A Preliminary Rural Livelihood Assessment

Community dynamics and income diversification strategies in La Zahina, Panama

Sarah Davidson

Marie-Audray Ouellet

Marie-Joëlle Robichaud

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CREA - Panama

By

Sarah Davidson

Marie-Audray Ouellet

Marie-Joëlle Robichaud

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Professors Roberto Ibañez

and Rafael Samudio

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ABSTRACT

Population growth, poverty and agricultural intensification are putting pressures on Central American forests. In Panama, an increase in the area used for subsistence agriculture has been correlated to a continued decline in forest cover. Increasing deforestation is impacting rural peasants who find themselves in a subsistence crisis perpetuated by unsustainable agricultural practices such as slash and burn.

As part of the ENVR 451 internship course, we investigated the link between poverty alleviation and conservation of the natural environment in order to provide our host institution, CREA (*Conservation through Research, Education and Action*), with recommendations for the community outreach and farmers training programs they are planning on conducting in the community of La Zahina, Panama.

In Panama, 52% of the poor are rural and women disproportionately represented in this group. The literature on rural poverty, development theories and income diversification strategies was reviewed for development project options in La Zahina. Rural non-farm employment (RNFE) was highlighted as a viable alternative to include women in household income generation activities independent on the extraction of the surrounding natural resources. The guiding principle is that an increase in economic well-being of individuals will bring a decrease in environmental degradation.

This literature review was coupled with field work sessions in La Zahina. This isolated community composed of approximately 110 people is representative of many small villages in rural Panama. A survey to collect baseline socioeconomic data was primarily conducted to get an idea of the demographic profile and dynamics of the community. The information gathered through this general survey was then followed by more in-depth interviews as well as focus groups on issues relevant to the community.

The field work sessions yielded interesting results. For example, the village is composed of a disproportionate amount of men as opposed to women, however women lack any sort of group organization. The average level of schooling in the village is grade 6. All families, with no exception, are dependent on the land for subsistence and only a limited number of farmers engage in market activities. Schooling options for youth are largely undermined by financial and access issues and a majority of women are interested in various training workshops in the hope of bettering their livelihoods.

The field work results highlight much of the vulnerability of rural populations, as well as the development-related challenges in remote areas. A sustainable livelihoods approach (SLA) to development, with a focus on income diversification in tandem with agriculture, is applied to these results to explore the viability of small rural business in the context of La Zahina. Recommendations are made, not to suggest the most feasible product, but rather to guide a more thorough evaluation of the ideas raised in group sessions with the community.

RESÚMEN

El crecimiento demográfico, la pobreza y la intensificación agrícola, están aplicando presiones en los bosques de América Central. En Panamá, el aumento de las áreas dedicadas a la agricultura de substancia se ha correlacionado con una disminución continua de la cobertura forestada. La deforestación está afectando a campesinos que se encuentran en una crisis de subsistencia perpetuada por prácticas agrícolas insostenibles tales como las técnicas de corta y quema.

Como parte del curso de pasantilla ENVR 451, hemos investigado la relación entre el aligeramiento de la pobreza y la conservación de los recursos naturales para proveer a nuestra institución, CREA (Conservation through Research, Education and Action) una serie de recomendaciones para el diseño de los programas de sensibilización que están planeando en conducir en la comunidad de La Zahina, Panamá.

En Panamá, los 52% de los pobres viven en áreas rurales y son desproporcionados compuestos de mujeres. La literatura tratando de pobreza rural, de teorías del desarrollo y de estrategias de diversificación de ingreso fue repasada para buscar opciones por el proyecto de desarrollo en La Zahina. El Empleo Rural No-Agrícolo (RNFE) fue elegido como alternativa viable para incluir a las mujeres en las actividades de mejoría de los ingresos sin afectar a los recursos naturales. El principio rector era que un aumento en el bienestar económico de individuos traería una disminución de la degradación ambiental.

Esta revisión de literatura fue juntada con sesiones de trabajo en el campo, en La Zahina. Esta comunidad, donde viven unas 110 personas, se parece y se compara a otros pueblos rurales de Panamá. En primer lugar, entrevistas para recoger datos socioeconómicos fueron conducidas para conseguir un diseño del perfil y de las dinámicas demográficas de la comunidad. La información recopilada con estas entrevistas generales fue seguida por entrevistas más profundizadas y con una discusión en grupo enfocado sobre temas importantes por la comunidad.

Las sesiones de trabajo en el campo rindieron resultados interesantes. Por ejemplo, el pueblo se compone de una cantidad de hombres en comparación con mujeres, pero las mujeres no tienen ningún tipo de organización para cooperar. El nivel mediano de escolarización del pueblo esta el grado 6 de la primaria. Todas las familias, sin excepción, son dependientes en la tierra para la subsistencia y solamente un número limitado de campesinos están vendiendo productos en el mercado. Las oportunidades de seguir a la escuela secundaria son minadas en gran parte por problemas de acceso financiero. Además, una mayoría de mujeres están interesadas a atender talleres de capacitación en la esperanza de mejorar sus sustentos.

Los resultados del trabajo en el campo destacan mucha de la vulnerabilidad de las poblaciones rurales, así como los desafíos relacionados al desarrollo en áreas alejadas. El método de sustentos sostenibles (SLA), con un foco en la diversificación de la renta en tándem con la agricultura, se aplican a estos resultados para explorar la viabilidad del negocio rural pequeño en el contexto de La Zahina. Se hacen las recomendaciones, no para sugerir el producto más factible, sino para dirigir una evaluación más cuidadosa de las ideas levantadas en sesiones de grupo enfocado con la comunidad.

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HOST INSTITUTION INFORMATION

CREA – Panama
Michael Roy, Executive Director
Anita Roy, Admistrative Director
356B, City of Knowledge, Clayton
PO Box 0843-02479, Ancon
Panama City, Panama
(507) 317-0720

CREA, an acronym for Conservation through Research, Education and Action, is a non-profit organization registered in Panama, the United Kingdom and the United States. CREA was founded in 2003 by executive director Michael Roy, with the mission to "disseminate knowledge so that everyone can be sufficiently informed to make long term environmentally sustainable choices that better the quality of our lives and those of generations to come". CREA's Panamanian office is situated in the Ciudad del Saber and run by its two directors, Michael and Anita Roy. The organization hires additional people as needed for specific projects.

CREA's main focus is on providing subsistence farmers training, with the goal to alleviate poverty and environmental degradation by providing alternative tools and techniques of cultivation. In recent years, CREA has undertaken projects on sustainable agricultural systems and coastal resource management, with the support of various foreign funding resources and scientific collaborators, including USAID and the government of Panama. CREA has also offered undergraduate conservation and sustainable development courses, and has hosted environmental education camps for youth.

The organization has recently acquired the Cocobolo Nature Reserve, 1000 acres of primary and secondary growth forest located in the district of Chepo, neighbouring the Kuna Yala Comarca. The nature reserve is to be used as a base from which to develop sustainable educational tourism opportunities for families, groups and schools. In an effort to respond to the social and environmental pressures within this rural region, CREA plans to develop farmer-to-farmer training programs in the surrounding area.

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1. INTRODUCTION

1.1 Context

Most recent global population predictions project an estimated 9.2 billion people worldwide in the year 2050 (DESA 2006). In terms of population, Central America represents one of the fastest growing regions in the world (CELADE 1997). As population grows, more pressure is placed on agriculture; resources are being intensively extracted from existing and expanding agricultural lands. This is placing tremendous pressures on Central American forests. A recent report on the state of the environment shows that 38.9% of Panamanian land was cultivated in 1990 – a significantly greater area than the 25% of soils judged appropriate for agriculture (UNEP 1999). The report suggests that the pressures of poverty and population growth are forcing new land to be incorporated into agriculture through slash-and-burn practices, currently the principal cause of deforestation in Panama (UNEP 1999). Another report, focused more specifically on the land area devoted to various soil uses, suggests that while the area used for extensive agriculture has decreased in Panama, there has been a corresponding increase in the area used for subsistence agriculture and a continued decline in forest cover (ANAM 2000).

Increasing deforestation is impacting rural peasants. Rural populations are finding themselves in the midst of a subsistence crisis which they themselves indirectly perpetuate. The typical land use cycle starts with poor soils on which the productivity of basic grains drops rapidly after clearing and burning. Colonized areas are often converted to pasturelands for cattle ranching within a few years. Once yields drop, after two or three years, farmers plant grass which is burned every year in the dry season. The

effects on the soil are deleterious, and the productivity of cattle ranching soon also decreases. In response to environmental degradation and decreasing yields, *campesinos* may work their land more intensively by shortening fallow time – a highly unsustainable practice. Thus, the existing farming system is neither economically nor ecologically sustainable, and it does not provide most farmers with a sufficient livelihood (Heckadon 1997). When they are no longer able to support their families, *campesinos* may sell their property to larger cattle ranchers, concentrating land holdings into few hands. Alternately, they may simply abandon their holdings in search of new, more productive land (Rudolf, 1999). If the soil is not too degraded, secondary forest slowly develops.

Research on cropping practices has revealed the limitations of slash-and-burn as a sustainable agricultural technique when coupled with increasing population and extraction pressures (Collins 1995). The abandonment of eroded and depleted plots forces the continual clearing of forest (Kriecher 1997) and contributes to the expansion of the agricultural frontier.

Colonization frontiers usually involve migrants from regions marked by serious social and environmental problems. Some come from areas where land ownership is highly concentrated, others from areas where the plots are too small to be viable. The majority of the people pushing the agricultural frontier are overwhelmingly poor: the average annual per capital income is about $100 (Heckadon 1997). They carry out unsustainable methods of land use which destroy the existing biodiversity and replace it with a deteriorating landscape that cannot continue to support its people. As a result, they are forced to migrate in the search for more productive forested land to clear. In Panama, government development strategies of the 1960s and 1970s urged the incorporation of the

tropical forest into the national economy. These forests were considered an obstacle to economic development and a symbol of national backwardness (Heckadon 1997). The province of Panama was presented to western Panamanians as the 'promised land', where resources abounded and where they could begin a new life. This resulted in a wave of migration from the provinces of Chiriquí and Veraguas to that of Panama, where the process of "*tumbar el monte*" started in the late 1960s and is continuing to this day (Cámara-Cabrales 1999). Most recent figures indicate that forest cover has decreased by 13% from 1992 to 2000 in the district of Chepó (northeast of Panama province), where the village of La Zahina is located (ANAM).

1.2 Questions and objectives

The work conducted as part of the ENVR 551 internship course took place in the rural community of La Zahina, located within the Chepó district of Panama. An understanding of villagers' livelihoods, as well as their perceptions on their environment and resource base was developed by spending time in the community and interviewing community members. The goal of this exchange of knowledge was to elucidate the motivations and incentives driving resource use in the area, and to provide recommendations relevant to the community and the host organization, CREA (*Conservation through Research, Education and Action*), in the creation of community outreach programs. The overarching goal of the project was therefore to explore the dynamics of this rural community and to address the pertinent question: how can rural development and poverty alleviation be coupled with conservation of the natural environment?

