological zones, animals tied at great distances from the household, charcoal production. The extent of the challenges is underscored by the fact that in Jean Rabel, the average distance people living in rural areas must travel to and from their homes to retrieve water is 67 minutes (Table 8). The distance doubles during drought when springs dry up. Children are critical contributors to the endeavor to maintain productive household strategies and begin making significant contributions at the age of about 6 or 7 years. Sexual division of labor is also a conspicuous feature of the household organized labor strategies. Women are thought of as the managers of households if not the household heads. They direct the labor activities of children, are the primary disciplinarians and, in the absence of men, they care for livestock and tend gardens. Table 9 summarizes average labor needs in hours per day, and days per week for the commune of Jena Rabel. Tables 10 and 11 illustrate the market vs. subsistence orientation of livelihood strategies, the extent of investments in inputs depending on type of crop, the monetary vs reciprocal characters of labor recruitment and integrated male female roles with relation to agricultural production discussed above.

Table 8: Average Distance Household to-from water: rural Jean Rabel

		Round trip distance in minutes			
	N	Min	Max	Mean	Std dev
When there is rain	12	1.00	240	67	58
When there is no	12	1.00	360	120	80

Source: Schwartz 2009

Table 9: Average daily labor requirements for principal household tasks

Task	Frequency per day	Days per week	Avg # hours per	Avg. time	
				Min	Max
Morning house cleaning	1	6	1–2	6.0	12.0
Weekly house cleaning	1	1	3–6	3.0	6.0
Water carrying	1–4	7	1.2	8.4	33.6
Morning meal	1	7	1–2	7.0	14.0
Afternoon meal	1	7	2–4	14.0	28.0
Gathering fire wood	1	7	1–3	7.0	21.0
Laundry	1	2	6–12	12.0	24.0
Walk to	1	3.5	2.5	8.8	8.8
Trip to market	1	2	4	8.0	8.0
Total	—	—	—	74.2	155.4

Source: Schwartz 2009

Table 10: Adult sexual division of labor (N = 1,482) (Schwartz 2009)

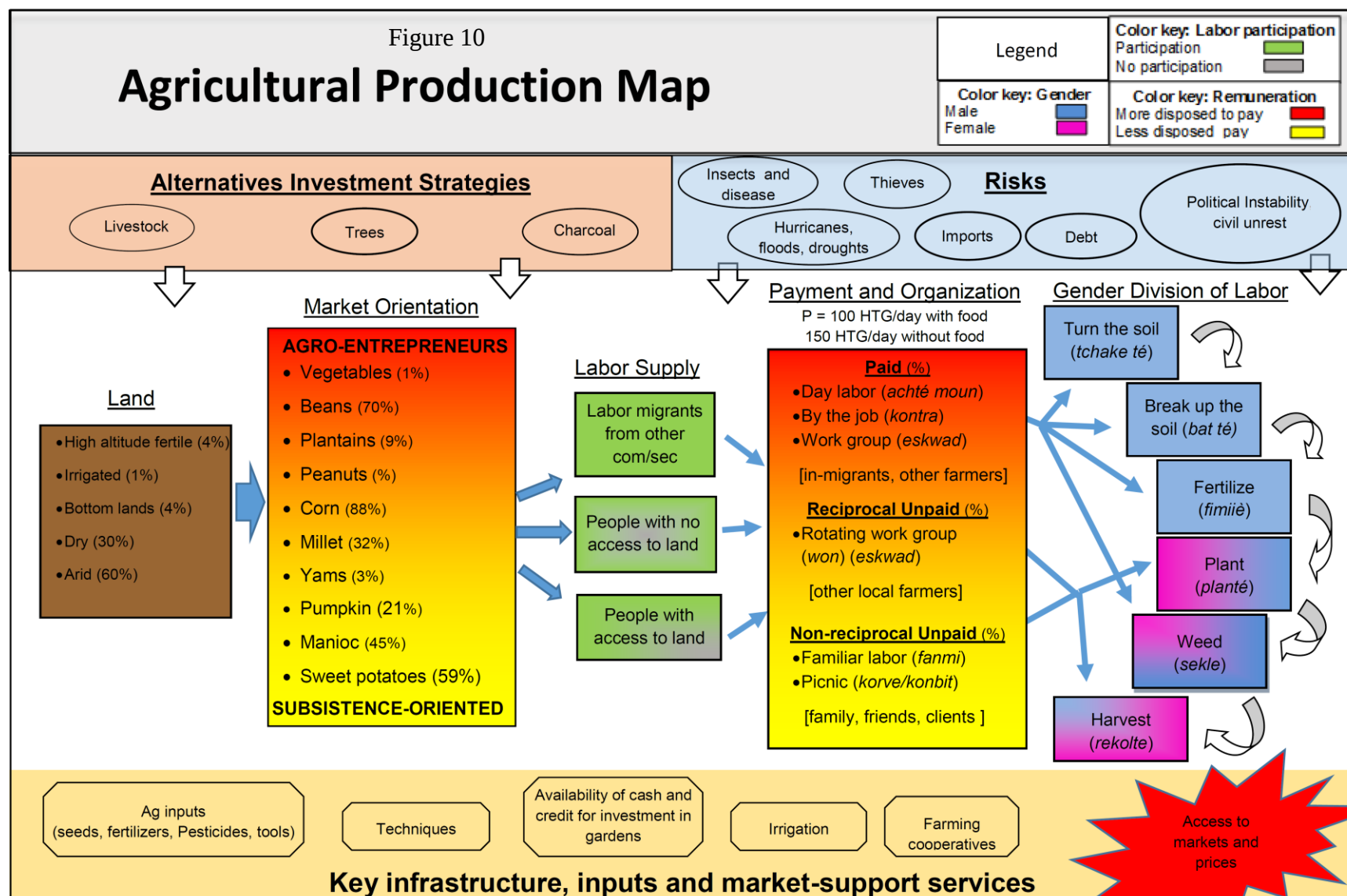
Task	Male	Female	Both	Male, female, and both	Neither	Total
Housework	5.4%	86.0%	6.7%	98.1%	1.8%	100.0%
Cooking	5.6%	87.6%	4.6%	97.8%	2.4%	100.0%
Childcare	5.3%	77.1%	7.4%	89.8%	10.3%	100.0%
Carry water	6.7%	79.1%	7.8%	93.6%	6.4%	100.0%
Sell produce	6.1%	75.2%	4.6%	85.9%	14.2%	100.0%
Sell livestock	24.4%	34.6%	22.3%	81.3%	18.8%	100.0%
Tend livestock	58.4%	11.7%	16.4%	86.5%	13.5%	100.0%
Garden work	58.7%	13.8%	20.9%	93.4%	6.6%	100.0%
Wage labor	24.4%	5.8%	3.0%	33.2%	66.9%	100.0%

Note: Neither means no children in the household perform the task. Includes households with no children and only toddlers.

Table 11: Child sexual division of labor (N = 1,482) (Schwartz 2009)

	Male,					
Housework	11.7	49.2%	14.8	75.7	24.3	100.0
Cooking	12.4	46.9%	13.5	72.8	27.2	100.0
Childcare	9.8%	40.4%	12.3	62.5	37.5	100.0
Carry water	13.4	28.7%	31.5	73.6	26.4	100.0
Sell produce	10.9	10.6%	10.1	31.6	68.4	100.0
Sell	5.1%	22.1%	5.7%	32.9	67.1	100.0
Tend	40.7	5.6%	10.2	56.5	43.5	100.0
Garden	39.1	4.4%	9.2%	52.7	47.3	100.0
Wage labor	5.6%	1.2%	1.5%	8.3%	91.7	100.0

Note: Neither means no children in the household perform the task. This includes Households with no children and only toddlers.



Market System

As seen above, most households in the area engage in at least three main productive endeavors: agricultural production, livestock rearing and charcoal manufacturing. Charcoal is an economic endeavor especially critical during times of crisis, particularly drought. Fishing and craft production are also important for a minority of households. All of these productive activities are integrated in the vigorous regional market system, such that the vast majority of households also depend to a large extent on profits from “commerce.”

Figure 11

Principal Household Income Activities in the Commune of Jean Rabel

(N = 1,519; Schwartz 2009, p 145)

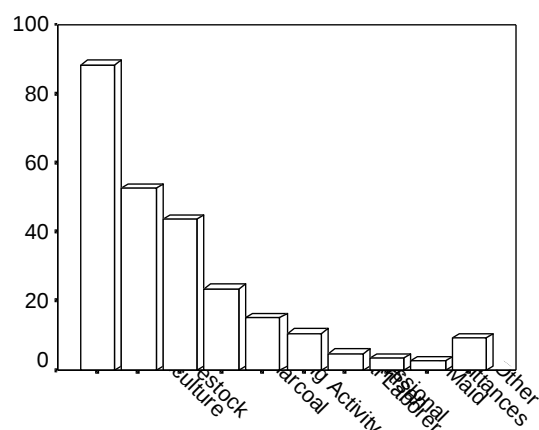
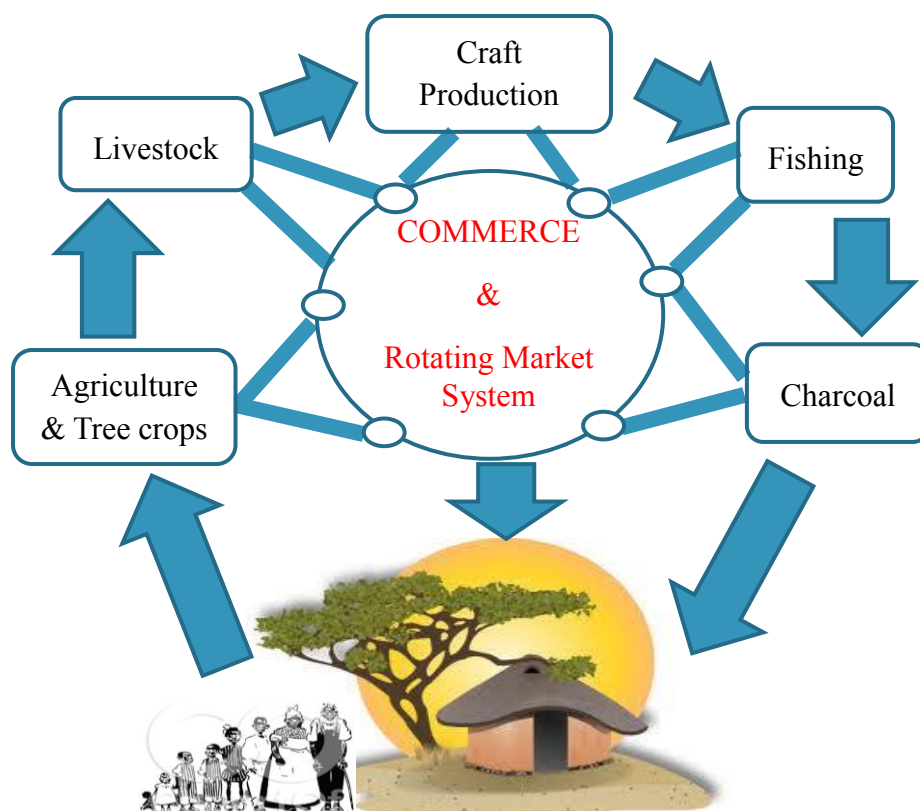


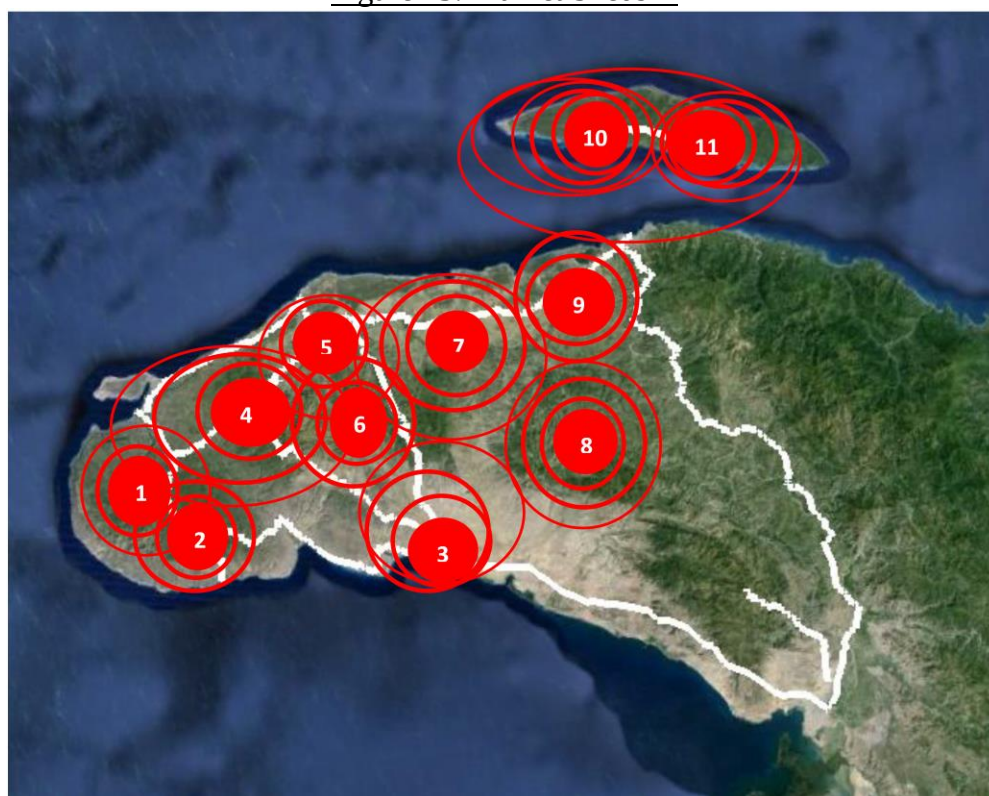
Figure 12



Integrated Household Subsistence
Strategies and the Market
(~hshld = 5.2 members)

Trade within the region is characterized by an Internal Rotating Market system. Open air markets occur on alternating days of the week such that people living in any given region have walking distance access to at least two markets per week. As with production, the character of marketing in the region emphasizes subsistence, reduction of risk and survival of the household. It is a system based on cash and not barter; it is emphatically oriented towards subsistence and local production. The overwhelming bulk of products sold are inexpensive, locally produced. With respect to the profits that a trader earns, the bulk of the money is destined for reinvestment in commerce, other income generating enterprises – such as fish traps – subsistence foods and necessities for the household and, ultimately, the growing '*mama lajan*' (literally "mother money," or more technically, the principal or capital) preserved for economic recuperation during times of crisis.

Figure 13: Market Sheds^{viii}



- | | | |
|------------------|--------------------|-----------------|
| 1. De Forge | 5. Jean Rabel Town | 9. Pasquetabois |
| 2. Bombardopolis | 6. La Reserve | 10. La Palmis |
| 3. Anse Rouge | 7. Lacoma | 11. La Vallee |
| 4. Mare Rouge | 8. Beauchaunn | |

Some markets are more centrally located regarding other markets and towns. These can be thought of as focal market places serving a greater market shed. Most of these are in rural areas and lie outside of county seats, such as De Forge, Mare Rouge, Lacoma and La Reserve. PRAE will choose six markets based on the region where they are located and the size of the population in the market shed the serve. Prime candidates are Mare Rouge, De Forge, Anse Rouge, Lacoma, Paskatabwa

Up until the previous decade, all that is being described occurred, and has been occurring for 2 centuries, in the near total absence of State services. With the exception of taxing animal sales and market vendors, providing security in the form of police, and assistance with education, the State has been largely absent. The vast bulk of road work, investment in irrigation, and agricultural extensions services have come from, as mentioned in the introduction, NGOs, missionaries, and international agencies.

Market Roles, Relations and Gender

The opportunities presented in the regional rotating market system has facilitated the evolution of intense interregional trade dominated almost entirely by women. All adult women in the rural areas trade. It is the primary female career opportunity in the region. Regarding domestic production, there are two types of traders: the *madan sara* (trader) and the *revande* (resellers).

Madan Sara

The *madan sara* is the itinerant Haitian marketer. Ranging from a micro to an intermediate level wholesaler, she is the principal accumulator, mover, and distributor of domestic produce in Haiti and as such she represents the most critical component in the regional rotating marketing system. She moves from rural to village to town or urban markets. She may buy from a farmer (almost always a female farmer or wife, mother, sister or daughter of a farmer). The *sara* sometimes buys at the farm-gate using local networks of family, friends and neighbors, but more commonly she buys at extra-market trading points near the home of sellers (~60%) or at the rural markets themselves (~40%). She then either resells the produce to another *madan sara* at a local market, takes it to a larger more distant rural or provincial urban market for resale to other *sara* or *revande*, or she hauls it to Port-au-Prince to be sold to *revande*. Depending on the distance traveled, her profits vary from 30% to 100% (estimates are based on Stam 2013 and Schwartz 2009).

The *madan sara* capital ranges from the poor market woman with as little as US\$2.00 and who walks to local markets; to the average woman who has US\$50 in capital and a pack animal that she loads with local produce and hauls to provincial city (in this case Port-de-Paix); to the heavily capitalized *sara* who deals with US\$1,000, leases a truck to haul quantities of produce that may measure in tons. If she travels to Port-au-Prince, she typically stores her goods in warehouses open to the public and frequented by other *sara*. She sells her produce in a matter of days. More than half of the time (~64%) she provides goods on credit to *revande*, a retailer, or other *sara* who detail in low level, wholesale redistribution.

To perform as a *madan sara* a woman has to be free to travel, leaving home for several days to a week. In her absence someone has to care for the home, a *de facto* productive business enterprise that never stops processing foods to feed itself and fuel the woman's trade ventures. This means that *madan sara* tend to be women at least 30 years of age with teenage children capable of managing the homestead in her absence.

It is important to emphasize that these are mature business women fully engaged in the local economy at multiple levels. Stam (2013) found that 46% of the *sara* in her 163 sample had their own field(s) owned independently of a male spouse; and more than half of these women hired non-familial labor to work the land (84% of the land was inherited).

Revande

The *revande* (reseller) may be either retailer or intermediate wholesaler. What distinguishes her from the *madan sara* is that she purchases locally and sells locally. She may purchase from a *madan sara* or a larger *revande*. The purchases may be made in the same market or at a nearby depot. The *revande* may herself sit in the market or she may walk the streets or set up in another nearby market or street side site.

It is important to emphasize that the *sara-revande* system is such that women may sell daily small quantities of items produced by the household- such as eggs, manioc or pigeon peas. But the prevailing strategy is for one woman, whether *revande* or *sara* to specialize in a particular item, such as limes. If she is a *sara* she accumulates a profitable quantity, and then takes them to market or sells them to another intermediary higher up the chain, one more heavily capitalized, who accumulates greater quantities and who is likely destined for a larger town market, city or, the holy grail, Port-au-Prince. It is also important to emphasize that the goal of female marketing is not simply to accumulate profit but rather to offset household expenses and consumption of capital. Put another way, the female market woman aims to extend the household budget and the production stored in the form of cash by rolling it over in the market. The system articulates and is conditioned by risk reduction, such that the *sara*-farmer will and most often does eliminate risk of loss to spoilage or pests by selling all of her own harvest to other *sara* at a price lower than she would fetch were she to take the produce to a market or the city herself. She then uses the money to engage in trade, buying smaller quantities from other women who are dumping their own household products. All this means that there are at least three significant entry points where IFAD can help farmers and marketers increase revenue: 1) Grants and business training so that rather than dumping their harvests, farmers can increase value added through processing, and 2) packaging, storage and transport so that marketers can reach higher end markets without losing produce to spoilage.