To address this goal, there were two main objectives. The first objective was to describe the study area by collecting baseline data on the demographics and the socioeconomic profile of the community. The results of this process will be used to facilitate the logistical development of outreach programs, as well as increase the understanding of the underlying causes and dynamics of resource depletion in the area. The second objective arose from the findings of the preliminary investigation. It became apparent that development actions for the community of La Zahina would need to focus on education of youth and the involvement of women, who lack any sort of group organization. As a result, the second phase focused on the investigation of income diversification strategies for women as a means of alternate, environmentally-sound income generation. The guiding principle, elucidated further within the report, is that an increase in economic well-being of individuals will bring a decrease in environmental degradation (DeClerck et al. 2006). The information gathered in this second phase of the research project is synthesized in this report, along with the initial background research. The intention of this report is to summarize the field results, and to provide sustainable, applicable, and realistic recommendations regarding rural development and conservation strategies for La Zahina.

1.3 Report organization

The report is divided into four key parts. It begins with a literature review on the topics of rural areas and poverty, rural development theories, the sustainable livelihoods approach (SLA), and the role of income diversification through non-farm employment. This section is followed by the description of the methodology used in the field

component of the research. This leads into the results section of the report which includes both the qualitative and quantitative data collected during the field work. The report ends with a discussion of the results and the associated recommendations. The recommendations for the elaboration of a women's income diversification project are drawn from interpretation of the results from the field and from existing literature.

2. LITERATURE REVIEW

2.1 Rural Areas

Rural areas are places in which human settlement and infrastructure are limited, and the resulting physical landscape is primarily agricultural and/or natural. Ashley and Maxwell define a rural area as "the space where human settlement and infrastructure occupy only small patches of the landscape, most of which is dominated by fields and pastures, woods and forest, water, mountain and desert" (2001). The number of people living in settlements defined as rural, however, varies with different agencies and governments. The International Fund for Agricultural Development (IFAD) defines rural areas as having settlements of no more than 5,000-10,000 people (IFAD 2001).

2.1.1 Poverty in Rural Areas

Poverty alleviation efforts have suffered from the misconception that poverty is homogeneous. Outside definitions of the poor, including those predicated solely on income, give the impression of a defined group (Johnson 2002). Although the income poor tend to be poor in other respects, income alone does not define poverty (IFAD). The situation of all households is a reflection of decisions, within a larger economic context,

on how and where to invest assets. Poverty is a result of low access to assets and an inability to convert them (Johnson 2002). Furthermore, poverty is characterized by heightened vulnerability to economic changes; the poor must retain what meager assets they have to hedge against shocks, and are unable to invest and escape poverty (IFAD). Thus, "rural poverty flows from, as well as perpetuates, a lack of access to essential assets" (Rahman and Westley 2001).

Using this asset-based characterization of poverty, it is obvious that the poor are comprised of a heterogeneous mélange of actors sharing a similar economic constraint. Poverty is thus a situation in which individuals and households function, either temporarily or chronically, rather than a characteristic of the individuals themselves. It is, however, possible to isolate characteristics of those most vulnerable to enter into a situation of poverty, in an attempt to then assess potential paths of exit.

2.1.2 Characteristics of the Rural Poor

In Panamá, 52% of the poor are rural (de Janvry and Sadoulet 2000). Similarly, throughout Latin America, 27% of the rural population is described as living in a state of extreme poverty. Of these rural poor, a disproportionate number are women and children (Rahman and Westley 2001). Several aspects of rurality act to increase the likelihood of rural poverty.

Firstly, because they are more likely to live in remote areas, the rural poor lack access to assets. As a result, the rural poor are often characterized by material deprivation *and* poor education and health care (Csaki 2001). The poorest are those rural households which lack access to land – the landless and small farmers (IFAD). Rural inhabitants lacking access to human assets are often unhealthy and illiterate, have high

fertility and dependency ratios, and work in insecure and low productivity occupations (IFAD). In addition, as a result of their physical dispersal, the poor lack access to the political system and are only marginally involved in decision-making (Csaki, 2001). Thus, inhabitants of remote areas often suffer from a lack of access to material assets, human capital, and political empowerment.

Secondly, the poor are disproportionately women. Their vulnerability, in addition to its origin in social norms, is largely a result of their lower human capital; discrimination in education throughout women's early lives affects their ability to generate and control income as adults (IFAD). Women generally have less access to land, credit, technology, skilled work, education, and health (IFAD). Although they are not always more income poor than their male counterparts, rural women are vulnerable due to their minimal control over income. As a result, women are less likely than men to escape poverty (IFAD).

Thirdly, the rural poor are often highly dependent on the land. Staples, such as yucca, rice and corn, provide 70-80% of their calories and the production of these crops occupies the majority of their time (Rahman and Westley 2001). The poorest rural inhabitants usually have minimal involvement with livestock or cash crops. The yields of the staple crops on which the poorest are dependent are highly variable due to weather changes and the absence of inputs (Csaki 2001). Thus, both the nutritional base and the income base of the rural poor are subject to unpredictable fluctuations.

Finally, the poorest rural inhabitants usually occupy marginal lands, and are often the most vulnerable to environmental degradation. Many of Latin America's poorest live in areas of high altitude or low rainfall (IFAD). Conway describes the rural poor thus:

> *The worst poverty is often located in arid or semi-arid zones or in steep hill-slope areas that are ecologically vulnerable. There the poor are isolated in every sense. They have meager holdings or access to land, little or no capital and few opportunities for off-farm employment. Labour demand is often seasonal and insecure. Extension services are few and far between, and research aimed specifically at their needs is sparse. (Ashley and Maxwell 2001)*

These rural inhabitants often lack the investment capacity or incentives to use sustainable agricultural practices. Poor sharecroppers in Nicaragua, for example, drive soil erosion through harmful harvesting practices because they lack the incentive to invest in land improvements (Swinton et al 2003). The ecological vulnerability of the land, combined with the absence of formal land title, paradoxically increases the risk of degradation while decreasing the incentive to prevent it. The result in mountainous terrain is soil degradation from intensive cropping, deforestation, decreased biodiversity and pesticide exposure (Swinton 2003).

This degradation disproportionately affects the rural poor, as they rely most heavily on these fragile resources to sustain themselves (Csaki 2001). Thus, environmental degradation and poverty form an interlinked cycle: poverty leads to resource degradation in the hopes of short-term survival, while degradation leads to declining benefits and the perpetuation of poverty.

2.1.3 Trends in rural poverty

The number of rural inhabitants worldwide is growing in absolute number while shrinking relative to total population (Ashley and Maxwell 2001). Excluding Brazil, the

absolute number of rural poor in Latin America has actually increased by 16% in the past decade, and there has been no reduction in the ratio of rural to urban poverty (de Janvry and Sadoulet 2000).

Despite stagnation in rural poverty alleviation, the ratio of rural to urban poverty is expected to decrease. This is because of a faster decline in rural poverty, combined with continuing urban-bound migration of rural inhabitants (de Janvry and Sadoulet 2000). Furthermore, Ashley and Maxwell propose several optimistic potential outcomes based on current trends in rural poverty. They predict that as connectedness with urban areas improves, rural populations will stabilize, and rural inhabitants will gain improved access to health care and education, thus increasing rural human capital. Furthermore, as agriculture decreases in national importance, the majority of rural inhabitants will become functionally landless, rural income will become increasingly non-agricultural, and farms will grow in size and become predominantly commercial (2001). Whether these outcomes are realized depends in large part on the path followed by rural development initiatives.

2.2 Rural Development

2.2.1 Development theories 1950s-1990s

Rural development theories are nearly as heterogeneous as rural areas themselves. Development theory has evolved over time as international attitudes have changed. These trends can be summarized, though over-simplistically, as: a focus on modernization and large-scale state investment in the 1960s; strong state intervention and social investments in the 1970s; structural adjustment policies (SAPs) and associated

market liberalization in the 1980s; and finally a more balanced attempt at poverty reduction based on public participation in the 1990s (Ellis and Biggs 2001; Ashley and Maxwell 2001). Policy, in the 1980s to 1990s, shifted from a top-down management approach to one of bottom-up participation. As the failures of SAPs became evident, donors began to fund social programs through non-governmental agencies (North and Cameron 2000). Rural development was increasingly viewed as a participatory process.

Despite these policy fluctuations, the dominant paradigm of development remained largely unchanged. Ellis and Biggs classify this paradigm as: "agricultural growth based on small farm efficiency" (2001). However, declining agricultural prices, the prevalence of large farms, and the preponderance of environmental degradation are challenging this paradigm; small farms are no longer broadly assumed to have greater efficiency. Most problematic for the theory of small farms efficiency, has been the increasing realization of the importance of diversification out of agriculture (Ellis and Biggs 2001).

2.2.2 Current trends in development theory

By the late 1990s poverty reduction had become the focus of rural development efforts. This emphasis resulted from a stinging realization: despite 50 years of development policy efforts and theoretical restructuring, the number of poor was rising (Gilling et al 2001). Meanwhile, the share of aid and attention focused on rural development and agriculture was small and declining. Within development theory there has been a resulting paradigm shift, with increased emphasis on broad-based action which targets rural life, rather than agriculture alone. This emphasis includes not only increasing the income of the poor, but also improving access to assets and services,

empowering the poor to participate in decision-making processes, and reducing the vulnerability which drives rural poverty through a focus on diversification (Gilling et al 2001).

This integrated approach to poverty reduction is being adopted in the international poverty reduction forum. The emphasis on broad-based rural development is evident in the new World Bank poverty reduction strategy, entitled *Reaching the Rural Poor*, and the World Development Report reliance on participatory processes (Csaki 2001; Ashley and Maxwell 2001). Further, the International Monetary Fund now requires Poverty Reduction Strategy Papers, demonstrating a national policy framework for poverty reduction, prior to funding (Gilling et al 2001). Thus, it appears that international agencies have adopted the ideology of bottom up rural development, and are seeking more coordinated and long-term poverty reduction initiatives (Ellis and Biggs, 2001).

2.2.3 Sustainable Livelihoods Approach

The main narrative in current development theory is the sustainable livelihoods approach (SLA). This approach, which emerged in the 1980s and 1990s, challenges the small-farm as the engine of growth, while remaining consistent with the current bottom-up approach to rural development (Ellis and Biggs 2001). It is a response to the realization that the poor rely on a complex range of activities to survive; in Panama in 1997 rural farm income accounted for only half of total rural income (Reardon 2001). Rather than focusing on agricultural growth, the SLA reflects the heterogeneity of rural populations; policies are focused on reducing the vulnerability of rural populations rather than promoting agricultural growth (Ellis and Biggs 2001). Thus, the SLA better reflects the current reality of rural areas, as it focuses on the assets and diverse strategies of rural

households and does not require that the rural population be agricultural. Furthermore, unlike previous approaches, the SLA aims to center on goals determined by the poor themselves (Gilling et al 2001).