Figure14

Komèsan

The other most significant marketing agent in the regional economy is the ***komèsan*** (distributor). As or more often a man than a woman, the *komèsan* is the handler of durable staples imported from overseas. He or she moves in the opposite direction than the *sara*, from urban to provincial city, town, village, rural market place or boutique.

The ***komèsan*** is heavily capitalized, often has access to a line of credit and always moves his or her sacks of rice, flour, sugar, beans or cases of edible oil by truck. She/he owns or leases a warehouse, store or storage facilities. The *komèsan* profit margins are as low as 5% and seldom exceed 20 percent. Turnover rates can exceed one month.

Risk: ***Madan Sara vs Komèsan*** , Capital and Credit

The ***madan sara***, almost always a spouse of a farmer or farmer herself, is a primary target beneficiary of PAER. Urban based merchants (*komèsan*) and consumers also stand to benefit from the opportunity to purchase improved quality rural produce. However, in assisting with

aggregation, processing and packaging, PAER anticipates that the *komèsan* could use his or her access to high credit, warehouses and urban purchasers to displace the *sara* from her traditional role. The potential is evident in an already inimical exchange that often occurs between *komèsan* and *sara*, one that comes about precisely as a result of the differential access to capital, credit and contacts.

The *komèsan* in provincial towns employs a devious, if unplanned, tactic, one that undermines the *madan sara* and the internal marketing system: he/she gives the *sara* credit. But not any credit. The *komèsan* offers the *sara* sacks of imported flour, rice, corn, and sugar at no interest. The *sara* in need of cash often takes the bait and is thereby drawn into an insidious web. The *sara* exploits the credit as a loan. She accepts the contract but then turns around and sells the sacks of food for less than cost, for she knows that even if she takes the loss, she can use the money to make far more profit in the internal marketing system of the local produce (by a factor, adjusting for time, of about 25 to 1). But what seems like a good deal for the local market agents, has a hidden, long term cost to local agriculture production and to the economy of the country. The effect is an artificial price reduction for imported goods because the purchaser can now resell the imported food at a price below the real cost. By doing this, by selling the imported foods at less than cost, the *madan sara* has *de facto* used profits from the Haitian internal market system to subsidize imported US and EU grains--crops that have already been heavily subsidized by their respective overseas governments, not least of all the United States, France, and Canada. To promote local production and place it on a fair playing field with imported, subsidized produce with heavily capitalized *komèsan*, IFAD can take two actions: 1) get the *komèsan* involved in the purchase of and movement of local produce, and/or 2) intervene on behalf of the impoverished *sara* and local market through provision of credit at reasonably low rates of interest. The two are not entirely compatible. IFAD targets poor women and so will focus on credit to lowest income groups, training and assistance in becoming members of entrepreneurial enterprises, making these enterprises successful.

Figure 15

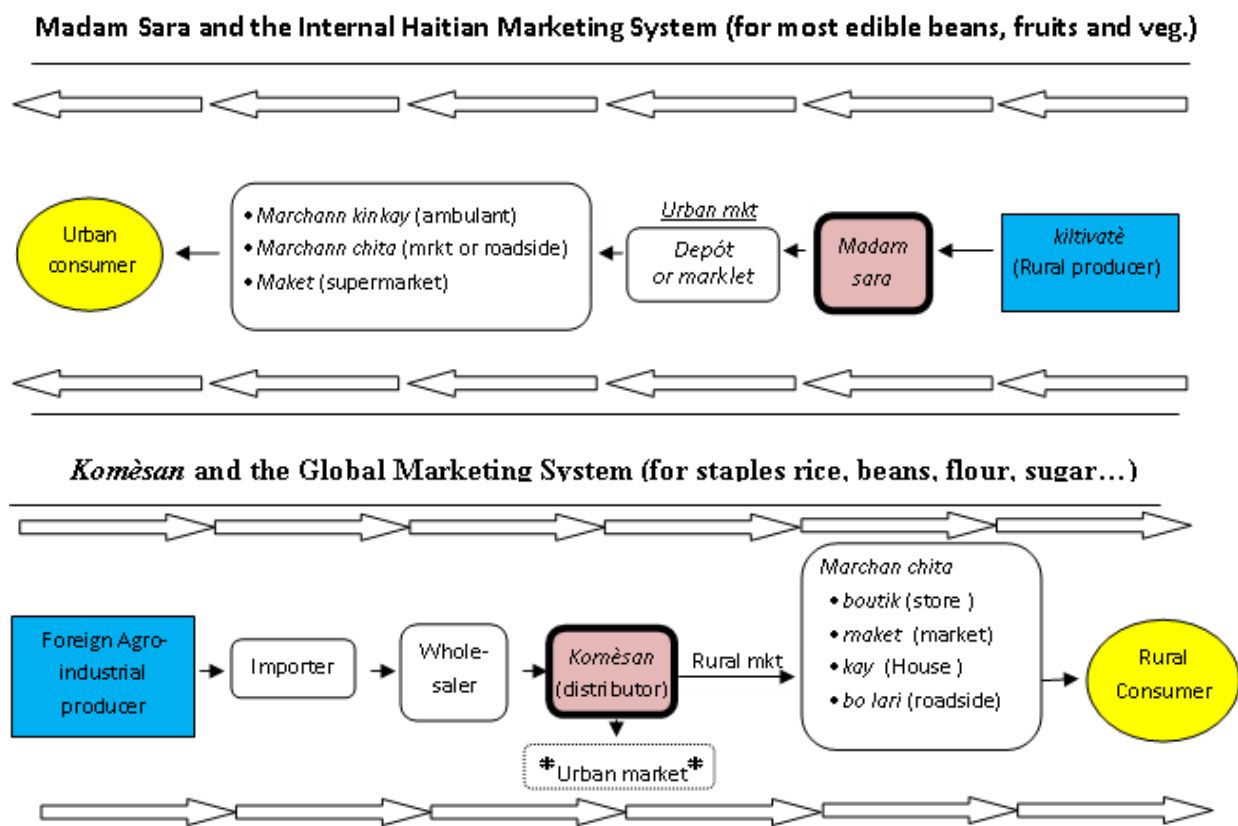


Table 12: Sales by Gender (N = 1,482)

Task	Male	Female	Both	Male, female, and both	Neither	Total
Sell produce	6.1%	75.2%	4.6%	85.9%	14.2%	100.0%
Sell livestock	24.4%	34.6%	22.3%	81.3%	18.8%	100.0%

Source: Schwartz 2009

Risk: Poor women vs. wealthier and educated men in production, marketing and processing

The risk to impoverished market women is not limited to competition with the *komèsan* mentioned above. Processing and trade are, as seen, the principal career opportunities for poor farmers, especially women. The low to mid-level processing and itinerate trade in domestic produce, livestock and fish are, with the exception of cattle, almost entirely the economic activities of women. Men in the target area work gardens, they care for livestock, they make charcoal, and they fish. Wealthy men also dominate the higher ranks of wholesale marketing in imported goods and any type of mechanized processing. And very importantly for the point here, men also almost completely monopolize the local political leadership roles, including in associations and other CBOs. This is particularly true for men of higher education and greater economic means. Only in the case of women's organizations do females assume these roles. Thus, by creating aggregation and processing centers in rural areas the market chain will operate more efficiently. However, there is a risk of reducing female participation. The establishment of modern mechanized bulk aggregation and processing facilities could result in poor women meeting a new competitor, men. And not just any men, but rather the higher educated and relatively wealthier men mentioned above. If we link processing and aggregation centers to male dominated associations we run the risk of encouraging men and especially wealthier men to encroach on the economic roles and opportunities that were the traditional domain of impoverished women. Indeed, when we set gender quotas for female participation in the associations or in the processing and aggregation centers at 30%, or even what seems like a very high 50%, what we may in fact be doing is setting male participation rates at 50% and 70%, this in a sphere of activity that hitherto involved few to no men at all. To avoid displacing women from the market, the programme has guidelines for eligibility. For example, priority will be given to processing fish and horticultural products. Rural women producers and traders will be represented in the Steering committee.

Crafts

The market system described above bleeds over into a burgeoning economy of micro-producers, service specialists and petty vendors including porter, butcher, baker, tailor, basket maker, rope weaver, carpenter, mason, iron smith, mechanic, mariners, boat maker and host of marine construction specialties. The intensity of the indigenous craft industry should not be overlooked as an entry point for IFAD. Organizations such as Ethical Fashion Initiative have taken the factory to the field, allowing rural people, especially women, to preserve traditional and risk avoiding livelihood strategies and involvement in the household and child rearing while significantly increasing income from craft production for the high-end fashion market.

Summary of Market System

What we see in the rural market system described above are patterns and relationships sometimes difficult for development practitioners who have not lived and worked in the region to fully grasp. An examination of local livelihood strategies of the majority of farmers living in the North West Department, those who do not have access to illicit business opportunities or relatives in Miami,

suggests that livelihood strategies differ little from those practiced during the pre-Columbian and buccaneer eras 350 to 500 years in the past and are far less technologically and organizationally complex than those that prevailed during the colonial epoch. The anachronistic character and tenacity with which people all over Haiti cling to these strategies and their resistance to adopting or maintaining new material and organizational technologies is a major impediment to the success of most programmes financed by international development agencies. It confounds foreign development workers and corporate investors who come to Haiti. Yet, from the perspective of adaptation to crisis the system is eminently logical. Adapted over the past 209 years of independence to periodic droughts that occur on average one in every eight years; the 25 wars and uprisings and 60 years of international trade embargoes that occurred during the 1800s, a trend that continued through the 20th century with an equal number of violent conflagrations, civil unrest, revolution, and more embargoes to the first tumultuous 15 years of the 21st century, Haitians are stuck on an island surrounded on three sides by water and one side by a neighbor who once, under the influence of a despotic dictator dispatched convicts, prisoners and military to massacre, with blades and in the space of three days, 25,000 of those ethnic Haitians living on their side of the border. The rural population has had little choice but to adapt. They have done so by cultivating dependency on those forces they can control: the technologically simple, integrated production, processing, and marketing strategies seen above. ^{ix}

In this way the system can be conceptualized as a regional survival-oriented strategy that links household, communities and ecological zones through the rotating market system, and in doing so averages the impact of crisis out across the landscape. Part of the reason that it has been so effective is that Haiti's mountainous terrain and corresponding micro climates have meant that environmental crises that would impede production at the household level rarely impacts an entire region. When it does, such as with Hurricane Sandy of 2012, the people are able to turn for food to their garden and artisanal fishing or to cash reserves of their *mama lajan* (market money); for new cash, they turn to the sale of livestock and charcoal production for the urban market. In respecting these fallbacks and acknowledging that many times over the past 50 years “development” and “relief” organizations have not helped but rather pulled out when the people in the region were faced with such crises—such as political crises 1991-1994 and 2002-2004--we should keep in mind that, while not perfect in terms of business and maximizing profits, these are the strategies that have made it possible for our farmers to survive. For them, based on 50 years of experience, ‘development’ = empty promises, while,

Household = social security

Children = labor

Marketing = female guarantee to survive and feed her children

Charcoal = emergency fund



(Household + Children + Market + Charcoal) = Survival

TEXT BOX

MARKET vs. SUBSISTENCE

The livelihood strategies that prevail in the area and throughout Haiti are not – as sometimes thought by observers – subsistence strategies in the pure sense of the word. The people in the region do eat some of the plants they cultivate and the fish they catch. But they are oriented toward cash as a form of storing surplus and the market for subsistence purchases. Tables 13 and 14 and Figure 16 below illustrate the degree to which people in the region eat vs sell what they sow. It could be said that, with few export market opportunities and the political and economic instability that prevailed during the 1980s and 1990s, farmers in the region were driven into a near stone-age subsistence strategy. The first 6 years of 2000 were worse in terms of political instability and disrupted market chains. The contemporary Haitian Government and IFAD are part of a movement to change the situation.

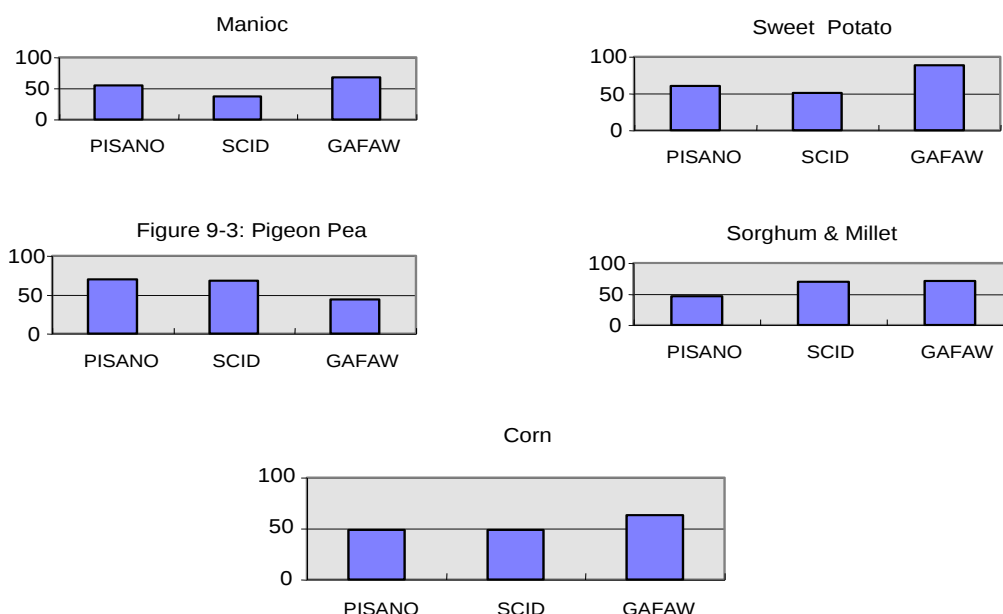
Table 13: The Gardens vs the Market

	Frequency	Percent
Garden	19	13.7
Market	119	86.3
Total	138	100.0

(AAA Thomas Hartmanship)

Table 14: Garden vs. Market II (Schwartz 2009)			
	Market	Garden	50/50
Plantain	61%	2%	23%
Greens and fruit	16%	41%	34%
Corn	56%	5%	36%
Sorghum	68%	5%	16%
Manioc, sweet potato, yam	31%	11%	44%
Haricot*	37%	7%	43%
Rice*	70%	1%	0%
Meat and fish	96%	4%	0%

Figure 16: Percent of Harvest Consumed by Household (Department NW; AAA 1998)



Market Chains

Plantains

The US Standard Fruit Company once paid growers in the target region to produce bananas. The produce was loaded onto refrigerated freight ships in Bord de Mer harbor at Jean Rabel and shipped directly to the United States. In the late 1940s the Haitian government nationalized the industry, ending banana exports. The government company subsequently folded. Production soon shifted almost entirely to plantains, one of Haiti's most popular domestic staples. Today the North West Department and the commune of Anse Rouge produce an estimated 26,700 tons of plantains per annum.^x According to the Haitian Ministry of Commerce and Industry (MCI) regional production per hectare is 7.2 tons per year in the mountains and 18 tons per annum in irrigated plain areas with a potential to reach 40 tons per hectare.^{xi} In the five target communes in the mainland NW, there are five areas where significant quantities of plantains are produced (see Figure 17). Facts about plantains and regional growing and marketing practices that have been considered include the following,

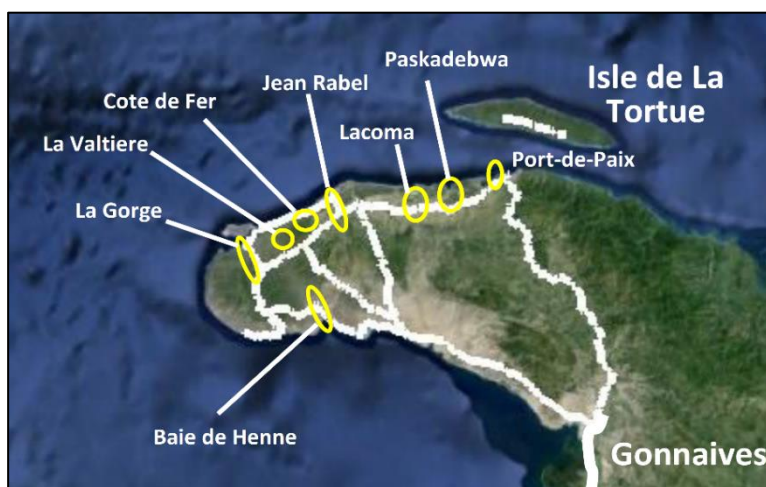
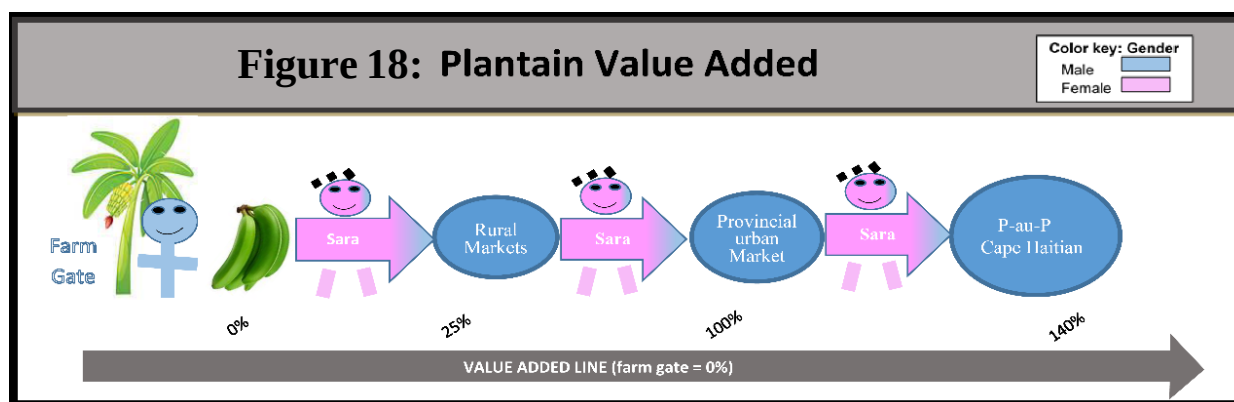


Figure 17: Map of Irrigated Plantain Production Sites

- It is largely a male cultivated crop
- Unlike most other crops, the market chain often begins in the garden, where market women will purchase bunches of plantains directly from the farmer
- Plantains, as with all products in rural Haiti, are sold based on unit and volume, not weight
- Farmers cut the plantains green, after which they slowly ripen and have a shelf life of 2 to 4 weeks
- Nevertheless, foul weather and unreliable transportation result in occasional losses or shotgun sales at below market price
- Green Plantains have a natural tough exterior skin, which protects bruising, pack and ship well.
- That value added between farm-gate in the target region and Port-au-Prince exceeds 100% (see Figure 18)



Opportunities: Researchers in West Africa report that spoilage and rough handling result in post-production losses of from 20% to 40% of the harvest (EPAR 2013). The use of coolers and plastic containers can increase shelf life from 14 to 27 days (ibid). Although in the target areas producers and marketers have adapted a system of harvesting, transport and sale that typically results in moderate losses, there are still times when losses are significant, such as after heavy rains when roads are cut or when a local bus is out of service. Access to cold storage and containers could offset losses at these times. Transformation is also an area of promise. Sun-dried plantain chips double the value of raw plantains sold in urban Haiti. Plantains and bananas can both be used to make flour, baby food, bread, wine, beer, juice, porridge, and a type of ketchup. People in rural areas use plantain stalks to weave sleeping mats that could be marketed in urban areas. Rope can also be made from the dried stalk. Stems are used in cloth and paper production. Peels are a nutritious fodder for animals. The national dish in the neighboring Dominican Republic is *mangu*, smashed plantains mixed with lime juice, eggs, onions and spices. *Mangu* provides a high protein staple that, if frozen, has a shelf life of 8 to 12 months. People in Haiti inexplicably do not make *mangu*, a significant market opportunity. In the Democratic Republic of the Congo similar entrepreneurial projects have increased value added to farm gate produce by a factor of 4 to 5 times typical profit margins (see SCED 2001; Banana Link 2014; CGIAR 2014).^{xii}

Limiting Factors: Plantains are effected by 15 pests and 14 diseases.^{xiii} The most significant is Black *Sigatoka* fungal disease, currently wiping out the traditional varieties of plantains throughout Haiti. When it hits, 80% of the crop is lost; what remains loses 80% of its nutritional value.^{xiv}

Mitigating Measures: The project will collaborate with the IFAD-financed PPI-2 project that is supporting irrigation crop production. It will ensure the risks associated with Black *Sigatoka* are addressed through the promotion of resistant varieties. PRAE will help production through increased coordination among producers, orchestration of bulk aggregation through storage and shipping centers; and improved roads and marine transport. Phytosanitary certifications will also aid in accessing high end purchasers. Another significant opportunity is to increase sales and value added through the processing of products discussed above. Once the associations have been trained and reformulated into entrepreneurial corporate enterprise groups, it is envisaged that groups will invest in some of the above-mentioned opportunities.