2.3 Rural Non-Farm Employment

The sustainable livelihoods approach, as shown, provides an alternative to the prevailing agriculture-led small farm model of rural development; rural non-farm income is emphasized as a strategy to decrease the vulnerability of rural populations. This approach acknowledges the vital role of both own-farm and non-farm employment in poverty reduction policy. To improve upon existing understanding of the dynamics of rural livelihoods, it is necessary to further investigate the burgeoning sector of rural non-farm employment (RNFE).

2.3.1 What is RNFE?

Non-farm employment refers to activities that lie outside of both own-farm activities and agricultural wage employment (Reardon et al 2001). The definition of rural non-farm employment encompasses a broad range of income generating activities, including both self employment and wage employment. Rural off-farm employment has historically been viewed as a low productivity sector which diminishes in importance with economic development. As a result, RNFE has received limited attention and investment (Lanjouw 2001). Off-farm income, however, can be divided into two alternate categories: high labour productivity and high income activities, and low productivity activities.

2.3.2 Trends in RNFE

Currently in Latin America 40-45% of rural income is derived from off-farm activities (Ashley and Maxwell 2001). This percentage has rapidly increased since the 1970s. In Panama, non-farm income constitutes 50% of total income; the importance of these activities is increasing in both relative and absolute terms, and more for women than men (Reardon et al 2001). This rise in RNFE is attributable to several interlinking factors. The impulse for non-farm activity originates from rural demand for non-farm products, an abundant supply of peasant labor, urban demand for non-farm rural goods (eg. crafts and tourism), production linkages between off-farm and own-farm activities, and increased public services and road access in rural areas. The result is what del Grossi refers to as the "commoditization of the free time" of rural families (2001). As RNFE gains importance farm families are becoming increasingly multi-active as they diversify their income generating activities.

2.3.3 Participation in RNFE

Involvement in off-farm activities depends on the incentives to participate, as well as the capacity to do so. People may be motivated to enter the rural non-farm sector because of push factors, such as constraints to farming and lack of credit, or because of pull factors, such as the opportunity to generate higher incomes (Reardon et al 2001). The type of activity undertaken also varies in relation to the incentives: high productivity activities are often pursued as a result of pull factors, while low productivity activities are undertaken as a last resort as a result of push factors. Rural inhabitants with higher incomes often enter into the high-productivity employment, while poor households find

themselves engaged in low-productivity activities. These poor households are also more likely to be self-employed (Reardon et al 2001).

The differentiation in activities amongst households of different income levels is evident in national and international trends in non-farm employment. In Panama both the relative share of rural non-farm income in total income, and the level of rural non-farm employment, increase with income. This trend is without exception throughout Latin America. Furthermore, studies in Latin America show that education determines both levels of participation and success of rural non-farm activities (Reardon et al 2001).

The types of activities undertaken also vary geographically. The proportion of employment in the service sector and in wage employment increases with increasing access to roads and proximity to urban centers. Those living in more remote rural areas enjoy limited capacity to participate in these high-productivity activities due to their lack of infrastructure (roads, electricity, etc) and the absence of markets (Reardon et al 2001). Furthermore, Berdegue et al suggest that as a result of poor road access, remote households earn a greater proportion of non-farm income from self-employment (2001). As a result, non-farm income is derived primarily from the manufacturing industry in peri-urban areas, the rural industry in the countryside, and crafts and services in remote areas (Ashley and Maxwell 2001) (Figure 1).

It is also noteworthy that the choice of non-farm activity is not gender-neutral. While women participate primarily in commerce and services, men are mostly employed in the manufacturing sector. Also, although men earn more than women in farm wage employment, women's wages outstrip those of men in non-farm wage employment

(Berdegue et al 2001). Finally, women are more likely to be involved in off-farm employment than men, regardless of the productivity level (Lanjouw 2001).

RNFE linked to:

Agricultural production – trade in inputs, machinery services, companies that hire labour, mechanical workshops, transporters, agroindustry
Primary, nonagricultural activities – mining, fishing, hunting
Consumption by the rural population – retail trade, sewing workshops, transportation
Consumption by the urban population – beach and field tourism, crafts, vacation home services
Public services in rural areas – teachers, municipal employees, repair of rural roads
Expansion of urban areas – construction industry, manufacturing

Figure 1 – RNFE examples (adapted from Berdegué et al. 2000)

2.3.4 Benefits of diversification

Rural non-farm employment is a vital source of income, and provides new opportunities for production and trade (Csaki 2001). Rural areas enjoy a competitive advantage in the production of certain goods and provision of services, as a result of the availability of natural resources, skills in the case of rural craft-making and cheap labour. The development of the non-farm sector may also be economically advantageous due to protection from competition from outside markets and the inability of rural households to afford urban imports (Start 2001). Ironically, as transport improves these advantages decrease; as rural areas become increasingly connected to urban centers, it is the lower productivity activities, such as traditional rural crafts, which are most likely to maintain their economic competitive advantage (Start 2001).

Aside from the economic advantages of rural non-farm employment, it also generates many social benefits. Low productivity activities, such as craft production,

create a trade-off between income and security; income from these activities is insufficient to lift households out of poverty, but does provide a buffer against agricultural failures in harsh years (Lanjouw 2001).

Non-farm activities also provide greater employment for women than men, and thus provide economic security to women lacking access to agricultural wage labour. These activities are well-suited to women, as they often complement domestic duties, and allow flexibility in income generation in the absence of full time rural employment. Finally, even the lowest productivity activities allow individuals to develop new contacts and skills (Start 2001). There may also be significant environmental advantages to non-farm employment. The creation of small businesses, especially those which use natural resources in a sustainable manner, may encourage conservation. The promotion of conservation goals may occur because of three interlinking advantages. Firstly, the need to use local, natural resources in creating a non-agricultural product may promote its sustainable management by giving it use-value. Secondly, promoting an alternative source of income may divert labour and resources away from non-sustainable activities, such as hunting or intense cultivation. Finally, increasing income and associated well-being through diversification of income may decrease poverty and lessen the associated pressure to advance the agricultural frontier (Bovarnick and Gupta, 2003) (See figure 2 for a selection of RNFE case studies).

2.3.5 Limitations to diversification

Non-farm activities are often at an economic disadvantage; they are sometimes viewed as "a residual sector that offers no more than a bargain basement for distress or coping activities, mopping up the fall out of a failing smallholder agricultural sector" (2001). This economic disadvantage, he explains, stems from their rural locale: the remoteness of

Case study 1

***Asociación de Mujeres de Isabela "Pescado Azul"*, Ecuador**

This women's cooperative on the Island of Isabela in the Galápagos Islands is providing jobs for unemployed women and sustainable economic alternatives for fishermen. Traditionally, the fishermen have relied on declining coastal sea cucumber, lobster, and shark populations for their livelihood. The Mujeres de Isabela association provides an alternative by creating a market for tuna, a migratory species, which is processed, smoked and sold to tourists. The project also contributes to the conservation of the Galapagos by using guava wood, a destructive invasive species, to smoke the fish.

Case study 2

***Federación Plurinacional de Turismo Comunitario del Ecuador (FEPTCE),* Ecuador**

A partnership of sixty community-based initiatives, FEPTCE focuses on encouraging eco-friendly tourism. Since FEPTCE's establishment in 2002, participating communities have experienced an increased quality of life, gaining access to health services and education, increased employment, and public interest in biodiversity and agriculture. Communities have invested in reforestation and the protection of native flora and fauna, successfully protecting 25,000 hectares in order to use the region's biodiversity as a marketing tool to promote tourism. Conserving biodiversity has permitted the FEPTCE communities to diversify their economy, leading to added income and an improved standard of living.

Case study 3

***Alimentos Nutri-Naturales*, Guatemala**

Maya Nut (Brosimum alicastrum) was once a staple food for the ancient Mayans but is threatened with extinction due to the spread of logging and conversion of land to agriculture. In the buffer zone of the Maya Biosphere Reserve, Guatemala, 56 women own and manage a business which employs over 650 community members to process Maya Nut to feed their families and earn income. The project has resulted in the conservation of 90,000 hectares of maya nut forests and the planting of 150,000 new trees across Guatemala. Alimentos Nutri Naturales has created a local initiative to resolve food security, malnutrition, rural poverty and dependence on imported foodstuffs by marketing Maya Nut-based school lunches to local school districts.

Case study 4

***Asociación para la Investigación y el Desarrollo Integral (AIDER)*, Peru**

Working in partnership with 14 indigenous communities, AIDER has developed a community-based forest management plan for the Ucayali region in the Peruvian Amazon rainforest. The community-led conservation area covers 150,000 hectares of rainforest, a critical habitat for 21 species listed as endangered by the Peruvian government due to illegal extraction, hunting, and harmful commercial activities. Characterized by its participative, intercultural, and gender-balanced approach, AIDER strengthens the capacity of local communities to manage their natural heritage in a sustainable manner.

Figure 2 – RNFE Case studies (undp.org)

communities which limits their access to agricultural markets similarly reduces access to markets for sale of goods produced off-farm. It seems that rural non-farm income generation faces many of the same challenges as agricultural development (Berdegué et al. 2001).

Social status also largely determines the capability of rural households to engage in rural non-farm employment, as those with greater land-holdings have more surpluses to invest and more education, as well as greater access to social networks (Reardon et al 2001). Thus, wealthier rural inhabitants have greater access to higher productivity activities. As a result, "existing patterns of inequality tend to reproduce themselves as new opportunities make themselves available" (Ashley and Maxwell 2001). Poorer households find themselves engaging in the non-farm equivalent of subsistence farming; without surplus from their low productivity activities they are unable to invest, and thus perpetuate their low competitiveness (Reardon et al 2001). Furthermore, the employment conditions are often exploitive, and the geographic dispersal precludes opportunities for collective action or political clout (Start 2001). Thus there is a development paradox: although off-farm income is indispensable in preventing poor households from slipping into extreme poverty, its greatest potential in rural development lies in the wealthier households and zones (Berdegué et al 2001).

There are also several challenges facing implementation of non-agricultural development programs. In the absence of government policies favouring the rural poor investment by NGOs and outside donors in the non-farm sector is unlikely to be significant or equitable, and will therefore likely have a significant impact on poverty reduction (North and Cameron 2000). Furthermore, although NGOs aim to reflect

community priorities, development projects are often instituted through a top-down version of participation, and reflect the priorities of development agencies rather than communities (Tembo 2003). Finally, even where community interests are duly considered, NGOs are often most knowledgeable in the provision of services; most development organizations have little know-how in marketing and the design of productive activities (North and Cameron 2000).