Materials:

Risks: Black *Sigatoka* fungal disease.

Sustainability: Areas of the North West that grow plantains are predominantly irrigated bottom land and ravines. Plantain trees shade and help conserve the soils. If farmers can overcome or avoid *Black Sigatoka*, production is stable and consistent. Nevertheless, increased production requires significant improvement in crop husbandry in a high input-high output agricultural system, meaning pesticides and fertilizers that to reduce impact on the environment must be chosen carefully or replaced altogether with intensives and costly insect trap campaigns.

Vegetables

Opportunity: Following up on IFAD-supported PPI-1 and PPI-2 investment in irrigated zones and vegetable production, there is an opportunity to facilitate regional farmers in getting onions, cabbage, carrots, garlic, and shallot to market through aggregation, storage, improved packaging, and market access connections to an local and high end urban purchasers. Extrapolating from FAO (2012), the North West and the commune of Anse Rouge together produce 12,500 tons of vegetables.^{xv} Cost differentials between farm gate prices and high end urban market exceed 100 percent. But it is known that marketers in areas far closer to Port-au-Prince lose an average of 25 percent of the harvest to spoilage (Stam 2013). Appropriate storage and packaging can offset these losses and result in significant increase in income. Developing the vegetable value chain also lays the foundation for future entry into fruit processing and marketing.

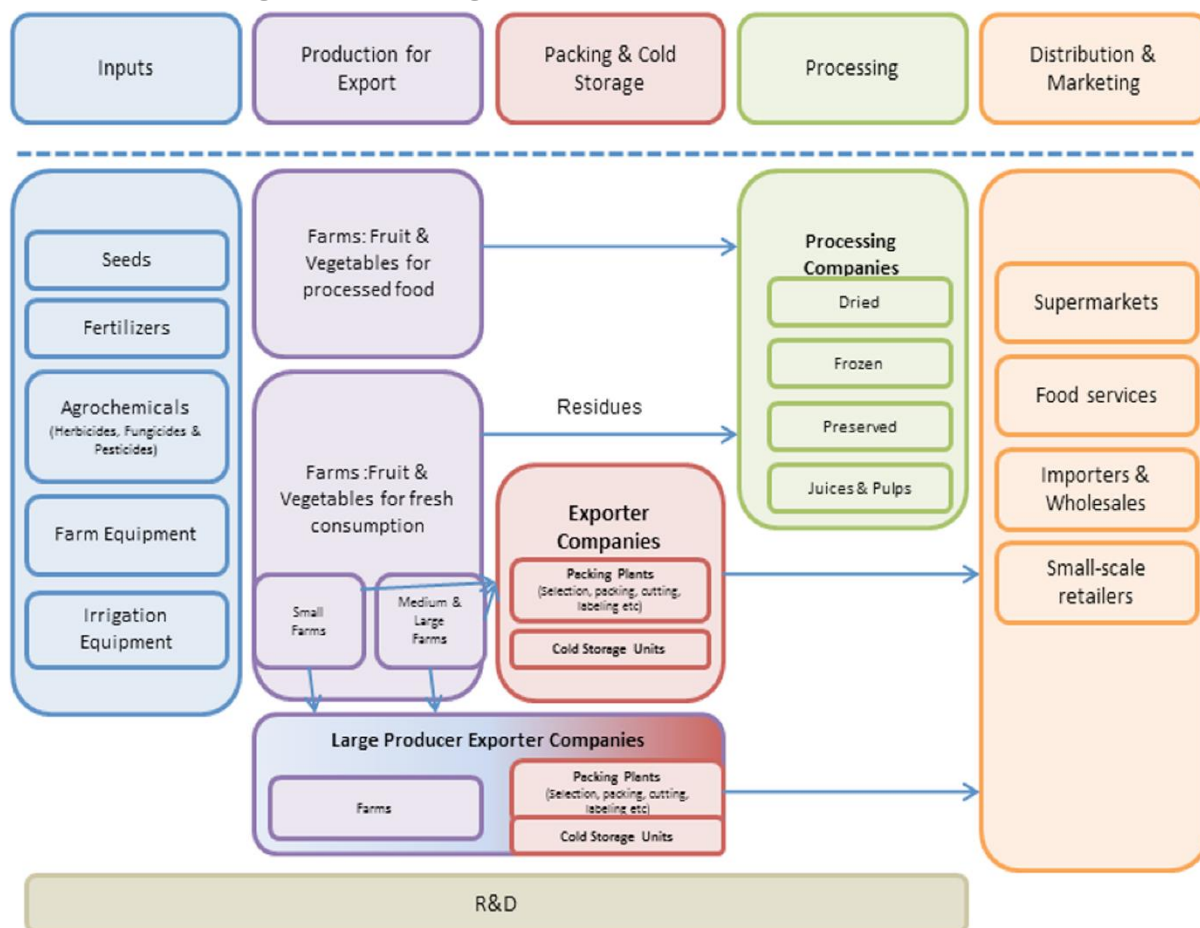
Limiting factors: Production is limited by access to and cost of seeds, fertilizer and pesticides. Post production gains are limited by timing of the harvest, poor aggregation, packaging, and transport technologies. To efficiently meet urban market demands of farmers-- most of whom have only small parcels--should coordinate planting to facilitate timely bulk transport, reduce spoilage, and meet demands of potential urban purchasers. Phytosanitary controls and monitoring are important in assuring access to the high-end urban market. Also necessary is connection with reliable urban bulk purchasing agents, such as the owner of Copa market in Port-au-Prince who explained to the consultant that, “we want to buy local, but we can’t get dependable supplies. We have to go Santo Domingo and even Miami.”

Solutions: Solutions of the problems described above included affordable finance services linked to availability of inputs; improved roads, marine transport, coordination of harvest timing among individual producers, bulk processing, cold storage and packaging centers; phytosanitary monitoring facilities and technicians as well as facilitation with commercial contracts with urban purchasing agents; and training association members in storage, processing and business techniques.. Facilitation of contacts with WFP, ACF, and CARE who are interested in making bulk local purchases for safety net programs should be considered a priority. Also critical is encouraging continued strategic PPI-2 investment in production strategies.

Risks: Orienting farmers toward urban rather than local markets increases time to sale and risk of spoilage. Interceding at farm-gate risks displacing poorest market women from value added chain. It cannot be assumed that PAER plans will overcome these obstacles.

Sustainability: Irrigation works, such as those financed under PPis, make the production potential and consistent supply reliable.

Figure 19: Vegetable Value Added Chain



Source: Duke CGGC.

Goats

According to FAO (2012) the North West and commune of Anse Rouge produce 555 tons of goat meat per year.^{xvi} The real figures are probably much higher. There are 108,000 rural households in the region; 94% of these have at least one goat; calculating an average of three goats per household (through breeding), the production figure may be closer to 6,000 tons per year (see Table 15).

Table 15: Variation in the number of animals per household (Schwartz 2009)

		<u>Number of animals</u>					
		0	1	2	3	4	5+
Goats		8.6%	12.4	27.6%	20.0%	11.4%	20.2%
Sheep		14.3	19.0	23.8%	17.1%	19.0%	6.9%
Cattle		39.3	36.3	18.0%	4.7%	1.0%	0.6%
Hogs		31.0	18.0	28.3%	20.0%	1.7%	0.6%
Revenue	<i>Gdes</i>	0	3,70	7,400	14,800	29,600	59,20
	US\$	0	220	440	880	1,760	3,520

Notable characteristics of goat production in the region that IFAD has taken into consideration and implementers should be aware include,

- Most farmers purchase rather than breed their goats (85%)
- Goats are free ranged on arid state land, but tethered in areas where there are gardens
- Goats are commonly castrated at 1 year of age to increase size and meat yield. They are not cut but rather their scrotum is pinched between two blocks of wood and their testicles are crushed with a rock (ouch)
- All of the goat is eaten: brains, intestines, blood, marrow, and skin. Only hooves and crushed bone are discarded
- The person who kills the animal is the one who purchases it or a friend or family of the person. Killing is not considered a specialty. Even children may slaughter goats. There is no payment for killing and butchering an animal
- The animal is sometimes quartered but more often pieces are cut according to client demand
- The animals are usually killed on market days
- Credit is granted for meat, seldom for live goats
- Meat not sold is washed with sour oranges or lime, salted, sundried and then stored for household consumption. Dried goat meat is not sold (as porc is dried and sold)
- Price differentials between rural and urban markets are 50% greater in provincial cities and 100% plus in Port-au-Prince
- Goats are sold by the animal rather than weight
- Cutting, packaging, and cold storing meat for more efficient shipment and sale in urban super markets is non-existent

Limiting Factors: Main problems farmers in the target region report with goats are production side: feed scarcity, disease (CDT), watering, and dogs (see Table 17). Problems with marketing include access to capital to purchase goats, group coordination for corralling and fattening.

Risks: CDT

Figure 20: Goats Production Map

Color key: Gender
Male 
Female 

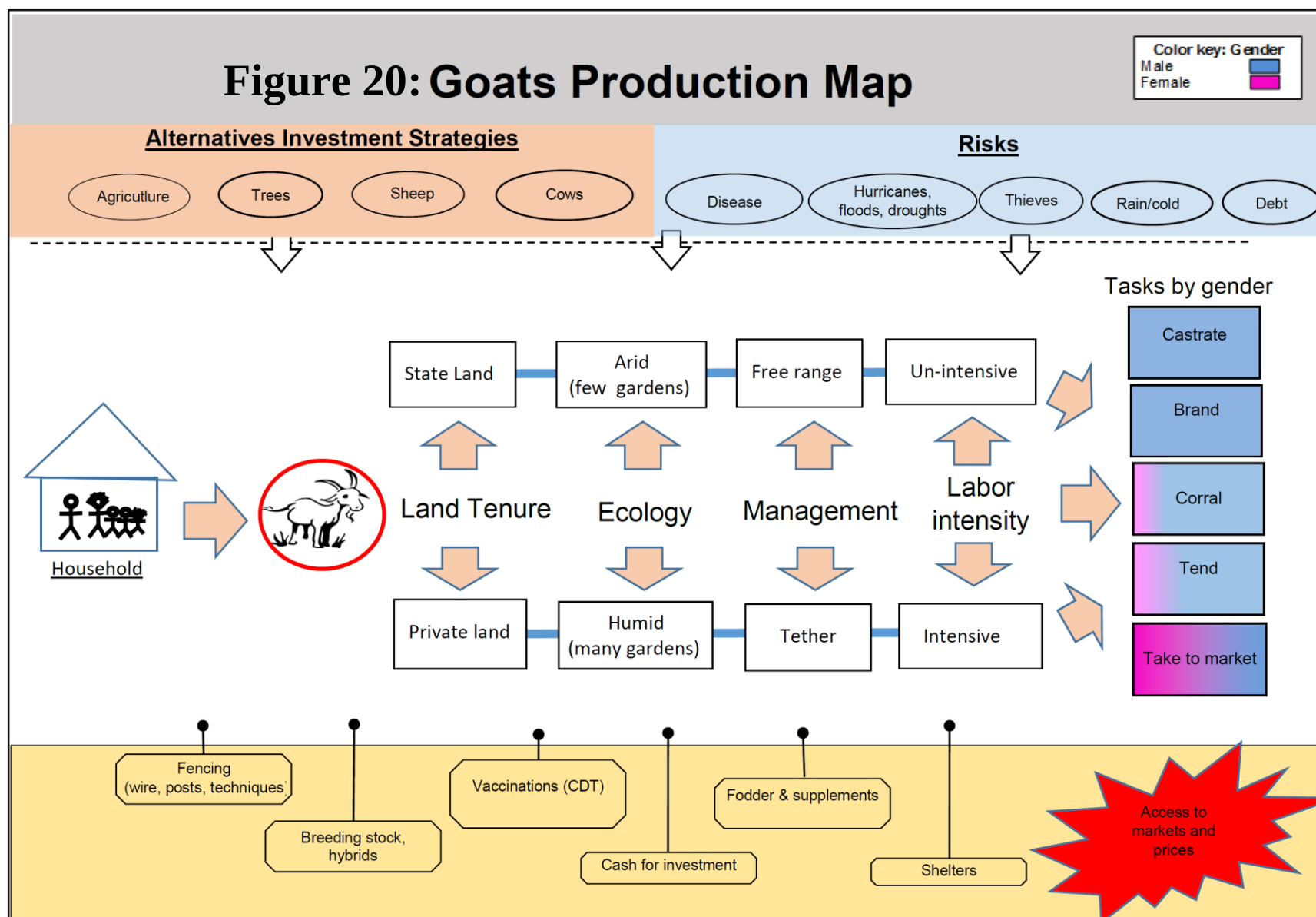
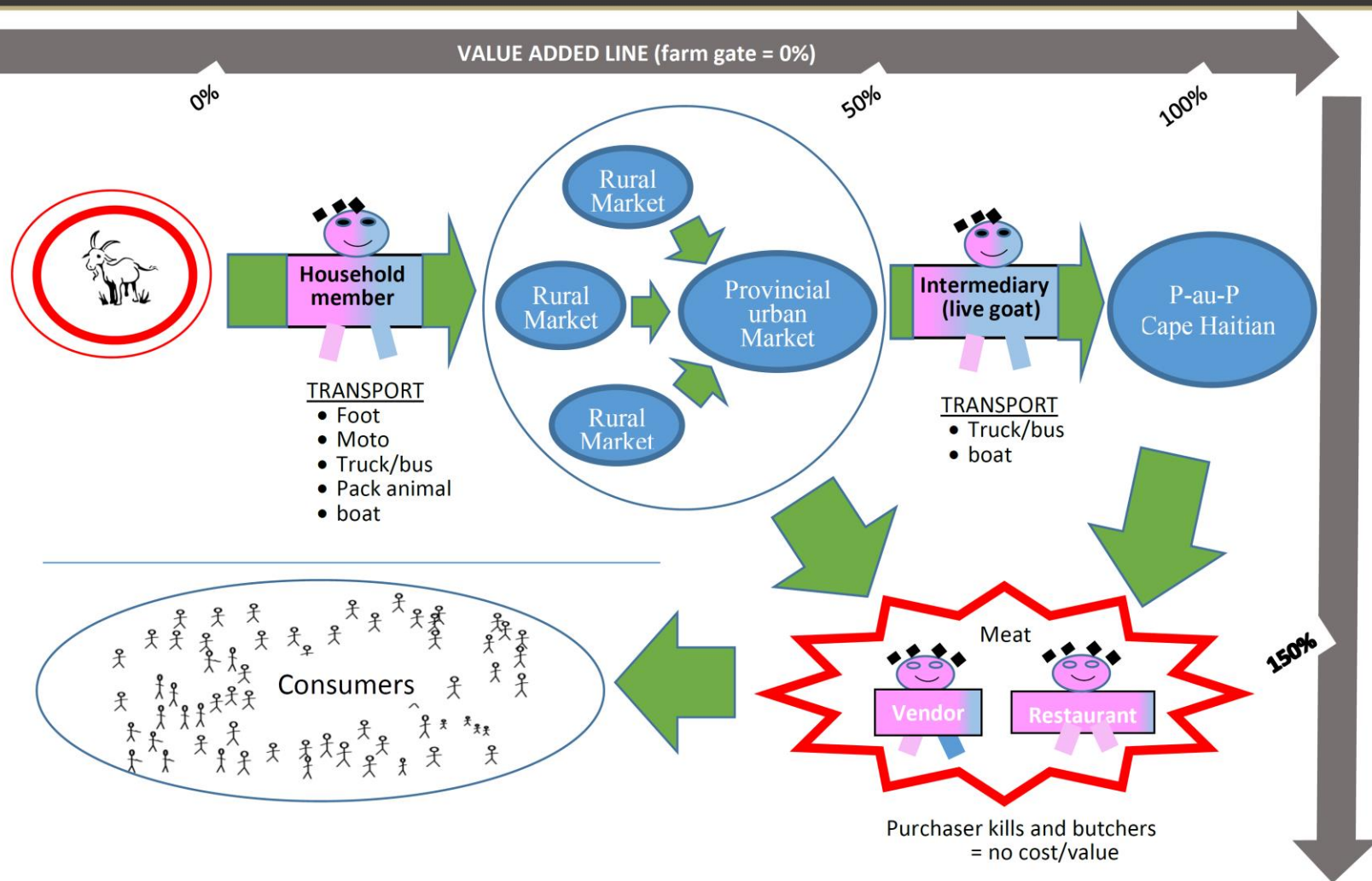


Figure 21: Goat Marketing Map

Color key: Gender
Male 
Female 



Opportunity: Lack of efficient culling strategies, corralling, and transport, the use of size rather than weight to sell goats, combined with seasonal and urban vs rural price differentials offer significant entrepreneurial opportunities. Meat can be processed and packaged by weight for sale to urban outlets. Special cuts are another opportunity. Markets for goat skins, which existed in the past is an additional outlet for goat byproducts that could be revived--farmers in the region currently eat the skins.^{xvii} Another underexploited opportunity is goat milk and cheese processing. Fed properly, corralled goats in Haiti are capable of producing 1.2 kg of milk per day (Winrock International 1987). A single kilogram of low quality cheese sells for US\$25 on the Port-au-Prince market. Yet, another means of increasing post slaughter revenue is selling horn, hooves and bone to Haiti's thriving artisan sector.