3. METHODOLOGY

3.1 Participatory Rural Appraisal

In recognition of past failings in rural development, local participation initiatives have been incorporated in development strategies. It has now become clear that the success of a project depends on the involvement of the local population in order to achieve goals of legitimacy, credibility and relevancy. Participatory Rural Appraisal (PRA) was developed in response to the tendency within primarily Western-dominated development organizations to impose knowledge and plans on local communities (Chambers 1994a).

3.1.1 Definition and origins

PRA draws on the cumulative experience and practice of mainly southern NGOs active in participatory development in the 1980s and 1990s (Kapoor 2002). PRA owes its existence to the convergence of a number of research programs, including activist participatory research, agroecosystem analysis, applied anthropology and rapid rural

appraisal (RRA). RRA emerged in the 1970s in response to three main concerns about research in rural settings: 1) dissatisfaction with anti-poverty biases; 2) disillusionment with traditional questionnaire surveys and their results and; 3) the lack of cost-effective methods at a time when the expanding aid industry required quick access to socioeconomic data (Kapoor 2002). The initial principle that guided RRA was "optimal ignorance", the importance of knowing what is not worth knowing (ie. the level of ignorance that can be afforded). This method was increasingly viewed as an extractive technique and more participatory methods, such as PRA, were sought (Chambers 1994a).

Robert Chambers, a major proponent of PRA, defines the approach as a set of participatory techniques to facilitate local peoples' analytic abilities and empower them to plan and undertake sustainable action (1994a). Researchers act as conveners, catalysts and facilitators of this sharing and empowering process. Underlying the process of PRA are six principles that translate into practical guidelines: 1) active learning; 2) triangulation; 3) flexibility; 4) focus on strengths; 5) sufficiency of knowledge; 6) on-the-spot analysis (See figure 3).

1. Active learning	Reality is socially constructed; every action is undertaken with the participation of all stakeholders
2. Triangulation	To increase the likelihood of capturing the multifaceted, intrinsically holistic nature of everyday life; triangulation is applied to participants, units of observation and tools
3. Flexibility	Goals constantly modified to better suit participants' needs; techniques should be selected according to the opportunities of the moment
4. Focus on strengths	As opposed to traditional development which usually deals with a community's weaknesses.
5. Sufficiency of knowledge	Following the idea of 'optimal ignorance'; all information-gathering is action-oriented; data relies mostly on proxies and comparisons, not on measurements
6. On-the-spot analysis	All information analyzed and used on-the-spot.

Figure 3 – PRA principles (adapted from Bar-On & Prinsen 1999)

PRA has been embraced by development practitioners and is now one of the most widely used methods in development research. PRA offers numerous advantages for field research as its flexibility allows for improved understanding of particular realities; it recognizes for the role of local organizations and gives representation to women, ethnic minorities, the young and the poor (Bar-On & Prinsen 1999). These advantages are counter-balanced by challenges and limitations inherent to this methodology.

3.1.2 Critique and limitations

PRA has become remarkably influential in NGO circles and national and international development agencies. The practice-based focus of this methodology has contributed to its popularity among development organizations. However, according to a number of scientists, rapid spread of PRA also carries negative implications. Some theoreticists argue that empiricism has pitfalls; focusing on 'what is' and 'what is done' as given is not conducive to questioning and critique (Kapoor 2002). Ultimately, PRA is criticized for an absence of theoretical framework as well as lack of explicit rules governing its procedures.

More practically, there are lacunas concerning information validity and participation. It is questionable whether people are best-placed to answer their concerns. As Mosse (1994) pointed out: "if knowledge about livelihoods were equivalent to knowledge for action then undoubtedly [most people] would have solved their problems through self-help long ago". As for participation, it has been reported that the utility of PRA techniques decreases beyond 25-30 participants, constraining the ability of the methodology to provide representative results with large groups. Also, turnover of participants is often high and introduces significant discontinuity in the proceedings.

In employing PRA in La Zahina, we encountered difficulties distinguishing between direct data received from villagers, and the interpretations we made of this data. A concerted effort was made throughout the research, and will be made throughout the report, to separate direct information from the villagers from what we understood or extrapolated from this information. With this distinction clearly acknowledged, the interpretations of our experiences in the community are valuable sources of information

3.2 PRA Methods

A number of manuals, handbooks and sourcebooks of PRA methods have been compiled. However, PRA practitioners commonly suggest that manuals and methods should be avoided and that the principle "use your own best judgment at all times" is best to encourage creativity and flexibility. In the elaboration and selection of our methods we have referred to *80 Herramientas para el desarollo participativo* (Geilfus 2002).

3.2.1 Semi-structured dialogue

The purpose of semi-structured dialogue is to collect general or specific information through conversations with key informants, family representatives, or focus groups. The semi-structured dialogue technique is a means to avoid the negative aspects of formal interviews, which include closed themes, the absence of dialogue, and an inability to adapt to the participants' perspectives. The applications of semi-structured dialogue are multiple and diverse: general social studies, specific studies, case studies, and more. The primary difference between the dialogue and interview formats is the degree to which information is exchanged.

The initial step in semi-structured interviewing is to construct an interview guide containing a summary of the essential themes to be covered during the session. The interview guide serves as a reminder of what the researchers aim to learn in the session. The guide should: 1) determine the research objectives; 2) establish a list of themes to satisfy the objectives; 3) discuss the challenges related to each theme and; 4) divide each theme into sub-themes if necessary. The interview guide is not meant to be rigid, and should be adapted constantly following the results of a session (Appendix 1). The interview guides for our research were elaborated before the first visit to the field based on interviews previously conducted by CREA in the development of farmer training programs.

Following the conception of the interview guide, the second step is to select the interview participants. It is important that chosen participants be relevant to the research objective. It is equally important that there be a representative sample of the population and that no key stakeholders be left out.

Two sets of interviews were conducted in La Zahina. The first were conducted with a member of all households present from February 2 to February 15, and used to collect baseline socioeconomic data. The second set of interviews was conducted from March 18 to March 22 with 6 mothers of school-aged children. The goal of these interviews was to assess the

Code of Ethics

The guidelines of the McGill University Code of Ethics for social research were followed for this research.
The goals, expected outcomes and use of the research's results were explicitly explained to all participants and oral consent was obtained before the start of each interview/participatory technique.
For more details, visit http://www.mcgill.ca/files/researchoffice/StudentGuide2005.pdf

motivations and constraints determining secondary school attendance, and to obtain preliminary information on women's roles in the village and their interest in training programs. The interviews lasted from 20 minutes to over two hours.

Oral consent was used in the interview process, following the code of ethics shown above. Throughout the interview processes, we introduced ourselves and CREA to the participant, and informed each participant of the purpose of our work in the village before asking for oral consent to continue with the interview. We attempted, at all times, to make the participants comfortable, to allow them do most of the talking and to always be flexible with the interview process. After each session we held a briefing to ensure that all essential details had been noted, and to reflect upon the data collection process and the results of the interview.

3.2.2 Dialogue with key informants

Semi-structured dialogue with key informants is often useful in the preparation of sessions with a community, to rapidly obtain relevant information to orient the session. The steps to prepare a dialogue with a key informant are similar to those of the semi-structured dialogue. It is important to be clear with the participant at the start of the interview concerning the motivation for selecting the participant, the purpose of the interview, the manner in which the information will be used and what outcomes can be expected. Transparency is vital to avoid confusion and erroneous expectations, as it is likely that the participant will later discuss the interview with other community members. The information obtained through the interview should be compared with information from other sources.

Two key informants were consulted in La Zahina. These informants were the delegate of the village – also the only local cattle rancher – and the school teacher. The delegate was consulted on agriculture and the history of the village, while the school teacher was questioned on schooling within the village.

3.2.3 Focus group dialogues

This method is simply a group application of the semi-structured dialogue technique. Information is collected with a small group of participants directly involved in the research problem. It is a highly useful technique when a specific group in the community must be consulted (i.e. women, artisans, leaders, etc.) or when information on a specific theme is needed. The group dynamic may allow for a more open participation from all, and provides a forum for the exchange of ideas and possible consensus-building. Once again, the methodology is similar to that of semi-structured dialogue. It is advisable to use a board or large cardboards to visually represent the main ideas that come up throughout the discussion and ensure that all understand.

The focus group technique was used with the women of the village. The women were invited to a group session during individual interviews and were asked to invite any other women who had not been directly contacted. The meeting was held from 4:30pm to 6:00 pm on March 20, with the number of participants fluctuating from 5 to 18 throughout the session. The women were asked to participate in two activities: "*lluvia de ideas*" and an evaluation matrix of these ideas. The meeting ended with a crepe and maple syrup tasting to thank the women for their participation.

3.2.4 "Lluvia de ideas"

Unlike in interviews, the themes in a brainstorm session are more open. The goal is to collect all possible ideas and perceptions of the participants on a particular topic. In the context of our research, the brainstorm session was conducted with a group of women from the village to learn what training opportunities were of interest to them. The session was introduced with an open question concerning the theme of interest: *¿Si tuviera la oportunidad de tener talleres de formación, que le gustaría aprender?*. The participants answered the question on small cards, with assistance given as needed (one idea per card). The cards were then collected and organised by theme on a board, visible to all participants. Each card was read out loud and none were omitted. The ideas produced in this brainstorming activity provided the input to the following activity. In the case of this study, an evaluation matrix activity was used.

Figure 4 – Focus group session on March 20, 2007

3.2.5 Evaluation matrix

The goal of this activity is to evaluate *ex ante* with members of the community the feasibility and/or appropriateness of various ideas. The women's ideas for training workshops, gathered using the *lluvia de ideas* were evaluated in this manner. The first step consisted of determining and coming to a consensus on the evaluation criteria. A table was created with each idea listed horizontally and each evaluation criteria heading a column. The ideas generated, as well as the criteria chosen, are shown in figure 5. The evaluation units were chosen according to the level of literacy of the participants. In this case, smiley face symbols (☺/😐/☹) were selected. The participants then evaluated each idea based on its feasibility according to each criteria using the chosen evaluation units. Once each idea had been reviewed, it was possible to add up the points for each idea and to then rank them in order of priority.

Idea	Ayuda de afuera?	Participación de todas ?	Recursos materiales	Tiempo	Costo	Transporte	Factible	Puntaje	Orden prioridad
1. Tejer	☹	☺	☺	5 ☺ 2 😐 1 ☹	☺	☺	☺	11.5	**1**
2. Coser	☹	8 ☺ 1 ☹	☹	5 ☺ 4 😐	2 ☺ 2 😐 8 ☹	☺	☺	7.8	**4**
3. Kambal	☹	☺	5 ☺ 5 ☹	No sabemos	7 ☺ 3 😐	☺	☺	8.8	**2**
4. Modista*	x	X	X	x	X	X	X	X	X
5. Jabón	☹	☺	☺	No sabemos	☺	5 ☺ 6 😐	☺	8.7	**3**

* Following discussion, the participants decided that *coser* and *modista* designated the same idea.

Figure 5 - Example of an evaluation matrix (☺ = 2, 😐 = 1, ☹ = 0)

3.2.6 Community mapping

Map making is a useful tool to visualize the spatial organization of a community at the onset of the work in a new area. This activity can be conducted with individuals or small groups. The map can depict many elements: natural physical features (rivers, trails, etc.), social institutions (church, school, health center, etc.) and villagers' homes. The community map then serves as a reference to orient the researchers. In this case, the community map was drawn by the delegate of the village with the help of his granddaughter.

Figure 6 – Map making, February 5 2007

3.2.7 Transect walk

The primary purpose of a transect walk is to visually represent the characteristics of an area, as well as the changes occurring within that area. A transect walk with the village delegate was used to describe the surroundings of the community in which our research was conducted. This technique was useful as it provided an idea of what the

villagers knew about their environment and how they manage it. Major themes that were touched on included the characteristics of the soil, water, crops, animals and management practices. The methodology was slightly modified as the topography of the area visited did not suit the predetermined categories as shown in the example below.

	Uphill	**Plateau**	**Downhill**	**Floodplain**
Soil	Poor	Black earth	Red earth, many stones	No information
Water	Very dry	Floods with heavy rains	Dry	Water year-round
Crops	Forest, pasture	Corn, beans, fruits	Pasture	Forest
Animals	Cattle, horses	Pigs, birds	Horses	No information
Who works?	The entire community	Private parcels	Women and children	No information
What was here before?	More forest	Yucca	Firewood	More water

Figure 7- Example of a hypothetical transect walk (Geilfus 2002)

4. RESULTS

4.1 Description of Study Site

This section constitutes a general description of the community of La Zahina, revealed through the field work sessions conducted in February and March 2007. (See appendices 2 and 3 for raw data).

4.1.1 Location and history

The village of La Zahina is located in the *corregimiento* of Mamoni, in the northern section of the district of Chepo, in the province of Panama. The village borders the Panamanian cordillera, which marks the southern extent of the autonomous Kuna Yala *Comarca*. La Zahina is nested between the Mamoni and La Zahina rivers, in the center of the wet-tropical mountainous forest. Oral counts point to the colonisation of the

region to the year 1964, when the first family – the Navarros – arrived with the intention to settle. At the time of their arrival, these *campesino* founders encountered an impressively wild and undisturbed environment, where they remember tigers, monkeys, boars and snakes were abundant. As they started to *tumbar el monte (*cut down the mountain) through slash and burn techniques, they modelled their dream and hopes for a new livelihood based on agriculture on their new, productive land. They arrived primarily from the Western provinces of Chiriqui, Los Santos, and Veraguas where land was scarce and subject to intense agricultural pressure. The settlers were determined to conquer the mountain, through harsh human labour.

The Navarro family and their descendents were joined by the Morales and Gonzales families who established in the area around the same period. These families now constitute the core and majority of the population of La Zahina. Their houses are concentrated around the flat central field, while the rest of the village has expanded both up and down the hill.

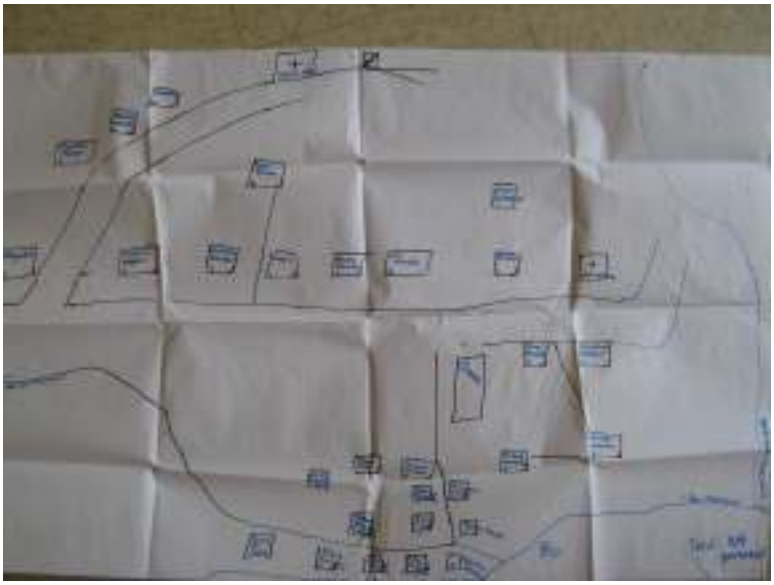

Figure 8 – Map of La Zahina by Alejandro Morale Navarrro

4.1.2 Land Use

A report published by ANAM in 2000 shows that La Zahina's surrounding environment is largely covered with mature tropical forest, scattered with patches of subsistence agriculture. However, cattle ranching and pasture land, significant land uses in the district, are driving the extension of deforestation into the cordillera. Within walking distance of the village, the two rivers form a natural boundary between the village and the surrounding cattle ranching and pasture land. In response to favourable

> The issue of land ownership is of great concern to many individuals in the community. The legal system's complexity combined with the need to expand the agricultural frontier, the increasing population and the vulnerability triggered by illiteracy and poverty, generate ambiguity about property titles and access rights to land. Avelardo Navarro's story and his everlasting fight against the "official legal system" exemplifies the issue. Mr. Navarro, who considers himself as the founder of La Zahina, claims property over parcels of land that border the *Quebrada* La Zahina, to which he currently has no access. To recover his land titles, he must work against the unaccommodating Panamanian bureaucracy, at his own expense and to the best of his knowledge, since he neither has the money to get a lawyer nor to spend long periods of time in the city, where these necessary services are provided.

Box 1 – Land ownership

market conditions, some pasture land has also recently been converted to teak plantations by wealthy absentee landowners. Whereas the majority of La Zahina's population practices forms of subsistence agriculture on lots ranging from 1 to 90 hectares, interviews and observations revealed that the land closer to the village has been transformed to large scale pastureland, on the order of hundreds of hectares, and is mainly owned by people from outside the community (See Box 1). These large landowners reside in the city of Panama and many derive their primary income from urban activities (See Box 2). Their large landholdings benefit the community only as a source of income to day labourers, paid minimal daily wages of 6$ (See Box 3).

The Doctor, as he is frequently referred to, owns 120 hectares of land with a hundred cattle between El Valle and La Zahina. He is a specialist doctor and a university teacher in Panama. He often goes to his ranch for weekend trips, in order to relax from the frenzy of the city. For the past 9 years, he has employed Orlando Navarro and his family to run the farm and take care of his property. He goes once every couple weeks, to keep an eye open on his capital, but he rarely involves himself in the farm work. The Navarros, with their 4 children, spend their time between the ranch and their main house, 2-3 km further, in La Zahina. They get monetary compensation and access to his entire infrastructure. However, the Doctor keeps the farm's profits which are, as he revealed, enormous relative to *campesinos*' income: each cow is normally sold for an amount varying between $300 and $500.

Box 2 – Cattle ranching

Villagers describe casual day labour as *Trabajar el machete por el triste 6 dolares* (Working with the machete for a sad 6$.) The work is regarded as menial and exhausting. However, it is done in acknowledgment of the necessity to earn a livelihood and to put food on the table, considering prospects for alternative employment in La Zahina are rare.

Box 3 – Casual labour

During the transect walk we conducted with Alejandro Navarro -one of the few cattle ranchers living in the village- it was observed that part of his pasture land was managed with multi-cropping techniques and other parcels had been left as fallow more than a decade. "*Pasto mejorado*" (improved pasture) had recently been introduced with the expectation of improving productivity on the impoverished soils. Mr Navarro affirmed that these Brazilian seeds were very expensive ($17 per kilo), but since they were better than the traditional ones, he now had to ensure he could continue to afford buying them for the benefit of his cattle. Mr Navarro uses inter-cropping with pasture and corn so that the land is productive year-round: he first sows corn, followed by the pasture two or three weeks later such that the pasture is almost fully grown when corn harvest season comes around.

Some trees are left for shade provisioning, and some parcels are left on fallow to regenerate productivity of soils and prevent erosion. Mr. Navarro explained us that the

mountainous landscape made his land very vulnerable to erosion, forcing the preservation of a forested area on the top of the hills in order to reduce the occurrence of landslides. We walked in a secondary forest that was around 15 years old, and he explained that he would make sure to keep some of it so that his grandchildren could use the wood to build their houses, but confessed that he would probably have to cut more in order to expand his territory devoted to pasture.

Mr Navarro, as well as other *campesinos* whose farms we had the opportunity to visit, grows an array of fruits and vegetables on a limited parcel of his total land area. These are mainly used for the family's subsistence; as such they are not grown with the prospect of selling to outside markets. Rice and corn occupy the largest share of the cultivated area, but many more crops (yucca, guandu, ají, squash, tomatoes, etc.) are arranged in a semi-organised fashion (no rows, but definite segregation of different crops to facilitate harvest).

4.1.3 Transportation

La Zahina is dependent on the precarious condition of a dirt road for transport and communication. This major infrastructural limitation allows for only limited access by motorized vehicles and causes complete physical isolation in some periods of the wet-winter season, when the rivers swell and flood the banks. The main means of transportation in the community is by horse, either for farm work or transportation out of the village. Of the 22 household interviewed, only one permanent resident of La Zahina did not own a horse. A *chiva* – a pick-up truck used as public transit – leaves twice a day from El Valle (~4 km from La Zahina) to Las Margaritas and Chepo, where there are buses to Panama City.

Results from the interviews highlight the high level of concern for the road condition in the community. Out of the 22 households interviewed, 11 reported the road or transport as the primary perceived problem in the community. From this data we interpret that the absence of a paved or otherwise stable road is a major impediment to economic and social development. It triggers a vicious cycle: agricultural production remains low because of the poor access to the markets, which in turn limits the incentive to improve the road because few marketable crops are grown and export potential is low. Similarly, integration into the greater Panamanian and global society is restricted because services are only minimally accessible. For instance, pursuing secondary schooling entails moving to the city, which requires access to capital. This in turn depends on employment and income that often require education (See Box 4). These dynamics are illustrate in Figure 9 and will be explored more in depth in the following sections.

The reality of temporary migration for casual labour opportunities is also prevalent amongst youth of La Zahina. During our stay, Alfredo, Ricardo, Jorge and Bienvenido, four young unmarried men between the ages of 18 and 24, momentarily left the community for other agricultural areas where there was demand for the type of labour they were qualified for. None of them have obtained a high school diploma and they all perform *peon*-type work: work with the machete to harvest and clean fields for large-scale producers. The lack of employment in La Zahina drives this seasonal migration; *peons* leave in order to financially support themselves and their family, and usually come back when their contract ends and there is no more work available for them.