Table 16: Reasons farmers sell/slaughter goats in Jean Rabel

Reasons	Count	Percent	Cumulative
Hunger (necessity)	1,158	30.1	30.1
School (pay costs)	1,045	27.1	57.2
Food (no necessity)	400	10.4	67.6
Death (pay for funeral)	372	9.7	77.3
Birth (pay costs)	342	8.9	86.2
Make Room for New	68	1.8	88.0
Marriage, Baptism...	47	1.2	89.2
Over Population	9	.2	89.4
Other	412	10.6	100.0
Total	3,853	100.0	100.0

Table 17: Reported "most severe" problem with Goat and Sheep Production in Jean

Problems	Count	Percent
Feed Scarcity	552	40.1
Disease	397	28.8
Water Scarcity	265	19.2
Dogs	137	9.9
Flooding	11	.8
Other	15	1.2
Total	1377	100.0

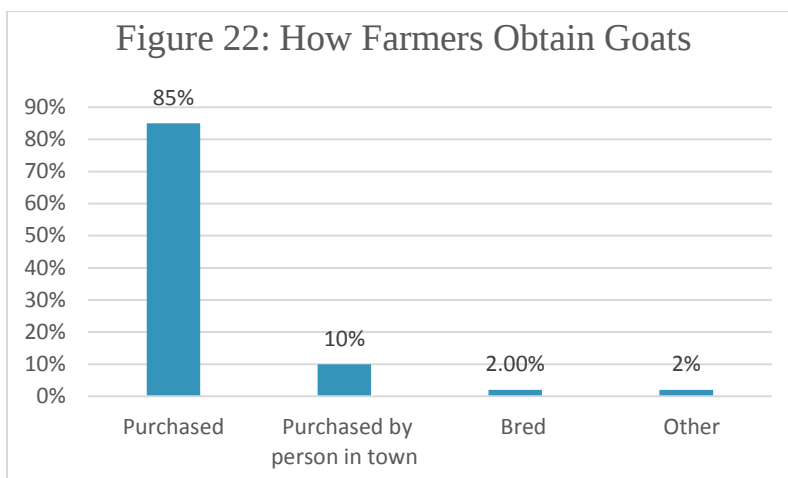


Figure 23

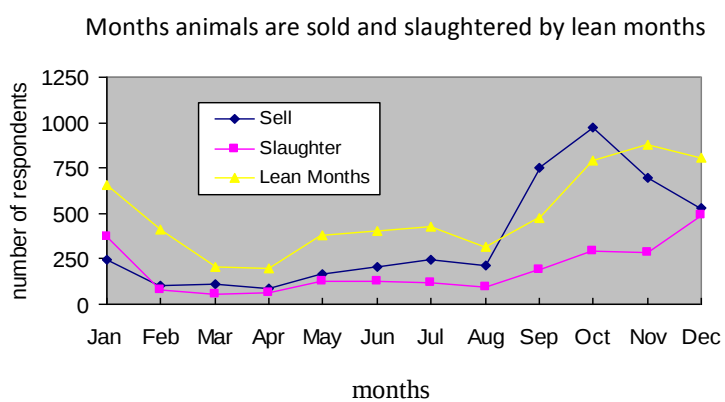
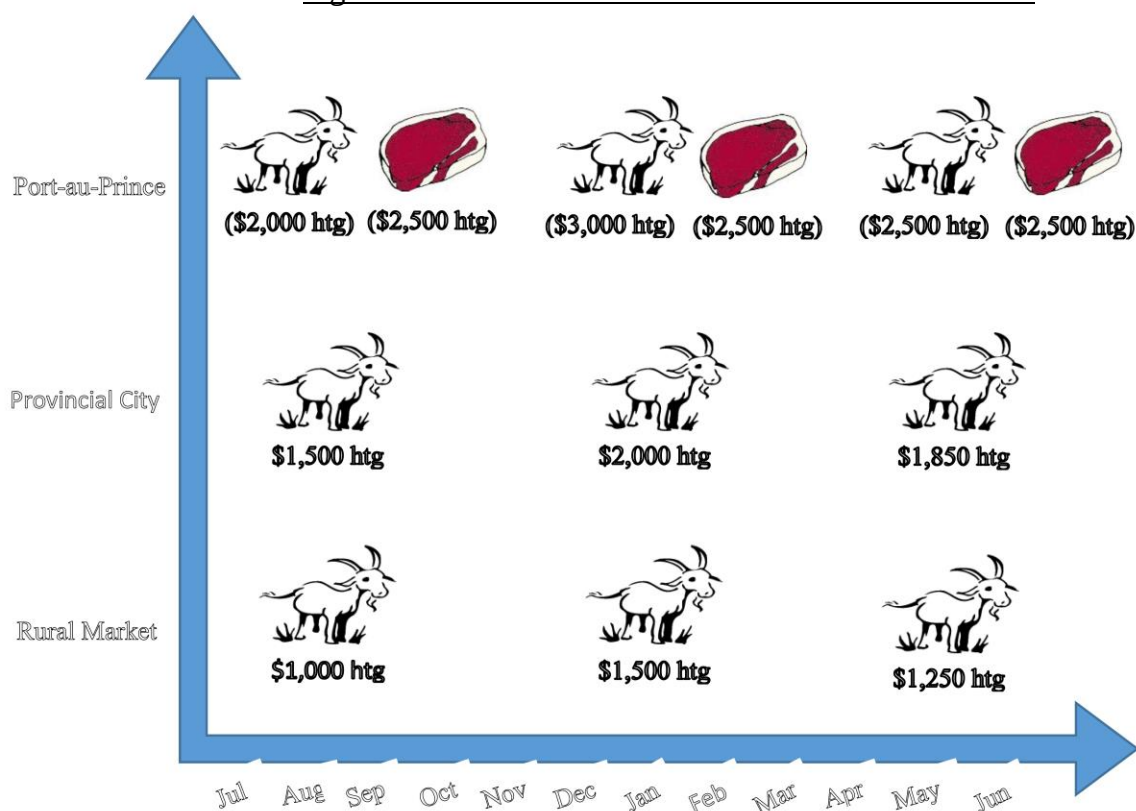


Figure 24: Goat Value Added Chain: Time and Distance



Solutions: Production side interventions are important. But increased income on the harvesting and post production side will mean increased revenues available for investment and, by corollary, increased incentives for farmers to resolve problems on their own. Specifically, market side revenues can be facilitated through entrepreneurial group enterprise allowing for purchases during periods of high sales and low prices, subsequent corralling and fattening with local and high yield foliage (*Lucaena* and Elephant grass); slaughter facilities that allow for efficient butchering with optimal carcass yield through selection, processing packaging and shipping of retail cuts. Cold storage means meat can be stored and/or frozen for shipment. Enforcing Phytosanitary standards assures clients quality meat. Also critical is access to urban purchasing agents, contracts, and retail.

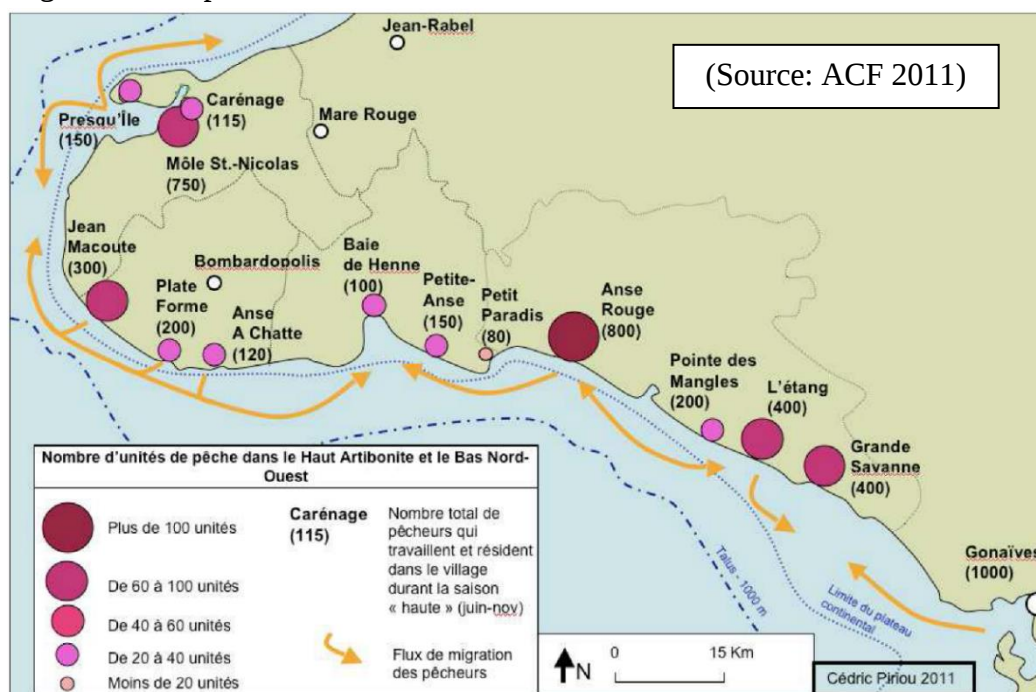
Materials: Modern butchering knives, saws, and meat slicers, packaging equipment, cold storage facilities, fencing (low cost but effective wire goat fencing and barbed wire), and vaccines.

Sustainability: At high population levels goats are damaging to the environment. However, recommended entrepreneurial strategies involve, not increased populations and environment stress, but pulling of farmer resources via corporate enterprise, investment in corralling strategies and fencing technologies (via PPI-2 under their ongoing enterprise component), intensified fattening regimes, butchering, processing, packaging and retail marketing, all amounting to reduced impact on the environment. In the meantime, local sources of high quality fodder offer an incentive to reforestation.

Fishing

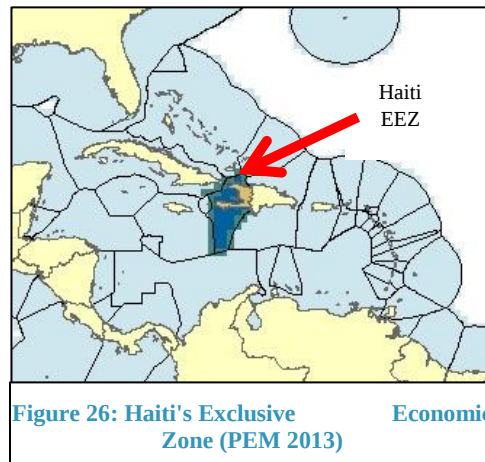
The Haitian Government Ministry MARNDR recognizes the value of and has called for assistance in promoting a sustainable fishing industry, particularly through the installation of offshore fish aggregating devices (FAD) and developing the processing, transport and sale of fish in urban areas. The ministry lacks the resources to promote the industry alone. MARNDR has no boats and until recently employed only 22 staff members with which to manage and enforce fishing regulations on Haiti's 1,770 kilometers of coast and 52,000 fishermen (MARNDR 2009). Yet, for the objectives of PAER, the fish market chain could have the greatest and most immediate impact on regional revenues of the target groups. The six targeted communes have more than 400 miles of coast and some of the Caribbean's most productive deep Sea fisheries (Damais et al 2007). There are ~2,500 fisherman in the region (see Figure: also see Damais et al 2007). We explore the fish production and marketing chain in depth here because it illustrates the irony of the vast potential within reach of producers, the extremely rudimentary technologies, and the complexities of helping producers negotiate entrepreneurial enterprises without depriving the poorest among them of their livelihoods. Indeed, similar to the discussion earlier regarding the *madan sara* vs. the *komèsan* the following analysis shows how, if not carefully designed and commitments similar to those proposed in the principal PRAE document, we may unwittingly channel participation in market chains away from impoverished households in the region.

Figure 25: Map of Distribution of Fisherman in the Five Communes of the NW



Fishing in Haiti

As the Western third of the Caribbean's second largest island, Haiti has a relatively small continental shelf, 5,860 km², approximately 20% the size of the entire country (27,750); but it has an exclusive economic zone (EEZ) of mostly deep-sea that is 86,398 km², three times the country's landmass and that includes what could be one of the hemisphere's major offshore fisheries (FAO, 2005; Advameg 2013). Yet, Haiti's fishing industry is by contemporary standards based on simple and ancient techniques. As if looking back centuries if not millennia in time, fisher folk in Haiti are almost entirely focused on exploiting the limited shelf. The technology they use in this endeavor mostly rudimentary, artisanal strategies that yield small catches.



Of the some 26,000 fishing vessels that ply Haiti's coast, only 1,200 are motor powered (MARNDR 2009). The other include 14,000 dugout canoes, kayaks, and another 10,000 handcrafted wooden dories, all powered either by paddle or sail. The fishermen who occupy these vessels use technology that differs little from pre-Columbian fishing strategies: hooks, lines, bamboo traps, and fishing spears. Ambulant market women are the primary purchasers of the fish. They gut, clean, and dry the fish and then haul them by foot, pack animal, motorcycle, boat, or bus to inland markets or distant coastal towns and cities. In total, an estimated 52,000 men fish, while 20,000 women process and sell the fish. That is only about 12% of Haiti's adult population, but the entire population benefits from an affordable and storable source of protein. For the some 3,000 to 5,000 fisherman who use modern industrial deep-sea fishing gear and who are oriented toward the high end urban market, there are 1,600 purchasers in the fishing communities linked to some 100 urban based fishing purchasing agencies, supermarket and restaurants. They earn higher incomes for their fish, but they do not supply the local population.

Fishing as an Environmentally Destructive Enterprise

In the past 30 years the number of artisanal fishermen exploiting the Haiti's shelf went from 11,000 in 1985 to 30,000 in 2001 to over 50,000 in 2010.^{xviii} It is a 5 fold increase. Coupled with the complete absence of any controls on fishing areas, size and age of the fish caught, and compounded by extreme erosion and consequent muddy runoff from streams and rivers that smothers reefs and destroys fish habitat, Haiti's shelf is said to be in a state of extreme ecological crisis. Reef Check, an international volunteer agency that has taken on the responsibility of monitoring the ecological status of reefs throughout the world, has identified Haiti as having, "the most overfished reefs in the world" (Reef Check 2001).

The crisis is not entirely the fault of the fisherman. With increasing deforestation runoff from mountains carries increasing loads of silt that smother the reefs, destroying them as a reproductive habitat for fish. There are answers: regulation of catches, size and age of fish; preservation of breeding habitat; creation of artificial reefs; use of Lobster Aggregating Devices to limit the harvest

of juveniles and pregnant females; increased dependency on aquaculture and above all, reforestation can bring reef and the fish back. MANDR recognizes and has recommended plans to address the problems but as seen earlier on lacks the resources to put the plans into effect. Offshore fishing strategy proposed below offers some relief and in increasing income and promoting the economic rewarding creation and strengthening of associations that can regulate the fishing industry. However, it is proposed here with reserve as to date there is no evidence that it is a sustainable option.^{xix}

Industrial Fishing

Modern industrial fishing technologies are available that can, and in at least some parts of Haiti is radically changing the economic opportunities available to fisherman folk while also providing some relief to the coastal shelf. The fishing technologies include fiberglass boats and outboard motors that permit offshore capture of larger fish that ~~that~~ are in greater demand in the high end urban market; imported monofilament nets that more effectively snare fish; air compressors for deeper and more intensive spearfishing and gathering conch; and offshore floating platforms called "Fish Aggregating Devices" (FADs) that attract large fish making the location and capture of the fish vastly easier and more efficient. New processing and storage technologies include ice, coolers, electric freezers, and cold storage rooms for preservation, motor boats for rapid and safer transport both to offshore fishing grounds and to the urban market.

The modernization of fishing is linked, if not dependent on, the formation of associations and cooperatives. These organizations tend to be dominated by traditional elites, politicians, and urban oriented entrepreneurs (see Weiner 2005 for example); they are heavily subsidized with funds from the international community; and to date, they include only a small minority of the total fishing population. It is nevertheless an area that shows promise and where a small-holder corporate enterprise strategy such as proposed in this programme, has the potential to have immediate and dramatic impact on the local economy. The impact is best exemplified by success in Grand Anse communities of d'Anse d'Hainault, Dame Marie and Irois Anse. In 2000 the European Union and MARNDR supported the formation of two local associations in these communities, provided access to fishing gear and cold storage, and installed three Fish Aggregating Devices (FAD: offshore platforms that attract fish). By 2008, 68% of fisherman in the area had outboard motors; fulltime fishermen were earning an estimated US\$29,700 per year, 10 times what typical artisanal fisherman earn (Guinette 2009; see Table).

Table 18 : Anse Hainault (Guinette 2009)			
	Per trip	Trips per year	Total per year
Full-time	95.50	311	\$29,700
Half-time	52.41	182	\$9,538
Part-time	127.52	26	\$3,315

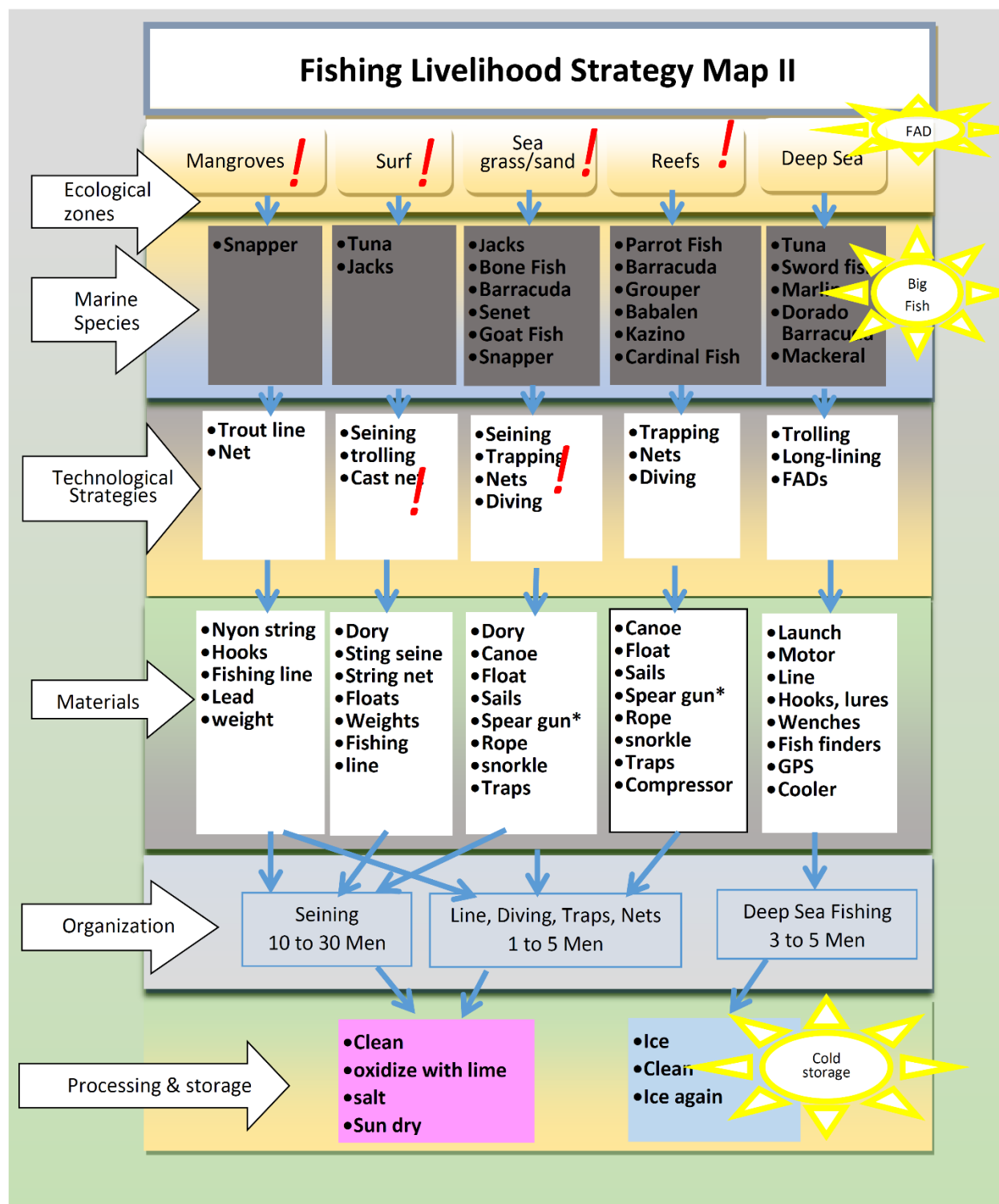
Pros and Cons of Artisanal vs. Industrial Fishing

The apparent ecological unsustainability of Haiti's current artisanal fishery seems to point the way toward offshore fishing. This means FADs, fiberglass boats, and access to high end urban markets. International organizations sensitive to negative publicity and environmental crisis take note of the problems with the offshore approach. Throughout the world, stocks of large offshore predatory fish have been declining precipitously now for at least the past 4 decades. Some studies indicate

declines in billfish-- the fish that Haiti's new fishermen aim to catch --have declined by 65 to 98 percent in the past 40 years (Chambers and Associates 2010). Questions have been raised in this context about the role of FADs. Greenpeace calls them "deadly fish magnets" that are driving deep sea fish beyond the point-of-no-return. Environmental activists are lobbying for quotas and prohibitions. Many people in the developed world are listening. Having said that, it would be egregiously unfair to limit investment in offshore fishing for Haitian fisherman in his EEZ while developed nations' fishing fleets continue to devastate fishing stocks in the region: all Haitian fisherman combined currently catch less Pelagic fish than a single major industrial fishing boat; and the temporary relief for the shelf and the economic interest that would come from offshore fishing could galvanize Haitian interest in conservation (see Green Peace 2014).

Another issue is the costs associated with offshore fishing. ~~and who has been paying them.~~ Investment in the industrial fishing gear, boat and motor necessary for a single equipped vessel generally exceeds US\$20,000. Cold storage is additional cost. FADs are anchored, preferably with chain, to the bottom of the sea at depths of 1,000 feet or more, at US2,000 to US5,000 a major cost with only a 2 to 5 year life cycle. Returns on investment are hampered by the fact that seafood imports from Haiti were long ago banned in both the US and Europe because phytosanitary concerns, which means that Haitian fishing attracts little corporate financial investment from outside the country (MARNDR 2009). The Haitian Government has made no significant investments in its fisheries industry although it has unveiled a new 5-year strategy covering 2014-2019. It is unable on its own to accomplish the task and will remain that way for the foreseeable future. For a lucky few fishermen, costs have been subsidized by international aid organizations, as in the case of d'Anse d'Hainault, Dame Marie and Irois Anse communities seen above.^{xx}

Figure 27



Purchasing, Processing, Storage, Transport and Market

Purchasers

As with infrastructure and fishing materials and strategies, there are two chains: the traditional one and a more modern one linked to the urban developed consumers. The *machann* (trader), who buys with an eye toward the domestic and popular markets, represents the traditional chain. The *achtè* (buyer), who buys with an eye toward the high end urban market, represents the modern link.

A *machann*, almost always a woman, purchases, processes and sells fish. She buys the fish based on volume, not weight. She depends on labor from children, usually girls, and other female family members, to process the fish: specifically, gut, scrub with lime or sour oranges, heavily salt, and then sun-dry the fish on wooden racks. She may sell the cured fish to a sub-category of a *machann*, the *madam sara*,¹ or she may herself be a *madan sara*. A *madan sara* is an itinerate market woman and the country's primary accumulator, transporter, and redistributor of agricultural produce, small animals, crafts, and fish. After processing the fish or buying already salted and dried fish, the *madan sara* transports her product to a local regional market or to fulltime market in one of the principal cities, e.g. Jeremie, Miragoane, or Port-au-Prince. There she either sells them to local consumers or to another *madan sara*.



"Machann" with her dried fish



Achtè" weighing fish

The *achtè*, almost always a male, is linked to the modern deep sea industrial fishing strategies seen above, those who use long lines and exploits FADs to catch large fish prized in urban restaurants, elite and expatriate households, and the tourist sector. As such he represents a relatively new market chain. The *achtè* deals only in fresh fish. He buys the fish based on weight not volume. He has an adult woman or child family member – usually a girl – clean the fish. He then preserves the fish on ice. He may sometimes sell the fish to a *machann* but he is usually linked to urban purchasers and his primary objective is to get the fish to the city on motorized sea

¹ The term *madan sara* derives from a highly gregarious, little yellow and black bird introduced to Haiti from Sub-Saharan Africa. Known in English as a Village Weaver (*Ploceus cucullatus*), the female seems to be constantly collecting food and twigs and carrying them back to her nest, usually in a tree full of hundreds of other nesting *madan sara*. Similar to the buzz of voices heard from Haiti's rural markets, the traveler knows when approaching a colony of *madan sara* because of the noisy din of chatter from hundreds of busy birds.

vessel or bus or take them himself by boat or bus to the urban market. (Elsewhere in Haiti the *achtè* shares his position with the "association" which also purchases for the urban mark.

Capital and Credit

A significant and telling characteristic of the entire fishing production and marketing system is that the fishermen carry the burden of capitalizing the rest of the market chain. Rather than urban agencies, the *achtè* or *machann* giving credit to fisherman so that they can invest in materials and supply fish to the market, it is the fisherman who gives fish on credit to the *machann* and *achtè*. However, the *machann* is more inclined to lend the fisherman money when he is in need. The *machann* also more often a wife, or family member of the fisherman or at least a local woman. The loan that she sometimes extends and the fact that she is embedded in the fisherman's personal family or social network also means that she exercises an influence on him beyond the sale price of fish. When the fisherman does sell to the *achtè* he often preserves his relationship by sharing part of the proceeds with a *machann*. This personal relationship adds a level of risk management and social integration that goes beyond that most fishermen have with the *achtè*. Moreover, because the *machann* is often family means that the profits from the fish might be less overall, but the fisherman's household reaps rewards at more than one value added link in the market chain.

xxi

Storage, Transport, and Markets

The *achtè* faces a significant risk. Without ice or refrigeration uncured fish spoil. Ice, when available at all, must be shipped in. All of this means that preserving fish until the time of transport is a risk. Transport itself adds another layer of uncertainty. Anything can and all too often does happen. A transport boat may have to pull into a remote harbor for fear of foul weather, a bus may get a flat tire or overheat, a road may get washed out or rivers engorged and trucks cannot pass, gas rations may suddenly run out, a buyer may back out of a sale, political unrest and riots may shut down all transport. In the case of any of these events – all realities of life in Haiti – the *achtè* has only a limited time to find ice and keep his fish from rotting.

Not only must the *achtè* confront the problem of transport, but the market itself depends largely on the Port-au-Prince economy. Tourism in Haiti is all but non-existent. Restaurant and hotels depend largely on a clientele of visiting diaspora, NGO workers, and diplomats. Any one of the frequent political crises that plague the capital can bring business to a grinding halt. The holder of fresh or even frozen fish cannot easily turn to overseas markets. As seen, US and Europe have both banned the importation of seafood from Haiti. Getting the fish into the Dominican Republic means dealing with rent-seeking border agents and then accessing equally fickle and opportunistic middle men,. On top of all of this, the Dominican hotels and restaurants have a domestic fishing industry more developed than Haiti's and they have readier access to purchasing from overseas suppliers.

The fact that the *machann* or *madan sara* has cured her fish means that she is not in a hurry. She can accumulate fish before going to market. The dried fish are also more easily transported. She puts them in sacks, place basins or woven baskets. She then transports the fish to market carrying them on her head, on pack animal, by bus, boat or truck; whatever means assures her the greatest profits.

The *machann* sells her fish on Haiti's internal rotating market system. In villages throughout Haiti, open air markets are held on specific days of the week. In any given region the days alternate between nearby market villages such that people living in a particular area are within walking distance of at least two markets per week. The evolution of these markets is organic in the sense that they have not been planned; rather it is the system that has evolved over at least two centuries of intensive intra- and inter-regional trade. The markets are associated with a vibrant female dominated commercial sector. This means to the *madan sara* who sells fish is that she has a highly stable outlet for her products, one that is accessible through her own efforts, i.e. if she can, and often does, heft her merchandise onto her head and walk.

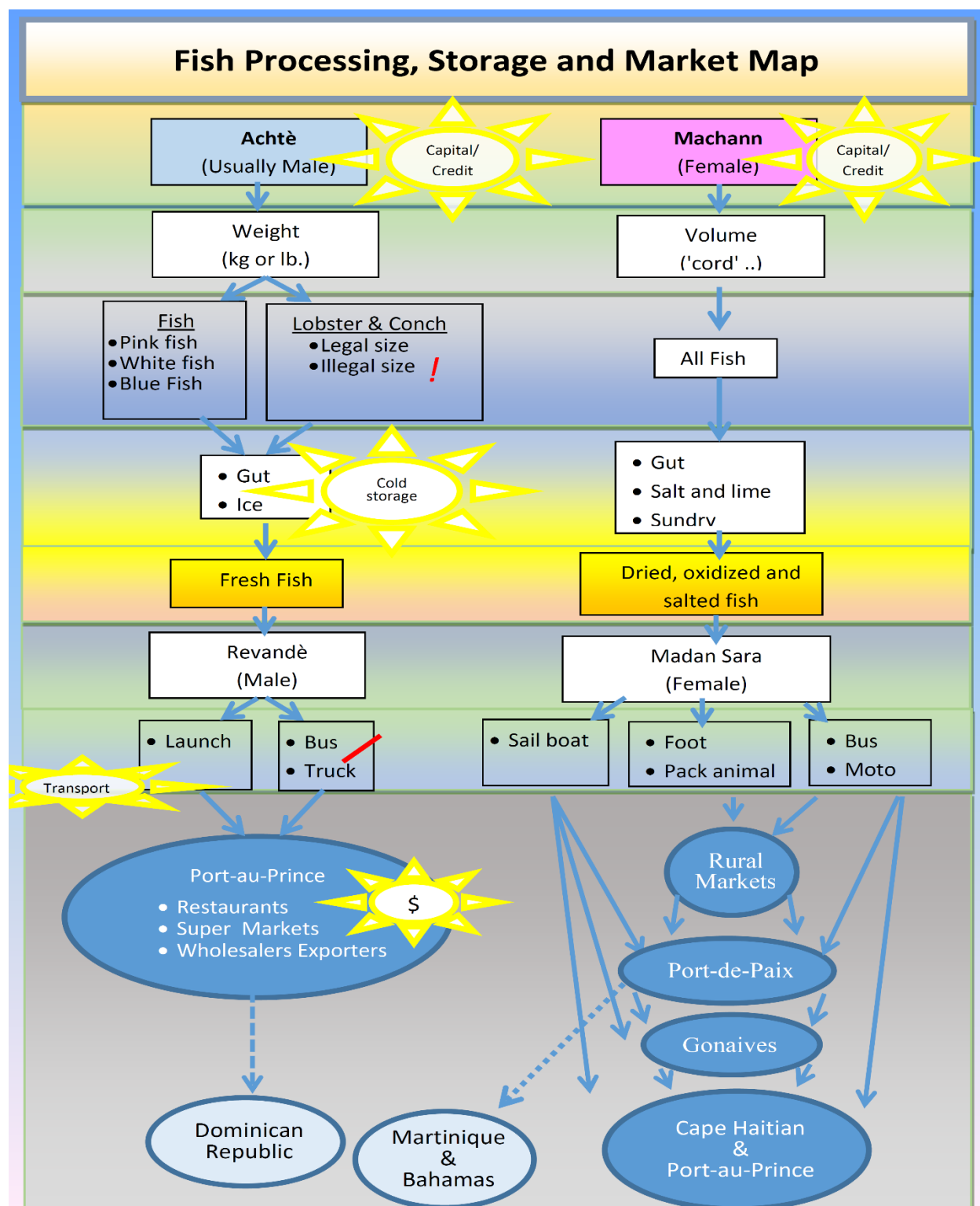
NGO Interventions, Associations and the Market Chain: Risk of Putting Women out of Business

NGOs have intervened in the purchasing-processing-storage-and-marketing chain to help fisherman get better prices for their fish and thereby bolster income to impoverished households. This support has encouraged the formation of male dominated fishing associations. In addition to help with offshore fishing, they also often provide the associations with coolers and cold rooms for conserving fish and they help link the associations to urban purchasers. In doing so they may have delivered two inimical blows to the impoverished households that depend on fishing:

- 1) by encouraging the sale of fish directly to urban markets they deprive households of the opportunity to profit at three additional links in the value added chain: processing, transport, and sales.
- 2) by helping facilitate the entrance into the market chain of male dominated associations, they may have unwittingly initiated a process of supplanting women from the fishing market chain; indeed, the oddity of the male *achtè* in the midst of the almost entirely female dominated sphere of rural market intermediaries suggests that his role may have evolved from the associations

As seen in the discussion of Anse Hainault, industrial deep-sea fishermen earn significantly higher income for their efforts. This derives not only from bigger fish and more of them, but from the fact that fresh fish yield 40 to 60% greater prices than what the *machann* can fetch in the local regional chains. market or the urban popular market. The map on the following page illustrates the two market chains.

Figure 28



Opportunity: The opportunities to increased revenue through fishing, processing, and marketing of fish from the region are exceptional. Seasonal migrations of skip jacks and bonito tuna are underexploited. Deep-sea pursuit of bill fish is a promising and hitherto underexploiting opportunity. In the Southern peninsula of Haiti investments in FADs (Fish Aggregating Devices), fiberglass launches, trolling tackle, cold storage and assistance in reaching high-end purchasers in the urban market have increased fishing income by factors as high as 5-fold, from US\$20 per day to over US\$100.

Limiting factors: The most significant factors limiting entrepreneurial investment in the sector are: low access to credit, lack of FADs, no access to outboard motors, deep seas fishing equipment, ice, cold storage, and contacts with urban purchasing agents. Transport to market is a challenge. Roads are poor. Marine transport is largely dependent on sail power. Whether by road or sea, foul weather can delay arrival. Without ice, currently unavailable in sufficient quantities, fish spoil. And finally, little is done to address the challenge of environmental conservation inherent in encouraging any type of unregulated fishing.

Solutions: Installation and maintenance of FADs, access to motors, fiberglass launches, deep sea fishing gear, industrial ice machines, cold storage, improved roads and marine transport, facilitated access to urban purchasing contracts.

Risks: In all of Haiti, less than 5% of fishermen can aptly be classified as industrial fishermen (MARNDR 2009; Guinette 2009). Successful deep sea fishing in Haiti has hitherto been financed with foreign aid. The ultimate question in this regard will be whether local associations, government and entrepreneurs will at some point assume the costs and responsibility for the system necessary to make it sustainable or if, as so often occurs with projects in Haiti, the industry will only endure as long as international donors subsidize it. Regarding market: without exception the sales of fresh fish, a new market chain in Haiti, have been monopolized by relatively wealthy individuals with access to urban clientele. Consequences have been price fixing and partial elimination of female market women from the market chain.

Sustainability: Throughout the world, stocks of large offshore predatory fish have been declining precipitously now for at least the past 4 decades. Some studies indicate billfish stock have declined 65 to 98 percent in the past 40 years (Chambers and Associates 2010). Questions have been raised in this context about the role of FADs. Greenpeace calls them "deadly fish magnets" that are driving deep sea fish beyond the point-of-no-return. Environmental activists are lobbying for quotas and prohibitions. Many people in the developed world are listening. Having said that, it would be egregiously unfair to limit investment in offshore fishing for Haitian fisherman in their EEZ while developing nation fishing fleets continue to devastate fishing stocks in the region: all Haitian fisherman combined currently catch less Pelagic fish than a single major industrial fishing boat; and the temporary relief for the heavily exploited shelf coastal shelf—identified by Reef Check (2001) as having, "the most overfished reefs in the world"-- could help galvanize Haitian interest in conservation (see, Green Peace Blogs: <http://www.greenpeace.org.au/blog/?p=77> and

Additional Market Opportunities

Four market chains are presented and an ethnographic look at the associated relations of production and marketing. Support under the proposed programme will be demand-driven, to the target groups that includes producers, traders, small scale transporters through sound and professionally prepared Business Plans. Additional entrepreneurial opportunities identified during the design period as well as by other studies are presented below.

Mangos: Arguably the most success current Public Private People Partnership project in agriculture market access in Haiti deals with mangos (USAID/Coca Cola/IDB funded Haiti Hope Project implemented by TNS). Mango trees are plentiful in the region.

Dried fruit: Primarily used as additives to industrial processed foods--difficult to compete on the international market with industrial producers--there is nevertheless the prospect of developing a local dried fruit market, particularly with mangos and immature sour oranges. A major advantage of dried fruits compared to preserving or freezing is that the process saves some 90% of nutrient value. Dried fruit is also more easily packed and shipped than fresh fruit. Disadvantages include food loss due to rodents, birds, microorganisms, insects, and contamination. A more remote prospect are entry into the export market though fair trade, organic and 'untreated' dry fruit. Recently improved technology use of solar driers in Haiti improve the prospects of feasible dried fruit enterprises.

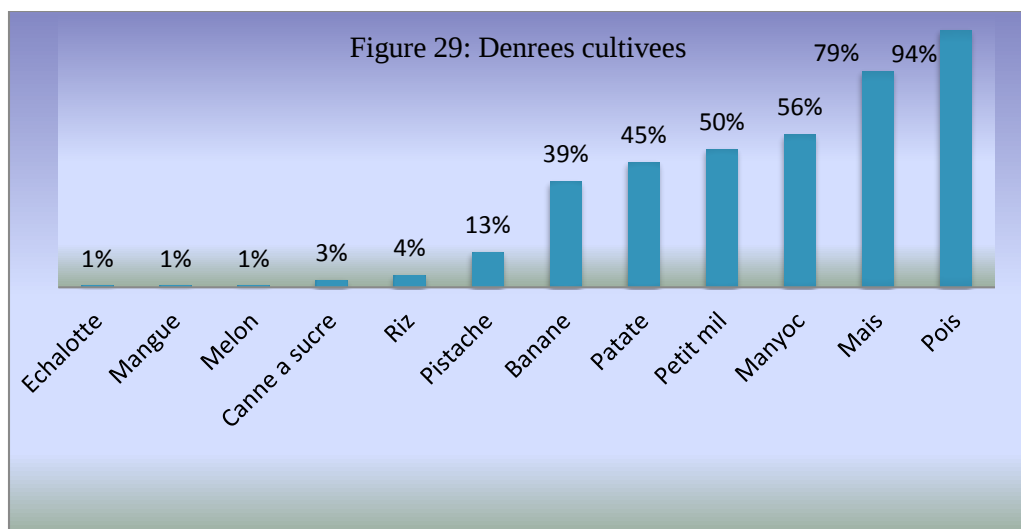
Sweet potatoes: The fifth most abundantly produced crop in the target region, 45% of households in the area produce them. Sweet potatoes exhibit the same extreme two to three factor seasonal price swings seen with other crops (see Figure 31), thus presenting the entrepreneurial opportunity to capture for profits (SECID 2001: 8). They can also be processed into flour, puree, cooked or frozen and sold as 'french fries.' They can be turned into chips. The flour can be mixed with wheat at portions of 20% to 40% to make bread and biscuits. Vines, peels and roots can be used to make animal feeds. (CGIAR Fund 2014; PARDI 2010)^{xxii}

Manioc/cassava. The 3rd most important tropical crop in the world and also the third most planted in the IFAD target region, 56% of households plant cassava. Haitians typically consume it in natural form as a root or processed in the form of a flat bread. There is a significant entrepreneurial opportunity in promoting cassava bread manufacturing and selling it locally or shipping it to urban areas for sale. But it is only one of many opportunities in the manioc value chain. Elsewhere in the world (most significantly Africa) the leaves are a good source of protein and iron that are chopped, boiled, seasoned and eaten like people in North America and Europe eat spinach. The roots are ground into a flour much finer than the flour used Haitian cassava bread. The finely ground flour is bagged, whereupon it ships well and can be cold stored for months. The flour can be mixed with corn meal or wheat to make bread and a host of other durable comestibles. It is also used to make *chikwangu*, a fermented and savory paste that ships well and stores at ambient tropical temperatures for up to two weeks. With all these possibilities, Haitians make powdered manioc flour (*foufou*), they eat it as dumplings in stew, but they do not mix it with other flours to make cakes, only a few make *chikwangu*, and they do not eat its high protein leaves, all a rather startling fact for a population highly anemic and close to the caloric margin and promising window of entrepreneurial opportunity.