Box 4 – Work-related migration

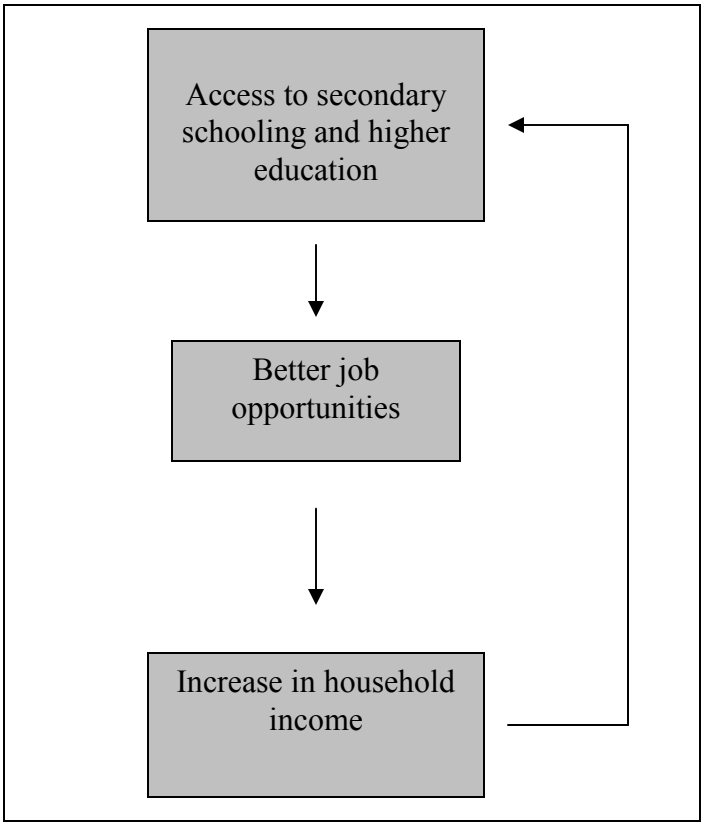

Figure 9 – Schooling and related opportunities

4.1.4 Demography and Agriculture

Zahina is composed of approximately 110 residents, divided into 28 households. Without exception, all families interviewed in the community depend on agriculture as a means of subsistence. As shown in figure 10, more than 75% of residents directly work the land, either as farmer-owner, as day labourer, or as a

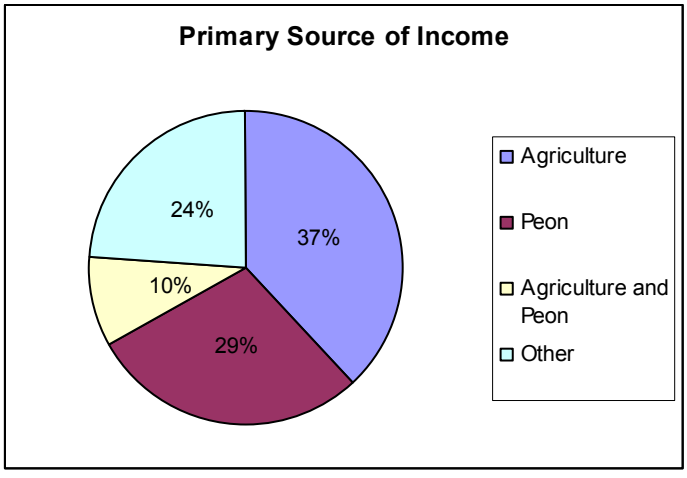

Figure 10 – Primary source of income in La Zahina

combination of both. Other sources of income include cattle ranching, owning a *tienda*, teaching or domestic service. The main crops grown are corn, rice, yucca, *ñame*, *ají*, *guandú, plátanos*, *guineos*, culantro, sugar cane and a large array of fruit trees such as orange, guava, avocado, mango, mandarin, lemon, star fruits, and many more. Of these crops, interviews suggest that only two – *culantro* and *aji* – are presently marketed by farmers. These lightweight crops are sold to intermediaries in the markets of Las Margaritas, Chepo and Panama City. However, sales remain relatively small, inconsistent and involve only a small number of producers. Market involvement is hampered by the extreme transportation difficulties experienced by community members in their attempts to conduct sales on profitable terms. Amado Navarro Mojica, a farmer currently growing *culantro* for sale on the Panama market, illustrated his view of this problem (See Box 5). Furthermore, a recent plague affecting *aji*, has decreased the advantages of selling crops in the nearby markets. As a result, the majority of agriculture in this rural community is for personal consumption.

Amado Navarro explained that culantro is a water intensive crop whose productivity is highly dependent on environmental conditions. The price of a *masa* (bundle) of culantro varies between $2 and $12 yearly, depending primarily on the laws of supply and demand and the tough market competition. After preparation and cleaning of the harvested culantro, Amado pays $5 to carry two bags to the city, in addition to his own transport costs ($2 to Chepo and another $2.25 to Panama City). The best time to sell his produce at the market is between 2am and 7am. As a consequence, Amado must stay overnight in the city, which involves extra expenditures for lodging and food. The net profits are minimal, and the limited market access deters many farmers from planting market crops.

Box 5 – The culantro market

For most community members, integration into the market economy is limited to buying basic staple items that they either do not produce themselves, or produce in insufficient quantity. These products include oil, sugar, rice, salt, soap, matches and petroleum. The village has two small convenience stores where it is possible to purchase these essentials at a higher price. Las Margaritas, a 2-3 hour travel from La Zahina, provides a less expensive alternative.

4.1.5 Services and infrastructure

With regard to basic infrastructures and services, La Zahina does not have a functional electricity plant, radio or telephone line. Although most of the installations are in place, they have become inoperative as they have not been maintained through time, for either geographic and/or economic reasons. Since 2002, each household has been receiving water via an aqueduct with outdoor taps, a service for which a monthly payment of 1$ per adult community member is required. The sanitary infrastructures are rudimentary; households mostly use outhouse dry-toilets dug directly in the ground, without aseptic controllers. When the odour becomes overwhelming, a new hole is dug and the previous one filled with dirt.

For over a year, an incomplete *Centro de Salud* has remained in a suspended state of construction, due to a lack of funding. As an alternative, a doctor visits the community every three months for basic check-ups. In case of emergency, the nearest clinic is in Las Margaritas. Access to this clinic, however, requires several hours of transport. Knowledge of traditional plants' curative properties and preventive evacuation of the ill are the main mechanisms through which health problems are addressed within the community. Preventive evacuation to the city is commonplace. For example, pregnant

women leave the community at least one month before their projected delivery date, especially during the rainy season, to avoid emergency situations. Transport to the city confers unexpected expenses for the people of La Zahina, who therefore must attempt to plan for health issues and save the pecuniary essentials.

La Zahina has a one-room primary schoolhouse. Currently, 13 students from grades 1 to 6 are attending class. The school employs one multi-level teacher, Petra Virginia Tello. According to the data collected on levels of schooling in the village, the *Maestra* is the most highly educated resident; her university degree in education brought her to La Zahina at the beginning of her career, 13 years ago.

4.1.6 Community organizations

When asked about the organizations present in the community, the two sports clubs – baseball and soccer – often were the first to be mentioned. They are informal weekly gatherings of the young men who practice their skills, and who, from time to time, challenge neighbouring villages in tournaments. Apart from this, mixed information was collected about the functioning of certain community committees in charge of different aspects such as water, women, children, the school, etc. It seems that there is some form of community management and organization, but further investigation and stronger evidence should be obtained on the topic.

The school benefits from government funding to run a communal kitchen for the children. Every school day, a mother prepares lunch and drinks for the students. The *Maestra* organizes the schedule to ensure there is always a volunteer mother responsible for properly feeding the kids.

4.2 Schooling and its dynamics

In her role as the community's school teacher, Petra must show compassion and flexibility. Working in a rural area, she is confronted with unfavourable institutional, cultural, social and economic dynamics that complicate her task; although her tasks and responsibilities, according to her, are greater she receives the same salary as her city colleagues. Many of the rigid aspects of the formal Panamanian school system such as uniforms, shoes and notebooks, are great impositions on the poorer families in the community. According to Petra: "*con $5 por dia, es dificil de ahorar para mandar los niños a estudiar*" (with $5 a day, it is difficult to save to send children to study). Furthermore, because access to secondary education requires relocating to Las Margaritas, she represents the only formal education most villagers will receive. She laments that many students with great potential cannot continue beyond primary school because of the economic burden that higher education imposes on their family. This is a key issue within the community; although they believe education is necessary to escape poverty, most interviewees and their children receive at most a 6th grade education (See Figure 11).

In an informal activity setting, we questioned the school kids regarding their desire to pursue education to high school. Although the informal methodology constrains the credibility of the results, the activity revealed that without

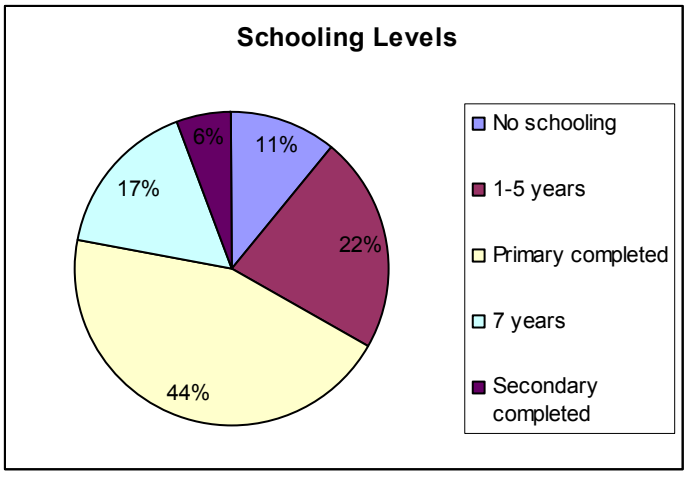

Figure 11 – Schooling levels in La Zahina

exception, every child held the desire to "*seguir carerra*" (follow a career) with professional employment, and was hoping to continue to secondary school. Unfortunately, Petra concedes that "*del dicho al hecho, hay mucho trecho*" (from what is said to what is done, there are many obstacles) (See Figure 12). Referring to the low levels of education, employment, and entrepreneurship present in the community she further stated that "*aqui* [La Zahina] *no hay futuro"* (here there is no future). This dramatic statement summarizes the hopelessness arising from the complex issues in the community, and was echoed throughout the interviews conducted with the 6 mothers of school children in the village. The challenges faced by villagers occur at multiple scales, from decisions made at the household level, to the anti-rural policies pursued at the national level.

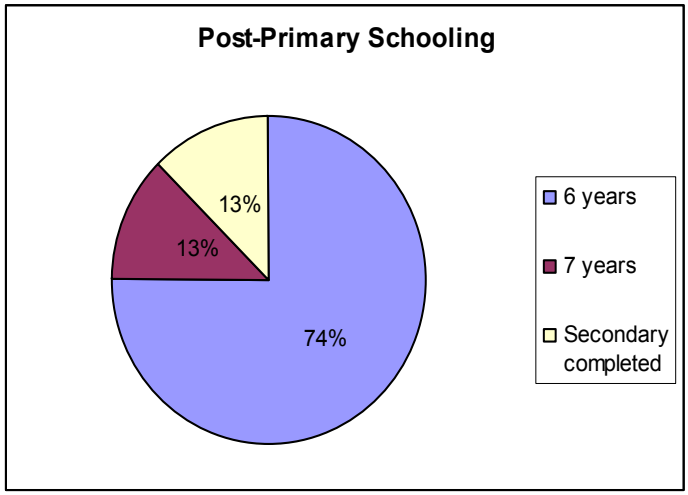

Figure 12 – Post-primary schooling in La Zahina

Since her arrival in the community in 1994, only one has completed secondary school (See Box 6). Although a number of students start their secondary education, very few are able to continue to completion, either because of lack of financial support, poor cultural adaptation to the city, decreasing self-esteem due to organizational and social differences, and/or for family obligations (See Box 7). In addition, the government scholarships previously offered each have not been given for the past two years. These scholarships provided approximately $400 per year to outstanding students to offset the

Everyone in the village talks of one young girl who managed to complete secondary school. This student is both a source of pride and disillusionment in the community. On the former sentiment, the way she sacrificed and managed to complete her degree, working all day and going to school every night, getting pregnant and pursuing even with the baby, is a model of determination, courage and willpower that inspires. However, after all those years of sacrifice and hard work, the lady is employed as a cashier at the Super 99, a popular grocery store. She has no access to secured and gratifying employment, and as her community's counterparts, she is subjected to degrading working conditions, poverty and unsatisfaction in her professional life, with little potential for advancement unless she continues her education.

Box 6 – Completing high school

The *Maestra*'s only daughter is graduating in December 2007. Like her older brother, she has the opportunity -and duty- to go on to secondary school. However, the decision-making process is much more complex for her parents: can they let their 12-year-old daughter wander off to the city on her own? This question did not arise when their son moved an aunt's house the previous year, but the parents do not want to impose the caretaking of two children, and seem more concerned about their baby girl. The solution might be for the *Maestra* to ask a transfer to the city, where she would have secured employment and would be present for her children. However, the tradeoffs are numerous: she would have to bring her two younger kids and deprive them from the peaceful, natural environment of the countryside; her husband, which is a working the family's land, would need to stay in La Zahina or follow her to the city, where his prospects of employment are uncertain, due to the few qualifications he possesses; they would have to buy a lot and build a new house in the city, implying a lot of expanses for the family. There apparently is no simple answer to the apparently easy proposition of receiving secondary education.

Box 7 – Pursuing post-primary schooling

According to community members, the ministry of education has reorganized its budget to channel funding into university education, at the expense of investing in secondary education for rural inhabitants.

The urban biased education policy, which favours those students with access to education, carries significant consequences for rural communities like La Zahina. Scholarships, which until two years ago provided financial aid for one or two talented students, provided an exit path from rural poverty which no longer exists.

The *maestra*, whose son is currently in his first year of secondary school, estimated the monthly costs of supporting a child in secondary school in Las Margaritas at $60 (including

transport, lodging and food), not including the school material. These costs are beyond the reach of landless families subsisting on the meagre wages of *peones*.

When asked "what, in your opinion, would allow more children to go to high school?" four out of the six women interviewed responded that scholarships were the most feasible option. The two other women proposed to 1) construct a secondary school closer to the community; and 2) create more employment opportunities for the parents. The latter is intimately linked to the issue of income generation opportunities. This avenue will be explored as a means to access development through small-scale entrepreneurship in the next result section of this paper. In this section we will expose and discuss the results from individual interviews and the focus group meeting conducted with women of La Zahina.

4.3 Women and income diversification through RNFE

The results of this section are based on two different sets of activities we conducted with women in the community to understand the dynamics of their daily responsibilities, their role and organisations, as well as to gauge their interest regarding training workshops.

4.3.1 Role and responsibilities

To the question, "what are your responsibilities in the household?" most women provided similar responses. The women are principally responsible for 1) caring for children and maintaining the household; 2) assisting children with school work and; 3) food preparation. The daily organisation of time is centered on the associated tasks: women prepare all or most meals; they clean the house, clothes, and dishes; they help the children with their homework; and they assist in provisioning food and services for the

family, either through direct harvesting or complementary income generation. On the latter subject, some women commented that they occasionally wash or mend clothes for other community members. Mostly, however, women responded that their contribution to income is primarily from working the machete as a *peon* for members of the community. Of the six individual interviews conducted, five of the women had previously worked outside the community, as domestic workers or secretaries before marrying. Two of the women had pursued some secondary education. Interestingly, these two women proved to be the only women with a non-agricultural source of primary income: the *maestra* and the local *tienda* owner. It is important to note, however, that the sample is not representative of the entirety of the female population of the village as interviewees were selected based on the age of their children. Further investigation would be needed to assess the general background of women with regard to employment and education.

4.3.2 Existing skills and hobbies

It is evident that women in La Zahina are already burdened by their many household responsibilities. When asked what they do in their free time, the response was often laughter, suggesting that free time is precious and scarce; *siempre hay algo que hacer* (there is always something to do). Nevertheless, the majority of women, including those present at the focus group meeting, stated they had manual work hobbies such as sewing clothes, weaving hats and making floral arrangements. It is important to note that these activities are momentarily undertaken and continually interrupted by other responsibilities. These activities are highly valued for their flexibility; they can be performed close to home as a complement to household duties, and are not capital

intensive. For example, one woman explained that for the past few months, she had been weaving a hat for her son. The hat was not yet ready and she could not predict when it would be, as it depended on the amount of work she would have to do over the winter. Although the bulk of these manual activities are presently performed for household consumption, the existing skills represent a possible avenue for the development of alternative income generation strategies.

4.3.3 Evaluation of income generation ideas

In the focus group held with the women of the community, several ideas were conceived and evaluated. The ideas generated and the evaluation criteria were discussed in the methodology, and are shown in figure 13.

We discussed the aspects of 1) need for help from outside the community; 2) the participation; 3) the material resources needed; 4) the investment in time; 5) the cost; 6) the transportability and; 7) the overall feasibility. For the first idea, weaving, the consensus was positive for every aspect, except for number 1, because only a minority of women already had the skills. They would therefore need training to produce a marketable product. For the sewing and fashion production, women realised that the reliance on machinery as well as the necessity for outside training posed considerable challenges. These factors triggered doubts as to the capacity of every woman to participate in the project, as required time and costs could prove prohibitive for women. The third proposition, to make *kambal*, was unknown to the majority of the participants. The primary proponent described it as a variant of weaving, using plastic. The product is a small container useful as make-up bags, pencil cases, etc. The many uncertainties with regard to this unknown activity created a lively discussion. Generally, the women agreed

that they would need support from outside the community, as the majority did not have the necessary skills to produce the *kambal*. The women concluded that every one could participate, even though they were uncertain about the material resources they would need, the time it would take and the overall costs it would entail. Lastly, the project of making soap carried similar uncertainties as none of the woman knew how it was produced. Nevertheless, they agreed that, as for all the other projects, they would need help from outside to start. However, the idea was considered both feasible and realistic, and despite their uncertainty the women agreed that it had the potential to generate positive opportunities for their community.

Idea	Ayuda de afuera?	Participación de todas ?	Recursos materiales	Tiempo	Costo	Transporte	Factible	Puntaje	Orden prioridad
1. Tejer	☹	☺	☺	5 ☺ 2 😐 1 ☹	☺	☺	☺	11.5	**1**
2. Coser	☹	8 ☺ 1 ☹	☹	5 ☺ 4 😐	2 ☺ 2 😐 8 ☹	☺	☺	7.8	**4**
3. Kambal	☹	☺	5 ☺ 5 ☹	No sabemos	7 ☺ 3 😐	☺	☺	8.8	**2**
4. Modista*	x	X	x	X	X	x	X	X	X
5. Jabón	☹	☺	☺	No sabemos	☺	5 ☺ 6 😐	☺	8.7	**3**

* Following discussion, the participants decided that *coser* and *modista* designated the same idea.

Figure 13 - Example of an evaluation matrix (☺ = 2, 😐 = 1, ☹ = 0)

4.3.4 Results and implications

Women in La Zahina demonstrated interest in acquiring a variety of skills that would allow them to diversify their income and increase their skill set. They showed openness to exploring new opportunities, and a desire to deepen the basic skills they already possess. One woman explicitly stated that women wanted to learn whatever was possible, because they liked to be taught, and because this represented an opportunity to change their situation and provide additional income for their family. Another woman suggested that they had a lot of potential in the village, but they simply were unsure about how to achieve it. Therefore, she suggested, any training would help them to "*cambiar el mente*" (change their mentality). A positive conclusion of the activity is that women demonstrated interest in many forms of income generation projects. This leaves the door open to any proposition that fits within the basic constraints expressed; any new income generating activity should be done close to home and/or have a flexible time schedule, and it should fit the transportation limitations of the community. La Zahina doesn't have any form of cooperative or organisation of women. It is therefore interesting to see that all their propositions are achievable individually, but could also potentially be organised collectively.

It is also noteworthy that the ideas generated during the brainstorming activity have a dual economic potential; developing skills may economically benefit households, while also reducing vulnerability to economic changes through diversification. Furthermore, rural non-farm activities may decrease dependence on urban market goods and services, by creating a rural source of necessary services. Thus, despite possible failures in the creation of an urban market for these rural goods, women would still have

the ability to practice these skills for themselves. For example, learning to weave or sew would permit them to fix and make clothes or baskets that they would otherwise need to purchase.

5. DISCUSSION

The field work results from La Zahina highlight much of the vulnerability of rural populations discussed in the introduction and literature review sections of this report, as well as the development-related challenges in remote areas. Further, the decisions made in the community regarding schooling demonstrate the cycle of poverty in which rural inhabitants often become trapped. A sustainable livelihoods approach to development, with a focus on income diversification in tandem with agriculture, will be applied to these results to explore the viability of small rural businesses in the context of La Zahina. Using the results of the feasibility assessment, recommendations will be made regarding potential business strategies to promote conservation and the development of sustainable livelihoods in the village.

5.1 Socio-economic profile

The settlement and subsequent land use in La Zahina follows the pattern of agricultural frontier expansion discussed in the introduction. The area was settled as a result of the government push to develop new, unexploited, productive land. It is for this reason that the settlers of La Zahina arrived in the mid-1960s, during the thrust of the government policy, primarily from the nutrient-depleted western provinces of Los Santos, Chiriqui, and Veraguas. The area, though fertile, fits Conway's description of marginal rural land, as its steep hill-slopes are vulnerable to rapid degradation (Ashley and Maxell

2001). The settlers in La Zahina used, and continue to use, unsustainable land management practices based on slash-and-burn cultivation. In steep terrain, such as the cordillera in which La Zahina is located, slash-and-burn, as well as cropping on hill-slopes, leads to rapid soil erosion and sedimentation in rivers. Predictably, nutrient-depleted land is converted to pasture, which can be found all around the community. Cattle ranches are controlled mainly by absentee Panamanian owners, and demonstrate the gradual increase in farm size and concentration of land holdings forecast by Ashley and Maxwell (2001). Cattle ranching, the most deleterious use of land in the area, is highly inequitable; the beneficiaries of the livestock enterprise do not suffer the negative environmental impacts of their land use.