Bread Fruit: One of the highest food yielding plants on earth, bread fruit abundant in the region (originally brought to the area from the South Pacific by the infamous Captain Bligh). It has a short shelf life and therefore, excepting local rural markets and boiled breadfruit nuts, is not shipped or marketed in Haiti. UMC (2014) estimates that 40-60% of Haiti's breadfruit crop is lost to spoilage. Working in Haiti on a grant from the UMCOR, Hank Garwick developed a process of making breadfruit into a gluten-free flour that stores for years. Dr. Camille George, associate professor in St. Thomas' School of Engineering, and the nonprofit Compatibility Technology International have already advanced the breadfruit production process in Haiti with 10 years of research and an award winning breadfruit drier. There is a ready domestic market for breadfruit flours as Haitians make *foufou* with it. One could also make breads, rum cakes, molasses cookies and waffles. As with plantains (and cassava), breadfruit can be turned into *mangu* paste (see section on plantains) canned, frozen, and vacuum packed, used to make breadfruit biscuits or fried into potato chip-like 'crisps,' a common snack food in the South Pacific. It also has byproducts. The breadfruit tree is termite resistant; its sap can be used to make glue. If nothing else, breadfruit can be processed and used as feed for goats and other livestock (PARDI 2010; Emerole et al 2012).

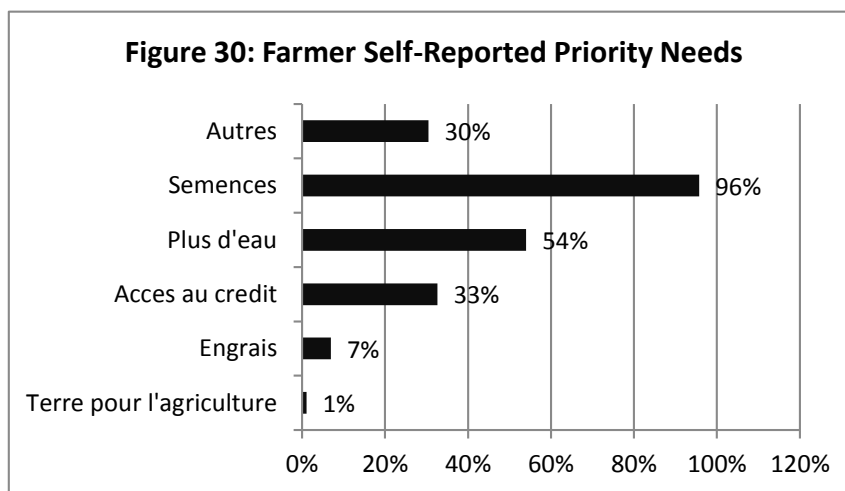
Millet: Millet is one of the top four crops; half of households grow it (see Figure 29). Farmers in the area grow it and the eat it. It grows on highly saline soils and resists drought. Nutritionally on par or superior to corn and wheat, it too can be used to make a wide assortment of storable and marketable comestibles, including bread. But similar to manioc in Haiti is used to make none of the mentioned foods--delicacies in some parts of the world. Haitians in urban areas eschew millet for rice, wheat, and corn, high prestige cereal foods that have been intensively marketed by foreign interests (corn followed by wheat are the two premier cereal imports into Haiti with a long history of highly sophisticated in-country marketing support)

Peanuts: Peanuts are the 7th most commonly planted crop in the region, by 13% of the households. Similar to mangos, several of the most successful contemporary projects in Haiti focus on peanuts; specifically Abbot Fund, Kellog Foundation, Partners in Health, and the Clinton Foundation have funded implementers such as TechnoServ and Acceso Peanut Enterprise Corporation. And with good reason. A nutritional super-food highly appropriate for nutria-deficit needs of impoverished Haitians, peanuts blow the top off the charts in terms of calories and protein and, as or more importantly, fat content.



Lamb: Sheep are the animal most adapted to target environment; superior to goats which die readily from drought and bacterial stomach ailments such as ‘overeating syndrome; 85% of Haitians in the region own at least one. Yet farmers uniformly swear they do not eat lamb. They cannot sell it unless disguised as goat. Yet, imported lamb sells in Port-au-Prince specialty shops for US\$35 per pound, about 35 times the cost of goat-disguised lamb in rural areas.

Seed: Hybrid Seed availability is one of the most confounding issues for local farmers. Hence Improved Seed conservation is potentially a very profitable enterprise. In 2013 survey of farmers in the target regions, respondents emphatically preferred local vs. imported seed or seed brought in from



elsewhere in Haiti. For at least the past 2 decades, prices for local vary by as much as 300 percent (see Figure 31, Table 19). The principal factor that increases the capacity to store seeds in bulk is cold rooms, providing a significant opportunity for cold storage that could, alone, make the units profitable.

Figure 31

Corn Prices for a Good Harvest Year
January 1998 to January 1999

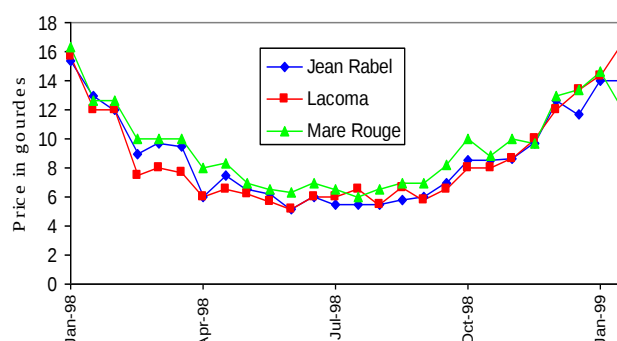


Table 19: General Improved Seed Price Ranges
Estimated by Jean Rabel Merchants 1993

Crop	Measure	Price	
		Low	High
Corn	mamit	3.6	15.0
Millet	mamit	4.0	15.0
Beans	mamit	16.0	33.0
Pigeon Peas	mamit	8.0	25.0
Plantains	regime	17.0	27.0
Sweet	sack	8.0	25.0
Peanuts	mamit	5.0	15.0
Cow Peas	mamit	10.0	32.0
Coffee	mamit	12.5	25.0
Tomatoes	each	.7	1.0
Cabbage	each	1.3	2.0

Crafts: Haiti in the late 1970s and early 1980s was one of the largest exporters of baskets in the world. Master basket weavers in Bombardopolis used green fronds from locally cultivated royal palms to make significant contributions to the industry. They still produce baskets in Bombardopolis but sorely lament the difficulties in getting their baskets to markets (). Organizations such as International Trade Center's Ethical Fashion Initiative will help link artisans to the high-end fashion market and have expressed interest in working in the area. Other craft potentials that can be developed is use of tanned goats skin, hoof, and horn. (Aid to Artisans. 2003; Capital Consult 2004; Fleurant et Mangonès 1996; Fond'Art. 2006; Jacques. 1969' Dominique 2005; Oriol 2001; Saint-Lôt 1996; USAID – Haïti. 2006

Salt: Sixty-nine percent of salt produced in Haiti comes from commune of Anse Rouge. Four percent comes from Baie d’Henne. Both communes are in the target region. Production is ~25,000 metric tons per annum valued at US\$9 million. Production techniques are rudimentary. They yield low quality salt that retains moisture and is not amenable to fortification with the key value added mineral iodine. Prices fluctuate seasonally between 20% and 50%. A USAID funded project by TechnoServe proposes to modernize the industry with employee ownership through shareholding. They estimate that they can increase yield by 50% and bring quality up to international standards. If selling in for food does not work, salt has 15,999 other uses, from petroleum refining to animal feeds to de-icing roads. The issue is market access (USAID 2011).

Table 20: Comparison of Nutritional Content for Common Staples in Rural Haiti

	Calories	Carb (Grams)	Fat	Protein
Peanuts	567	16.13	49.24	25.8
Wheat	342	75.9	1.71	11.31
Millet	206	41.19	1.75	6.12
Blackeyed Peas	193	33.62	4.34	5.24
Rice	193	41.41	0.83	3.6
Plantain	122	31.89	0.37	1.3
Black Beans	91	16.56	0.29	6.03
Corn	86	19.02	1.18	3.22
Soy	60	5.57	0.1	10.51

<http://www.twofoods.com/compare/query/c295/cGVhbnV0>

Table 21: Estimate of Percentage of Calories per day from fat (pop = 8.5 million)

	Calories per day from fat ¹	Total calories per day ²	% of daily calories from fat
North America & EU ³	1305	3,380	0.39
Latin America and the Carib.	711	2,830	0.25
Near East	630	2,910	0.22
North Africa	576	3,180	0.18
East and South East Asia	468	2,660	0.18
Sub – Saharan Africa	405	2,190	0.18
South Asia	405	2,400	0.17
Haiti (unlikely) best case	711	2,830	0.25
Haiti (probable) mid case	405	2,190	0.18
Haiti (possible) worst case⁴	342	2,086	0.16

1 = Total FAT calories per day from FAOSTAT 2003 2= Total Calorie per day from FAO 2001

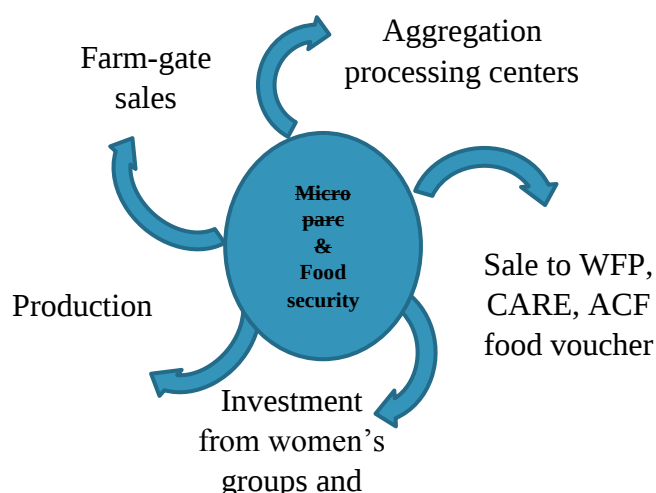
3 = North America and EU is Average from FAOSTAT 2003 4= From FAO, cited in CRS Report for Congress 2007

Summary of Market Chains

Mentioned above are only a few of the potential crops common in the region that can be processed into juices, and pastes, dried and/or frozen, marketed locally or shipped to urban areas. Others are avocados, passion fruit, coconut, limes, *kenep*, yam, taro, pumpkin, poultry, and fish produced on micro fish farms. Moreover, there is an economy of scale that comes with multiple market chains. Waste from banana, plantain, mangos, vegetables, and sweet potatoes can be fed to pigs, cows, chickens and fish. Fish byproducts can also be ground and used as high protein meal or fertilizer (Heuzé et al 2013). Even charcoal production, in lieu of the massive urban market and juggernaut deforestation to satisfy Port-au-Prince demand for cooking fuel, offers potential that is both lucrative to farmers and improves sustainability of natural resources. Steel drum charcoal kilns can improve yields by as much as 25%; instruction in business planning and gestation of resources could give way to managed and ecologically sound tree harvests. Nor should the potential for Fair Trade and export of organic produce be overlooked. The neighboring Dominican Republic is the leading source of organic bananas in the UK with annual exports valued \$127 million in 2010, comparable to the entire Haitian agricultural sector.^{xxiii}

Perhaps more promising than anything else is not simply the products that already exist or the potential for processing and marketing them, but the Haitian Government's strong interest in incorporating fresh domestic produce in current and upcoming food security programs, specifically USAID and UN funded, KORE Lavi and Ti Manman Cheri. The Government and USAID is targeting 18,500 people in a US\$78 million dollar food security scheme, in the North East Department. In the North West, ACF and CARE pilot programs have been underway since 2013. Beneficiaries are given vouchers (coupons) redeemable at stores and with qualified market women. However, aggregation of sufficient quantities of fresh local produce and controlled redistribution has been a principal frustration in development of the program. PAER could be the catalyst for providing local produce to the food security programs. Aggregation centers offer a potential market and the solutions to generate the necessary volumes, high quality standards and efficient supply, to satisfy the food security needs.

Figure 32: Voucher-Boutique-Production Cycle



Haiti Food

In contemplating market access in urban Haiti: promoting marketing of produce such as those below (by no means exhaustive exposé) would provide a powerful incentive to farmers and help develop the Haitian economy (see Figures 32.a-32.f).



Figure 32.a: Popcorn that could be—but probably is not—produced locally



Figure 32.c: Fried sweet potatoes and plantains competing with *marinad* (fried bread)

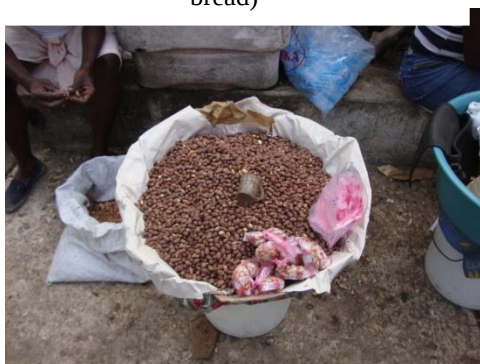


Figure 32.e: Locally grown peanuts: high in protein and scarce fats



Figure 32.b: Plantain chips: a relatively new and popular snack made from local produce



Figure 32.d: Cassava bread made from local manioc: if mixed with corn meal, a nutritional competitor with wheat bread



Figure 32.f High energy *Rapadou* produced from local sugar cane.

Prospective Areas of Intervention/Assistance

The most coveted domestic markets for all the products discussed above are Port-au-Prince and Cape Haitian. Farmers and traders emphasize the increased returns that could come about from reaching these markets. Farmers and traders lament the difficulty of getting merchandise to these markets and the frequent loss of produce to spoilage when they do not arrive in time. The proposed programme brings with it 5 possible solutions:

1) Investment in primary mechanisms that increase production yield (Fish Aggregating Devices, goat houses and corrals); 2) better access to materials and extension services (~~micro-par~~ entrant boutiques); 3) better storage facilities (depot, cold storage), better processing facilities (drying, milling, canning, bagging); 4) better road and sea access to principal transport points (landings and roads); and 5) by virtue of all the preceding as well as market training and enlisting professional marketing services, better prospects for contracts with high-end urban re-distributors, notably super-markets, hotels and, in the case of Cape Haitian, Royal Caribbean Cruise Ship facility (this also makes prospects for exports realistic and creates a base for supplying future tourist industry).

links by both road and sea. Regarding the sea, Northwest Haiti has the unique advantage of being at the cross roads of two major continental weather systems: North and South America. The North side of the peninsula may be experiencing a high pressure system and rough seas, while 15 miles away, on the inside rim of the Bay of La Gonave, boats enjoy flats seas, fair winds, and a straight 20 hour sail to Port-au-Prince. If more costly, ground transport is faster. Ground transport also means that in the case of foul weather merchants can still move their goods.

Figure 33: Map of PRAE Market Flows



Community Based Organizations (CBOs)

Service Providers

There are 13 Haitian NGOs registered with the Haitian Ministry of Planning (MCPCE). Five of them provide services to the agriculture sector. Specifically, CAM works in seeds, agriculture and irrigation; ADNO and FONDEV in all phases of agriculture; GRAF in Mare Rouge works specifically with goats. Until recently local NGOs have played only a tangential role in regional development, while international NGOs also registered to work in Haiti played a role significantly more prominent even than the Haitian government (see Figures 34-35 below). All the cited national NGOs except FONDEV (c. 1984) were founded since year 2000. The most prominent regional Haitian NGO is ADEMA, which is not listed with MCPCE as officially registered and has benefitted greatly from association with the French organization ID.

Associations

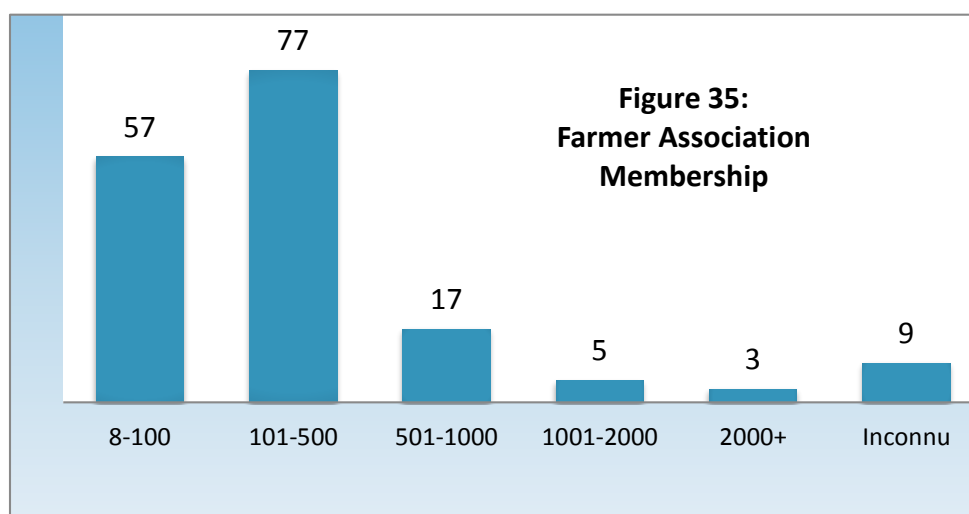
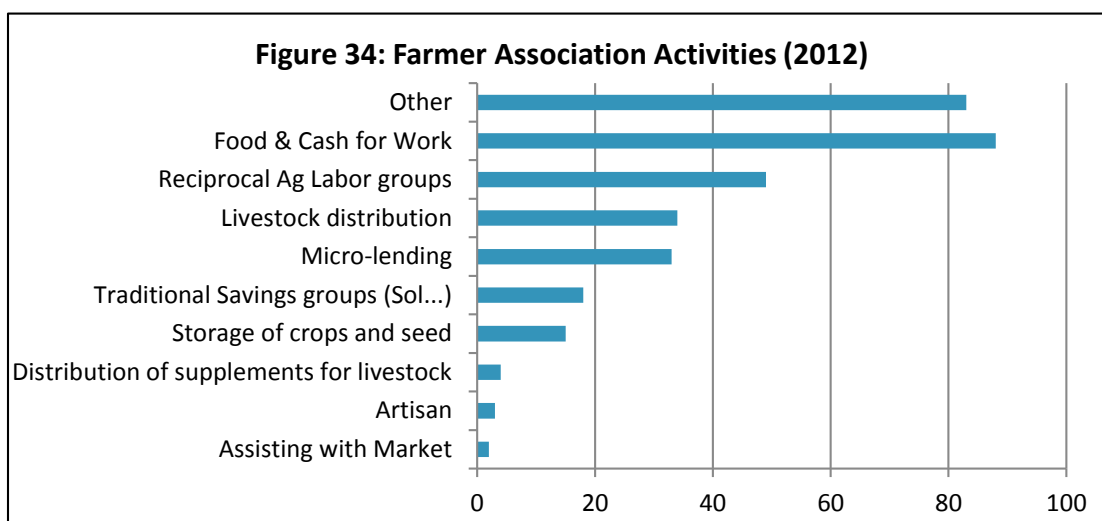
There are at least 63 “associations” in the Far West and Anse Rouge alone. There are another 42 in La Tortue. They represent a population of approximately 250,000 adults; 50% are illiterate. A number of these Associations emerged in responses to several hundred million dollars of foreign aid into the region since at least 1968 and primarily funneled to the population through the associations that are formed to meet NGO organizational demands for “cash for work” activities on roads, ravines and irrigation works. Most association leadership are incapable of meeting financial accounting standards required by donor agencies and NGOs. This often means allying with larger associations or ceding control to individuals who have the educational level and competency to meet the requirements, opening the door to fraud and embezzlement that has become a virtual industry in the North West Department. The industry is such that successful facilitators maintain residences in the region with the sole objective of siphoning off development funds to maintain their family and lifestyles in Miami. The extent of this practice cannot be gainsaid.

Under PAER, members of Associations will receive training in enterprise group management, business skills, basic accounting,, before they can access funding from the programme The enterprises will be legalized as property owning entities with constitutions delimiting responsibilities, voting and profit sharing. The approach is necessary in view of entrepreneurial elite described above entrenched practice of commandeering association capital and development investments from outside. It conforms to IFAD’s mandate to work with poor farmers and market women. And it resolves the fundamental problem of a scarcity of sufficiently capitalized and interested entrepreneurs in the region to invest in farmer oriented market access enterprise.

International Service Providers

In the endeavor to improve post production process, services providers engaged in promoting market access elsewhere in Haiti will be invited to bid on contracts to perform as facilitators and training specialists. There are a number of such service providers working in the NW Department, building capacity of primary target groups in marketing of the range of products identified above, for the programme to launch competitive bids of quality services. These include TechnoServe with mango and peanut aggregation strategies, access to processing equipment and, phytosanitary

controls, and export facilitation scheme, all targeted at small producers. TechnoServe has enjoyed significant success elsewhere in Haiti and aims to expand into other crops, including coffee and millet. Root Capital is engaged in Coffee and Cacao. And Clinton Foundations Accesso is focused on peanuts. All these are credible and experienced organizations that PAER can facilitate engaging with farmers in the Far West, Anse Rouge, and La Tortue, areas where these organizations currently do not work.





What locals call *Chicken corn*: matures in 2¹/₂ months



Bean garden coming up in Gwo Sab, Jean Rabel after rains from Hurricane Sandy



Head of Millet outside of Gonaives



Catholic Churches Clarke Family Ranch outside of Gonaives: A struggling Farmers School

Table 22: Haitian NGOs in the Region

Name of Organizations	Date Registered	Addres	Activity zone	Activities	Contact
Christian Aid Ministries (CAM)	19-Mar-02	Rév. Eris LABADY Rte. Ntle #1, Titanyen BP.15184.	N.O: Môle St. Nicolas Bombardopolis Art:Gros-Morne N.O: Anse Rouge	Assistance Sociale Education, Agriculture	257-9550, 257-9554
Action pour le Développement du Nord-Ouest (ADNO)	25-Sep-00	0272 Rév. Pasteur Emile LOUIS Nan Gris Gris, Port-de-Paix, Angle Lalue & Nazon # 86bis	Port de Paix, Nord-Ouest,	Agriculture.	. 268-5454. 268-5201. 245-9815. 244-0168
Espoir Pour Tous (EPT)	19-Mar-	EPT B-0290 02 M. Délaire DOCILET Delmas 19 # 18 à l'étage BP 13216.	Nord-Ouest: Jean Rabel	.Assistance Sociale .Agriculture	510-8237
Institut de Développement Municipal (IDM)	19-Mar-02	B-0294 Mme. Magalie C. Rodrigue 67, Rue Waag	Ouest Nord Nord'Ouest		222-0265
Fondation Grann Lison FGL	21-Aug-03	B-0331 Alexandre ROCHENEL 4, Rue Baussan , Local Père Monfortains.	Jean Rabel	Santé .Assistance Sociale	403-4049. 245-9232,
Fondation Prodermo PRODERNO	8-Oct-03	. B-0343 David SYLVESTRE 68, Rue des Miracles	Port-de-Paix	Assistance Sociale	222-2457
Groupe de Recherches et d'Actions pour le Développement du Far-West (GRAF)	8-Oct-03	GRAF B-0340 Justin LUBERAL 18, Rue 6, Pacot	Môle St. Nicolas	Agriculture (élevage Capins)	245-1660. 244-4047
Fondation Martin Luther King FOMALUK	15-Apr-04	B-0352 Past. Siméon EGLOIRE 23, Rue Sambourg, Delmas 27	. Gros-Morne		555-2922 218-2926
Association pour le Réhabilitation Socio-Economique du Nord'Ouest (ARSENO)	13-Dec-04 .	B-0365	Lapoint, St. Louis du Nord	Assistance Sociale	
Collectif d'Actions pour le Développement du Nord'Ouest	13-Dec-04 Dr	CADNO B-0366. Osni EUGENE 65bis, Avenue Lamartinière	Môle St. Nicolas, Sont-Louis du Nord, Port de Paix	Assistance Sociale	245-7198 525- 6593 .
Ayiti Gouvenans AG B-	10-Nov-08	0452 Jackson VOLTAIRE 19, Rue Godfroy, Delmas 33	Jean-Rabel Mole Saint-Nicolas	Assistance Technique	www.ayitigouvenans.org. 3402-2119. 3455-0760. 3710-8131. 3454-5214
Jeunesse Merveilleuse pour Haiti de Demain / Haiti Youth of Legacy JMHD / HYL.	14-Nov-11	B-0557 Firmie Simpson	Saint-Louis du Nord du Nord 39	Assistance Sociale	jeunessemerveilleuse@yahoo.fr. 3610-3531. 3612-5939
Fonds pour le Développement Rural FONDEV	4-May-84	A-0024 4-May-84 Miot JEAN-FRANCOIS 7, Rue Babiole, P-au-P		Agriculture Formation Agricole	245-5636

Table 23: Foreign/International NGOS

Table 23: Foreign/International NGOs																																				
Organization	Commune												Activity																							
	Mole	Bombard	Jean Rabel	Baie-de-Henne	Anse Rouge	Source chaude	Gros Morne	Port-de-Paix	B Moustique	Bassin Bleu	Chansolme	St Louis Nord	Anse-a-Foleur	Agriculture	Seed	Storage	Intrants store	Livestock	Processing	Marketing	Mangos	Reforestation	Fishing	Health	Nutrition	HIV Related	Irrigation	Well, cist, pipe	Education	Food dist	Disast. Mngmnt	Artisana	Sanitation	Infrastructure	Salt	
AAA (German)	x	x	x	x										x	x			x	x				x	x			x	x						x		
ADEMA (Haitian)	x	x	x	x										x	x			x											x					x	x	
ID (French)	x	x	x	x										x	x			x																x	x	
ACF (French)	x	x	x	x	x		x																x	x		x	x					x				
IMF (International)	x	x																																		
UEBH (US)									x					x										x										x	x	
CRS (Haiti & International)		x	x				x	x				x																								
TechnoServ (International)							x													x																
Red Cross (International)	x	x	x	x				x														x								x						
NWHCM* (US)	x											x	x	x								x		x		x			x	x	x					
Amor in Action (US)																								x					x							
Food for the Poor (US)	x			x			x	x													x						x									
AFDC		x																																		
Blue Ridge Int. (US)		x																											x							
CAM (US)	x	x	x	x	x									x	x	x			x	x		x		x	x	x	x	x	x						x	
Haiti Baptist Mis. (US)																														x						
World Neighbors														x																						
MOL										x														x	x			x	x	x						x

Table 24: Associations in NW and Anse Rouge						
Nom de l'organisation	Localite	Commune	Contact 1	Telephone/ email	Contact 2	Telephone/ email
ASNO		Chansolme	Clamir blanc	37715967		
AIB	Ballade	Chansolme	Gelin claudy	37392674	Gina eugene	37400246
APREC	Petit coin	Saint-Louis du	Loriston wikenson	38205630	Alteme rosemane	36533395
PA BLIYE	Centre ville	Chansolme	Techelet louis	37457596	Stephanie nelson	36314848
OPSD	Grande	Jean-Rabel	Charles jean robert	36213351	Ducla alila	37179273
TET KOLE	Ballade	Chansolme	Adema atilus	38381188	Jehovah atilus	33678914
MOPC	Roldof	Mole St Nicolas	Jean moimeme	36088894	Faugue fanelus	36847278
MOUNEB	Bassin bleu	Jean-Rabel	Ulysse jerome	36695614	Ulysse robert	36695614
MOOVENCE	Balatier	Saint-Louis du	Chenet carty	37830242	Petit Bozi	37904055
PWODEP	Deroulien	Bassin Bleu	Emile trasilien	47854463		
AFSODO	Odige,morne	Bassin Bleu	Mme kertia st vil	38427758		
TET KOLE	Pas chech	Bassin Bleu	Moril Exantus	38861639	Exantus Fito	31232171
MSCJR	Nan bois	Bassin Bleu	Jonel Senatus	43176635	Ulisie dieulivert	36623103
CEPAR	Blok guest	Bassin Bleu	Dalien dieuphene	37572126	Charles edouard	36793294
ROSE DE LIMA	Labe	Bassin Bleu	Jean eli dasli	46808595		
APF	Faligan	Bombardopolis	Etrenne Ervilus	38263108	Iveniel Ternelus	37766783
AJCB	Ballade	Chansolme	Joseph dilma	36827380	Kerby eugene	37112007
AFVDS	Deside	Port-De-Paix	Dormelia senatus	48010260	Boge jhonny	37314522
OPKOF	Dame marie	Mole St Nicolas	Laurent aliance	36810404	Garcon olem	37199529
JCA	La coma	Jean-Rabel	Odrange Prince	38174401	Jean Luxon	38639534
AJPPR	Guichard	Saint-Louis du	Sineus Sony	36313830	Louis Marc Donal	33788010
KREP	Faligan	Bombardopolis	Volnik Ervilis	48351844	Atonese Dilejuste	37356673
MTLB	Leblanc	Jean-Rabel	Phanel Themistocle	36781668	Wiliam maxino	36796065
AJSDL	Loterie	Port-De-Paix	Vital Linique	36166665	Dieufait Jean Jacques	37764659
ADLR	Remy lefond	Jean-Rabel	Joseph norisaint	48426239	Exales deus	31952745
COOPECS	Centre ville	Saint-Louis du	Juna Sanon	22141311	Odena Chanoine	31701848
OJDRB	Rivieres des	Saint-Louis du	Petion Wilner	37661392/33	Micamson Telfort	33551457
AFDEB	Roche fort	Bombardopolis	Elisa philippe	38483073		
ISPO	Creve	Bombardopolis	Telsaint Vilfran	36729710	Alisca Jn Louis	31460438
ODRB	Riviere des	Saint-Louis du	Fritnel Polinis	37497349	Joseph Simeon	37310505

Table 24: Associations in NW and Anse Rouge

Nom de l'organisation	Localite	Commune	Contact 1	Telephone/ email	Contact 2	Telephone/ email
KOPNO	Pas chech	Baie-de-Henne	Petit frere	37664572	Jean wil Desilis	47412990
APD	Duconge	Mole St Nicolas	Beauplan Michelet	37845525	Dupra Euclenie	38746698
ATRAT	Tifon	Port-De-Paix	Jacque Louis Carlos	32269793/ 38946717	Nelson Rosias	46084834
OFPD	Reserve	Baie-de-Henne	Beaubrun	37862480	Rodna Exantus	37499630
ACPRODAM	Camp	Bassin Bleu	Elionor elma	46258528	Eliner francois	46258513
AMODD	Des granges	Saint-Louis du	Etienne Louverture	38038556	Jean vul St Farlin	37562284
OCD	DOS D 'ane	Baie-de-Henne	Beaubrun Antoine	32920519	Brunel Cesaire	36424387
SCOUT	Cap rouge	Saint-Louis du	Dumarsais Jonas	47961681/	Velis	36400882
ADEPS COJ	La coma	Jean-Rabel	Beaubrun	33551532	Louissaint Jean Rico	38550771
COADPO	Creve	Bombardopolis	Laures moise	36562510	Portilus ilaman	36384562
AGROECOLOG	Kalik	Port-De-Paix	laureus liberis	36710885	Osias pierre	36985742
AIPRB	Bwa Dom	Baie-de-Henne	Elie Jean Ronel	38697016	Dupi wisbert	36791915
KCA KOMIN	Centre ville	Chansolme	Augustin benerick	36327768	Remy joseph	36775125
AREB	Labe	Port-De-Paix	Jesistrat pierre	31053133	Wilda germinal	47352837
FONPCUD	Des granges	Saint-Louis du Nord	Merizier Robert	37917624/ 32771075	Jean Pierre louis	37904055
CJDNO	Dame	Mole St Nicolas	Charles maxen	46089930	Charles Renan	38664485
UJBD	Bois neuf	Jean-Rabel	Charitable	36615033	Beldorin wilson	38059976
MTPM	Camp	Bassin Bleu	Ancy bastien	46258533	Charles isbenie	46966320
APDB	Berger	Saint-Louis du	Cado Simone	37691061	Avena wisny	37356385
ATRAL	La corne	Port-De-Paix	Xavier alix	38221672	Vagner comete	38327907
APPIBH	Centre ville	Baie-de-Henne	Telus Wilson	31243280	Joseph Wilda	36865949
COEM	Centre ville	Jean-Rabel	Jermanie jean	36276308	Jean vesnel	36276308
CIDEB	Pelicier 1	Bombardopolis	Stinfil Lijonc	37405283	Exeus Amercius	36511735
TK TET KOLE	Puis kouzen	Port-De-Paix	Oxon thomas	37674237	Pierre joseph	38308387
MOSODEL	La Plaine	Jean-Rabel	Nelson Walnex	36344501	Anna Louise	32500359
APPSB	Clenette	Bombardopolis	Fanel dupre	36488654	Renemi francois	36168205
POPS	Chemin	Saint-Louis du	Wilson Etienne	36195262	Lucas charite	37770319
CAPS	Centre ville	Saint-Louis du	Samuel Denave	38247090	Desravines Frantz	37035202
FOPDEL	Odige	Bassin Bleu	Ribert audejeune	36573484	St martin mereus	38346438
ATC	Cabaret	Jean-Rabel	Paul Elysee	32994768	Metayer joas	36941437
OFPB	Ballade	Chansolme	Gina eugene	37300246	Jonassin lumose	36787319

Table 24: Associations in NW and Anse Rouge

Nom de l'organisation	Localite	Commune	Contact 1	Telephone/ email	Contact 2	Telephone/ email
AGEH	Veille terre	Jean-Rabel	Josafa mercidieu	36493994	Noel clervil	36070065
ADRUH	La coma	Jean-Rabel	Prince Joceline	43166722	Joanes celima	32767088
ODPG	Grivot	Bassin Bleu	Pierre etienne	31682321	Paul ceranes	47961422
GGC	Kaporal	Port-De-Paix	gereus ertilus	38416442	Wilken branchedor	32994412
KABM	Koray	Jean-Rabel	valery conserve	31015077	Anthony selmon	3665463
OLAD	Gran dyab	Anse-Rouge	Manis dilus	38412832	Patricia fatal	38948982
FRADESF	Foison	Port-De-Paix	Audelor fertile	38778697	Veusnor breus	36613923
AJDD	La douceur	Saint-Louis du	Francis Alistene	36219308	Guiliene Monestime	37136865
CREP	La plaine	Jean-Rabel	Anise Desamours	22142270		
APECAR	Blok guest	Anse-Rouge	Dieuphene dalien	37572126	Elianve merdelus	36910965
AFC	Cap rouge	Saint-Louis du	Joseph Gelda	48197545	Guerrier linda	37122911
KOPLES	Centre ville	Bassin Bleu	Dumesle colisner	36457973	Smith tirogene	36538092
SOCOREDNO	Centre ville	Jean-Rabel	Moise yonel	37039744	Herrard prisley	48595509
ADPFK	Kademe	Jean-Rabel	Gertha hazard	43159850	Elsina riche	32776374
AGAB	Roulette	Bombardopolis	Jean will Augustin	38414445	Cedieu Jean Henry	36239341
AJDR	Remoussin	Saint-Louis du	Calixte Nickel	37624013	Jonas Ambroise	37852217
KPAL	Dispite	Jean-Rabel	Ilfrat Oxone	48254794	Teralien st preux	32905558
ODESOB/NO	Centre ville	Bombardopolis	Francois Gessler	36825096	Jean Coreck	36530964
Asodeb	Verne	Bombardopolis	Leodil norvelus	36100028	Henry suede	37893686
OPA	Aubert	Port-De-Paix	Joseph Frantz	37795349	Cesaire Wilbens	37500957
APAB	Floxy	Bombardopolis	Jean Ronel Valbrun	36183948/ 33826747	Fernandieu metesier	
APBO	Odige	Jean-Rabel	Loziel Belizaire	31931933	Sainvil Esaie	33551423
Atpb	Creve	Bombardopolis	Iloner alparette	36888691	Macon vernet capricien	37210920
Apl	Lanon	Bassin Bleu	Fertilus ose	46258961	Wilfin jeantinor	48399701
MODELL	La coma	Jean-Rabel	Auguste Odinel	36312851	Cineus Monfort	37134703
KED	Dupre	Baie-de-Henne	Simon Vilnocien	36536706	Etienne Erikes,met blan	36484278
CBEG	Guinaudee	Jean-Rabel	Naces melidor	32994666	Joales desamours	31042645
CREP	Nan rosier	Chansolme	Simeon elidieu	37067217	Francois luc filias	38051650
KOPARE	Larezev	Jean-Rabel	Dieujuste lumenes	33759970	joseph odonel	36751352
APFW	Kafilip	Jean-Rabel	Ilfrat josner	42664553	Mme Beauchamp poline	32861139
AJBDNO	Hass	Bombardopolis	Meteus Sudieu	36426172	Ternelus Icindes	37896463
OPD	Dame	Mole St Nicolas	Wilmon loudior	37843349	Cadet benisca	38378720

Table 24: Associations in NW and Anse Rouge

Nom de l'organisation	Localite	Commune	Contact 1	Telephone/ email	Contact 2	Telephone/ email
USAID CHAMP	Centre ville	Jean-Rabel	Kenol previsno	36184841	Nelson paulvic	37735211
KOPERAJR	Cente ville	Jean-Rabel	Jean baptiste etzer	36213525	Merdar sy hilaire	36429233
WELT	Centre ville	Jean-Rabel	Fedner lesperance	36167444	Rainer schmid	28107425
GRAF	Mare Rouge	Bombardopolis	Theramene Bernexes	37400954	Cesaire Saturnet	38077849
MTSJ	Coicou	Jean-Rabel	Paul noder	36542692	Yslaine jean marie	31151747
ACF	Centre ville	Anse-Rouge	Destin	38167961		
AJDLM	Ka godet	Jean-Rabel	Joseph fenelien	38560670	Pierre amilus	36473044
ACF		Nord-Ouest	Samir Maleh	2245-1886		3550-5035
AMG		Artibonite Ouest	Jean Wilner PAUL	2246-1065		
AAA	Jean Rabel	Nord'OuestArtibo	Michael KUEHN	257-3962		513-5690
ASDC		Nord - l'Ouest	Bernard ZAUGG	2249-1193		
AG		Jean-Rabel Mole	Jackson VOLTAIRE	3402-2119		3455-0760
EEIUH		Mare Rouge,	Francinor			
EPT		St Louis	M. Déliaire	510-8237		
GAPEL			Mme Denise C.	2516-0286		3448-7648
NWHCM	St Louis	St Louis	Janeil OWEN	2268-5810		2268-4794
SAO		P+ort-au- Prince	Mme Marie Gabrielle			
P&A		Ouest Artibonite	Eris LABADY	2246-2105		2249-3797
ID/ADEMA	Jean Rabel	Artibonite	Isabelle FAUCON	2510-8845		
CAM	La Source			2257-9550		
IMF			Steve and Faith Leach			
BBM	CREVE	Bombardopolis	Precois Norcilus -	903-372-3675		
Hands Together		Gonaives		413-731-7716		
Much Ministries		Gonaives	Beaver Brooks			
2Story		Gonaives	Kathy Brooks			
Omaha Rapid		Gonaives	Brian Smith			
Much Ministries		Gonaives	Keziah Furth Nurse			
Isaac Gardner		Gonaives				
Store owner		Gonaives	Maxime Doris	3 621 0532		
SOS			Julien Gerard	3 720 4976 / 3		
Catholic Priest,		Gros Morne	Father Wilne			
AFAGM			Nadal Odeus			

Table 24: Associations in NW and Anse Rouge

Nom de l'organisation	Localite	Commune	Contact 1	Telephone/ email	Contact 2	Telephone/ email
Gros Morne Hospital		Gros Morne	Nanci Vital (nurse)	3 122 13 95		navitou08@guadeloupe.com
Gros Morne Hospital		Gros Morne	Dieus Françoise (Directrice System)	Francoise.deus@yahoo.fr		
FAV		Basin Bleu	Zidor Belancia Tanis	3 635 2349 / 3		Zidorbelanciatanis@
AFALIBAG		Limit Bassin Bleu		3 496 28 66		
FMC		Mare Rouge	Carol Anne	geo_cat1986@		

Table 25: Associations La Tortue

	Section	Associations et organisations de base: Denominations	Siege/ lieu d'activite	Annee de Fondation	Annee de reconnaissance
1. ABFAC	1eme	Association de Base Femme de Claude	Claude		
2. ADM	1eme	Asosyasyon pou Devlopman Makafe	Makafe	2012	2012
3. AGFL	1eme	Asosyasyon Group Fanm Nan Jak	Nan Jak	2005	2005
4. AJDA	1eme	Association des Jeunes pur le Developpement d'Anse-	Anse-		
5. AJTDT/BJS	1eme	Association Jeunesse Tortugaise pour le			
6. DDT	1eme	Developpement des Talents			
7. AJTP	1eme	Association des Jenes Tortugais pour le Progres	Aux	n.c.	
8. APNT	1eme	Association Progressiste pour une nouvelle la Tortue	Pagne	2010	2012
9. CTPDEV	1eme	Centre Tortugais pour la Promotion au developpement	Aux	n.c.	
10. GFAT	1eme	Gwoup Fanm Avize Teglise	Terre	2009	2010
11. GFPM	1eme	Gwoup Fanm Pointe Macon	Pte Macon		
12. GFRFA	1eme	Gwoup Fanm Rachte Palafwa	A	1985	2005
13. GFSVP	1eme	Gwoup Fanm Sel Lavi Plen	Aux Plaines	1989	2010
14. GFT	1eme	Gwoup Fanm Tandron	Tendron	1995	2011
15. JTA	1eme	AsosyasyonJen Jako pou devlopman	Jacquot	2012	2012
16. KDK	1eme	Kris devan kap lite	Mera		
17. MFR	1eme	Mouvement des Femmes pour la Reconstruction	Basse Terre		
18. OCA	1eme	Organisation Centrale d'Anse-Manchette	A-Manchette		

Table 25: Associations La Tortue

	Section	Associations et organisations de base: Denominations	Siege/ lieu d'activite	Annee de Fondation	Annee de reconnaissance
19. OFVK	1eme	Asosyasyon Fanm Vanyan Kokiya	Coquillage		
20. OJDA	1eme	Org. Jeunesse pour le Developpement d'Haiti	Decouvert		
21. UF	1eme	Union Fait la Force	Basse Terre		
22. ASVDK	1eme	Asosyasyon sitwayen volonte pou devlopman kominote	Basse Terre		
23. FEA	1eme	Femmes en Action	Jacquot		
24. ADIL	2eme	Association pour le Developpement de l'Ile de la	Rosoliere		
25. ADTA	2eme	Association de Developpement Tortugais en Action	Mare Rouge	2008	2012
26. AFLCTC	2eme	Association des Femmes Luttant pour le			
27. CTCS	2eme	Changement de la Tortue Corosse -Seche	Corosse-	2008	2008
28. AFTS	2eme	Asosyasyon Fanm Latoti Servili	Servilly		
29. AFVV	2eme	Associations des Femmes Vaillantes de la Vallee	La Vallee	1986	2012
30. AJMPD	2eme	Associations des Jeunes de Mare Rouge	Mare Rouge	2012	2012
31. AMC	2eme	Association <<Men Contre>>		1985	1995
32. AMNM	2eme	Association Men Nan Men	Corosse-	2012	2012
33. APAB	2eme	Association pour l'Avancement de Biquette	Biquette		
34. APSM	2eme	Aprann Panse Mahe	Mahe	1995	1995
35. FDMN	2eme	Fanm Devwe Nan Monben	Monben	2010	
36. GFATM	2eme	Groupe des Femmes en Action la Tortue Mahe	Mahe	2006	2008
37. GFKLD	2eme	Gwoup Fanm kap Lite Dalmari	Dalle Marie	2008	2008
38. GFVM	2eme	Gwoup Fanm Vanyan Mawouj	Mare Rouge	2012	2012
39. MODIT	2eme	Mouvement Organisation de Developpement de l'Ile de la	Montry	2011	2011
40. MPK	2eme	Mouvman Peyizan Kreyas	Creasse		
41. OFAT	2eme	Organisation des Femmes en Actions	Nan18	2010	2010
42. OFETH	2eme	Organisations des Femmes Éclair de L'Ile de la Tortue	Okanno	2011	
43. ORIT	2eme	Organisation pour le Relevement de l'Ile de le Tortue			2000

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Researcher Christopher Root. Center on Globalization, Governance & Competitiveness, Duke University

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ⁱ PAER will support market access. For 26 years IFAD has focused on production in Haiti. In the meantime political instability, massive food relief, lack of strategic investments rather than humanitarian aid, absence of infrastructure and an increasing failure to meet phytosanitary standards for export to the US and European markets has meant that Haiti's agricultural exports plummeted. During the 1980s and 1990s, Haitian cacao, sisal, essential oils, and cotton exports all subsequently shrank or disappeared entirely as Haitian export crops. By 1988, sugar exports had dropped to zero and by 1995 Haiti, once counted among the greatest sugar producers in the world, was importing twenty-five thousand tons of U.S. sugar per year (Hallward 2004). In the late 1980s coffee exports comprised 70 to 80 percent of Haiti's agricultural exports; they fell from eighteen thousand metric tons in 1987 to six thousand tons in 1995 (Alphonse 1996). Accounting for 52 percent of Haitian exports in 1980, agriculture comprised 24 percent in 1987; 21 percent in 1990. The State, with a budget decided under international guidance, did little to offset the trend. In 1989 only 5 percent of the national budget went to the Ministry of Agriculture, Natural Resources, and Rural Development. In short, while IFAD and other organizations—USAID, GTZ, and EU—invested in production, production within Haiti plummeted. Developments on the domestic market did nothing to offset the loss to farmers and market women. PAER will address the situation with entrepreneurial targeted market interventions.

ⁱⁱ Extrapolated from data from Jean Rabel (see Schwartz 2009)

ⁱⁱⁱ

Table 26: Communes: Population, Area, and Sections (Source: IHIS 2012)	
Bombard 32,764 hab, 203,72 km2	Port-de-Paix 250,000 hab 351.75 km2
• Plate-Forme • Plaine-d'Oranges • Des Forges	• Baudin • La Pointe • Aubert • Mahotièr • Bas des Moustiques • La Corne
Baie-de-Henne 24,812 hab. 203,72 km2	Gros-Morne 141,587 hab. 397.03 km2
• Citerne Rémy • Dos d'Ane • Reserve • L'Estère	• Boucan Richard • Rivière Mancelle • Rivière Blanche • L'Acul • Pendu • Savane Carrée • Moulin • Ravine Gros Morne
Môle-St-Nicolas 30,795 hab. 227.07 km2	Anse-Rouge 39,463 hab. 434.35 km2
• Côte-de-Fer • Mare-Rouge • Damé	• Sources Chaudes • L'Arbre
Jean-Rabel 134,969 hab., 488.13 km2	La Tortue 45,000 hab, 180 km2
• Lacom • Guinaudée	• Pointe-des-Oiseaux • Mare Rouge.

• Vielle Hatte • La Montagne • Dessources • Grande Source • Diondion	
Total 699,390 hab 1233.6 km ²	

^{iv} Charcoal is bagged and sold to intermediaries who ship the product on trucks or by boat to urban centers, most notably Port-au-Prince. Rural Jean Rabeliens generally do not use charcoal themselves—they use wood. In almost any region one finds an ongoing production of charcoal with a handful of specialists and intermediaries engaged in the industry and they are considered among the poorest, lowliest people in an area, although the money earned at charcoal production can compare favorably to other occupations. But for most individuals charcoal production is something that occurs when a special need arises, as when someone wants to build a house or finance a new garden and charcoal production is most conspicuously bound with times of drought and crop failure. In Mole Saint Nicolas, for example, is a shipping point for charcoal and there are usually several dozen sacks stacked on the wharf. But during the 1996-97 drought, the entire wharf was covered with thousands of sacks of charcoal stacked as high as the houses.

^v **Adaptive Cropping Strategies** To understand the security situation and how it articulates with peasant livelihoods it is important to understand the crops Haitian farmers plant and the extent to which they are adapted to drought.

Sweet potato go into a state of dormancy during drought and then come back vigorously at first rain and may yield as much as twelve metric tons per acre on as little as four inches of rainfall. The more it rains, the more the vine produces (see Bouwkamp 1985; Onwueme 1978).

Manioc is one of the most productive tropical food plants on earth in terms of calories produced per square meter, surpassed only by sugar cane and sugar beets. It needs more rain than sweet potatoes to grow, but it is more tolerant of drought, easily surviving dry periods longer than six months and it grows in marginal soils. Unlike sweet potatoes, cassava has the unique ability to be stored in the ground and is hurricane proof because it can lose all its leaves and its branches may break but the root, which is where the food is, will not die. After drought or hurricanes the plant draws on carbohydrate reserves in the roots to rejuvenate itself (see Toro and Atlee 1980; Cock 1985).

Pigeon peas are a bush-like plant with roots reaching six to seven feet beneath the surface, deeper than cassava, making the plant highly drought resistant. When drought does strike, pigeon peas shed all their leaves and go into a state of dormancy just like cassava, coming back to life when the rains return (see Nene et al. 1990). Moreover, its stalks provide an excellent fodder for livestock.

Millet is another wonder crop that yields with minimum rainfall. The roots reach more than eight feet beneath the surface, enabling the plant to withstand over two months of drought. When the crop is entirely lost to drought or has been harvested, the stalks can be cut back and with the first rains the plant will begin growing again; it can potentially yield 10,000 seeds for every seed planted, it grows on land otherwise lost to salinization, and its hard kernels store as well or better than wheat (see Nzeza 1988).

Peanuts are even more drought resistant than millet, and in NW and Upper Artibonite they are planted in sandy soil and in the chaparral where only cacti and xerophytic plants are found. It is also the premier high yield cash crop in the mountains, taking over the role that corn and beans fill on the plains (see Nzeza 1988).

The other lesser but still important crops all fit into an agricultural strategy that is clearly selected more for eking out a living in the face of an unpredictable market and natural environment than for participating in the world economy: **Lima beans**, which are inter-cropped with corn, are nitrogen fixing and begin to yield two to three months after harvest and continue to yield for as long as there is sufficient rainfall. **Pumpkins** and **squash** also yield continually as long as there is rain. The most popular **yam** in the mountains of the North West (*yam reyal*) can be planted during dry spells and will begin to grow with the first rains. Like cassava, it can be stored in the ground indefinitely, serving as an important food during droughts and other crises. Sugarcane endures for years, propagates itself without human

intervention, can be harvested at any time after it is mature, and will grow back after being cut. Perhaps most importantly with regard to **sugarcane**, the hard fibrous exterior locks in water while the roots extend some eighteen feet underground, making it a completely drought-resistant source of water and high-energy food for both people and animals.

^{vi} International development organizations and donors have made significant investments in production. IFAD's PAER now aims to help farmers capitalize on those gains by working with the farmers to improve market access. One strategy PAER will offer is helping farmers get produce to high end urban markets. Nevertheless, the design calls for demand driven process.

^{vii} Table illustrates the percentage of Jean Rabel respondents mentioning a crop when asked to report the five crops they most commonly plant. All beans and peas were lumped into a single category during the baseline survey (clarify when baseline is used). This was a mistake and the distinction between beans rache—beans harvested at one time which are known in French as Haricot—and pigeon peas, cow peas and lima beans is made elsewhere)

^{viii}

La Tortue markets,

Mache Montri
Mache lakay Montri
Mache seradot Seville
Mache laval
Mache haut palmiste
Mache nan jak
Mache Mawouj

^{ix} At least 8 major earthquakes have hit the island in the past 250 years and probably more; the most destructive were one in 1751, destroying Port-au-Prince; another in 1842, estimated at an equivalent of 8.5 on the richter scale it destroyed both Cape Haitian and the Dominican city of Santiago some 150 miles away; and one in 1935 that created a tsunami, swamped sections of the North coast and killed thousands. Church archives in the northern town of Port-de-Paix, show that a severe earthquake hits on average every 43 years. They are currently overdue by some 40 years.

^x FAO (2012) Food and Agriculture Organization of the United Nations <http://faostat.fao.org/site/339/default.aspx>.

^{xi} l'Industrie (MCI) & Programme des Nations Unies pour le Développement (PNUD) 2013. Produits typiques en Haïti Ministère du Commerce et de

^{xii} http://pdf.usaid.gov/pdf_docs/PDABT829.pdf

^{xiii}

Problems effecting bananas and Plantains. From Queensland Government Business and Industry Portal (<http://www.business.qld.gov.au/industry/agriculture/crop-growing/fruit-and-nuts/queenslands-banana-industry/pests-diseases-banana-crops>)

Pests

Banana aphid
Banana flower thrips
Banana fruit caterpillar
Banana rust thrips
Banana scab moth
Banana weevil borer
Banana-silvering thrips

Banana-spotting and fruit-spotting bugs
 Cluster caterpillar
 Fruit-piercing moths
 Queensland fruit fly
 Spider mite
 Two-spotted mite
 Spiralling whitefly
 Sugarcane bud moth

Diseases

Bunchy top
 Panama disease
 Black Sigatoka
 Anthracnose
 Rhizome soft rot
 Banana leaf rust
 Leaf speckle
 Crown rot
 Fruit speckle
 Yellow Sigatoka
 Burrowing nematode

Serious quarantine diseases

Moko disease
 Banana freckle
 Banana bract mosaic disease

^{xiv} Luis Perez Vincent 2013 Current Situation of Black Sigatoka in the Caribbean and Potential Use of FHIA Resistant Hybrids. Congreso Internacional de Banana

IICA 2002 Report on Caribbean Black Sigatoka Management Workshop. Kingston Jamaica

<http://www.oreworld.org/banana.htm>

^{xv} Food And Agriculture Organization Of The United Nations <http://faostat.fao.org/site/339/default.aspx>

^{xvi} FAO (Food And Agriculture Organization Of The United Nations) <http://faostat.fao.org/site/339/default.aspx>

^{xvii} Hawtan Leathers in Mariana (Port-au-Prince), handles US\$3.5 million in goat skins destined to be gloves in the US market and has expressed interest in expanding hide purchases to the region.

^{xviii} Drawing on CRFM's 2010 evaluation of fishing in Haiti, The National Fisheries Service estimates that 21,000 (60%) of these are full time fishers, whilst the rest 6,000 (40%) are part-time fishers. When one follows the trend over the past two decades, the estimates are as follows: 1985 – 11,000 (www.cam.org); 1989 – 12,000 (UNDP / FAO); 1999 – 17,148 (FAO); 2001-30,000; in 2010 MARNDR put it at 52,000

^{xix} Based on fish counts Haiti's Reefs Most Overfished in the World Post date : 2011-03-30

http://reefcheck.org/news/news_detail.php?id=726

^{xx} Note should be taken that the fishing industry in Haiti has hitherto been financed with aid, to the extent that it is being funded at all. Anse d'Hainault region is an excellent example. The offshore industrial fishing industry began there in 2000 with EU financing: 132 outboard motors were sold on credit and subsidized at 50% of cost; 10 DCPs were installed; a credit fund was provided as well as cold storage facilities and materials. Fishermen responded. The number of offshore fishing vessels in the area went from 120 in 1997 to 220 in 2007 (Damais et al, 2007; (Guinette 2009). In 2008, Food for the Poor reportedly gave each of the three communities an additional 24-foot fiberglass boats with outboard engines, 100-quart coolers, safety equipment, global positioning system (GPS) fish finders and kerosene freezers to store catches.

The role that aid plays in initiating the formation of fishing associations is clear. When the EU first began financing Anse Hainault, there was no fishing association. L'Association des Jeunes d'Anse d'Hainault converted itself into « Pêche Anse d'Hainaut Irois », or PADI, becoming the major recipient of boats, motors and securing access to the DCPs. Two years later, in 2002, the AMPAH (Association des Marins Pêcheurs d'Anse d'Hainault) was formed as an offshoot and co-recipient of the funds. In 2013, representatives of the associations were actively seeking additional funding, highlighting the likelihood that without influx of aid to the fishermen, investments would not have been made in the first place. And without continued support, it's hard to see how the industry can be sustained (Net News 2008). There is also the issue of the stability of access to urban markets. While Haiti imports 70% of the fish consumed in the country (see MARNDR 2009), there is still the difficulty of getting high quality local fish to the Port-au-Prince market. Contacts, entrepreneurs, investments in time, storage and transport has all been subsidized and expedited by overseas aid agencies and foreign donors.

^{xxi} Purchasing Categories: The machann, market woman, is not especially interested in lobster and conch, both of which she cannot or does not dry. With regard to fish, she is interested in volume. There is some advantage for her regarding small fish, which are easier to clean and dry and less inclined than large fish to get worms after dried. Moreover, her rural clientele typically cannot distinguish Parrot Fish from a Grunt. Thus, the machann is not inclined to pay as much attention to fish types. The influence of the *achtè*, on the other hand, gives way to three categories of fish: Pwason Woz (Pink Fish), Pwason Blan (White Fish), Karabela (Blue Fish – in other areas of Haiti the category is sometimes "black"). The categories do not strictly correspond to the color of the fish but are more accurately explained as combination of size and type; both of which are market determined. Pink Fish are the most desirable; White Fish less desirable; Blue Fish--the small fish, juveniles, and rejects from the other categories--the least desirable. Lobster--the most lucrative product for both fisherman and *achtè* but not as commonly caught as fish--and conch fall into two categories: one for the internationally legal marketable size and another price category for undersized specimens.

^{xxii} CGIAR 2014 Fund Promoting postharvest technologies, value chains, and market opportunities
[https://www.cgiarfund.org/sites/cgiarfund.org/files/Documents/PDF/CRP3.4-RTB%20Revised%20Proposal%20-%20Annex%202-6%20\(revised\).pdf](https://www.cgiarfund.org/sites/cgiarfund.org/files/Documents/PDF/CRP3.4-RTB%20Revised%20Proposal%20-%20Annex%202-6%20(revised).pdf)

^{xxiii} <http://www.bananalink.org.uk/organic>