The unsustainable land use practices in the region are likely to put more pressure on resources in the future as populations rise and land must be divided between an increasing number of dependents; this is already evidenced by the number of middle-aged residents in La Zahina sharing parents' land with siblings. The need for more land will inevitably drive the expansion of the agricultural frontier through the mountainous cordillera.

Agriculture in La Zahina is focused primarily on production of staple crops for personal consumption. Because these common crops – such as yucca, rice, and beans – are cumbersome to transport, they are rarely sold. *Aji*, currently undergoing a plague, and culantro are the only crops which can be feasibly transported to market. Because of transportation difficulties due to the remoteness of the community, the rural producers lack access to the agricultural market. The goods produced must often be sold to intermediaries at disadvantageous terms of trade. As shown in the results, selling these

crops provides little profit and is rarely the primary source of income for a household. Thus, little surplus is generated in the community, providing scant opportunity to get ahead. Residents are left producing low-value staples, and must spend what little income they do earn from the sale of culantro on consumer goods, such as oil and soap, and foodstuffs which they no longer produce, such as rice for many.

While remoteness decreases access to agricultural markets, it similarly decreases the access of community members to needed infrastructure and services. In La Zahina, there is an evident impoverishment in terms of access to vital services, primarily education and health care. Due to the lack of health services, families must save any surplus to hedge against risks, primarily poor health. Further, it is nearly impossible to escape the cycle of poverty without access to basic healthcare and secondary education. Thus, remoteness increases vulnerability to poverty.

Because the communities in the Mamoni Valley are geographically dispersed and small in size, there is little organizational capacity on a regional scale. This disorganization is also replicated on the local scale; even amongst households there is an evident focus on individuality. It was also lamented by some that coordination would allow for rehabilitation of electricity, the communication radio, and perhaps the health center. Further, coordination on the local and regional scale would increase the political clout of the communities and possibly increase their success in demands for large-scale infrastructural improvements, such as road construction. Regardless of the development strategy, it will be difficult to exit poverty without access to vital communications and transportation infrastructure, or organizational capacity.

The livelihood strategies pursued in La Zahina demonstrate the importance of reducing vulnerability in rural areas. Although the income sources remain primarily agricultural, diversification is used as a strategy to decrease the vulnerability of the rural inhabitants. Many of the households with access to land, for example, also work as *peones* for larger landholders during times of scarcity throughout the year. Other households, as Bienvenido's, Ricardo's, and Alfredo's, send young male members to work as *peones* in neighbouring communities as the opportunity arises. Finally, yet others have young, unmarried daughters living and working in the city. For example, prior to marriage, 5 of the 6 women who participated in the schooling interviews had worked outside the village mostly in childcare or other domestic services. It is likely that remittances from these family members represent a sizeable contribution to household income within the village. This practice of income diversification is what Gloria Rudolf refers to as getting "a little bit from everywhere," and is a common strategy to reduce income fluctuations and stave off poverty in times of scarcity (1996).

5.2 Education

The results of the study on education in La Zahina highlight the difficulty encountered by rural communities attempting to exit the cycle of poverty. Without education, the mothers suggested that there is no hope; without education it is impossible to find work outside of the village, and to increase income. To receive education, however, it was agreed that households need both a financial surplus, and family members in the neighbouring Las Margaritas with whom a child can live during secondary school. The result is a cycle of low human capital, which leads to low

financial capital and a resulting inability to invest to increase human capital. This cycle is summarized in figure 14.

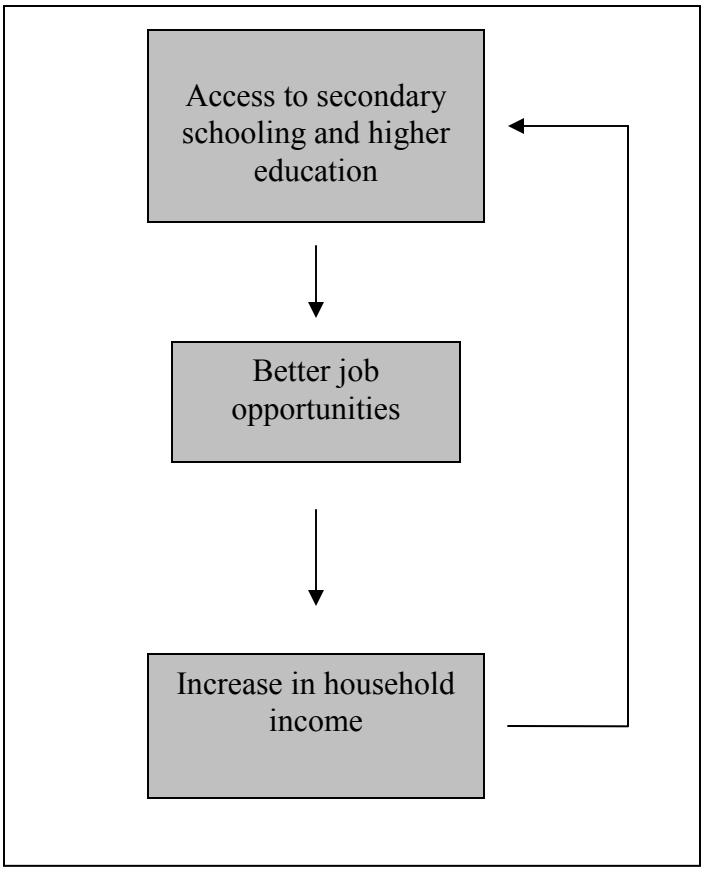

Figure 14 – Schooling and related opportunities

Urban bias also figures prominently in this cycle of poverty. Without strong government policy to support rural education, the problem of low human capital and hopelessness will persist. In light of the remoteness and lack of infrastructure in many rural areas, government policies must act to increase skills and capital in these areas such that rural inhabitants may begin to invest in their futures. Governments must increase incentives for quality teachers to work in rural areas, and must also subsidize secondary education for students (at least in the short term), such that ensuing generations may have the ability to increase their livelihoods.

Finally, for those with little financial capital who *are* able to pursue secondary education, there are further obstacles. The mothers similarly lamented that it is necessary to have secondary education to receive any work in the city, with the exception of domestic work or road cleaning. However, even with secondary education, it is unlikely

that students will receive work which actually capitalizes on that which they have learned. Gladys' daughter provides an excellent example: after years of sacrifice to receive her diploma, she is employed in a supermarket. Thus, without the presence of meaningful employment opportunities for those who do pursue secondary education, rural populations, despite urbanization, will continue to enjoy little social mobility.

5.3 Women and income diversification

The results from La Zahina demonstrate both potential limitations of small business development, as well as potential opportunities. The research conducted in La Zahina represents a preliminary assessment of the feasibility of small business development, and may be used as an introductory guide in product selection. Many of the points to be discussed in this section relate to the evaluation of the various products shown in the results.

Firstly, the remoteness of the community, a significant impediment to agricultural development, will also impede development of the non-farm sector. For this reason, any product must be easy to transport to market. Similarly, it is advantageous to use natural resources present in the area. This is advisable for two primary reasons: use of natural resources may promote their conservation and sustainable use, and locally-derived resources do not require costly transportation from the city.

Secondly, the lack of human capital may impede development of a small business. Education has been linked to both participation in, and success of small enterprises. This link is demonstrated in La Zahina; the only 2 women with non-agricultural income are the same two women with secondary (or further) education. The link between education

and income diversification is not direct or explicit, but may arise from several factors. In general women with greater education have higher incomes and access to greater investment capital, as well as greater control over their income and thus, at least in theory, greater empowerment in household decision-making. Furthermore, women with higher education may benefit from greater organization capacity and social networking. Thus, it may be necessary to provide women both with skill *and* administrative training.

In addition, the women in La Zahina have little formalized social cohesion. While there are meetings held for the *padres de familia*, as well as parent meetings regarding schooling, the results of interviews show that there is no organization specifically for women. The results also point to a strong sense of independence between households. This individuality favours the development of household, rather than group, enterprises and limits the feasibility of immediate formation of cooperatives. Household enterprises, while perhaps more feasible in this context, will face challenges due to their smaller scale. The willingness of the women to meet, and to engage in conversation regarding possible training, however, suggests that future coordination may be possible and advantageous.

Thirdly, in La Zahina, a lack of secure land tenure as well as access to financial capital poses a significant obstacle to non-agricultural (and agricultural) development. Although over half of the households interviewed have land, the legality and formality of the land ownership is doubtful. This poses an obstacle to development of small enterprises, or sustainable agriculture as ownership uncertainty presents significant risk; people are unlikely to invest in development if they are uncertain as to who will benefit. Clay furthers that: “if considerable investment is made to increase the value of a resource

base, it would be a good idea to keep track of who might be attempting to use the legal or political system (or even brute force) to take control of those resources" (1996). This is especially poignant in La Zahina, as the example of land tenure disputes presented in the results reveals. Development of a small enterprise will require further investigation into the vagaries of land title in the area.

The lack of financial capital, combined with an absence of sources of credit, will also hinder development of any small business in La Zahina. As shown in the results, there is only small-scale involvement in the agricultural market, and an associated lack of financial surplus. The little surplus that does exist is needed for schooling and health care, or as a buffer against potential vulnerabilities. Similarly, because of informal land titling, households largely lack access to credit. As a result, any financial capital to start up a small business will need to come from outside. Ideally, a business should be chosen which, after careful prior analysis, requires little start-up investment. Also, this business should ultimately be selected and driven by the community; a sense of ownership and empowerment must serve as motivation to participate in, and continue the enterprise (Bovarnick and Gupta 2003). Furthermore, to promote a local stake in the venture, it is advisable to provide financial capital as small start up loans, rather than grants, such that the community maintains the sense of ownership over the success or failure of the enterprise (Clay 1996).

A related constraint on business development is the distribution of benefits. Because both human and financial capital are unevenly distributed in the community, as in most communities, participation in the small business may serve to benefit those with the most capability to invest and participate. In other words, the benefits of the rural

development may ultimately benefit those least in need of income. It is vital to select an activity in which many women can participate, and to provide the start-up funding and training in an equitable manner.

Fifthly, to succeed a small business must ultimately fit within the social dimension of the community, as described in the results. Thus, the business must be flexible to the existing responsibilities and time constraints of the women. Products, ideally, should therefore be amenable to individual production and conducive to non-continuous production. In addition, it is advisable to create products with a pre-existing skill base, such that minimal instruction is necessary. Finally, products will existing markets will also be most rapidly received, and thus decrease the period of non-profitability (Clay 1996).

6. RECOMMENDATIONS AND CONCLUSIONS

From the preliminary analysis in La Zahina, as well as a review of literature regarding experiences with small business development, several recommendations can be made. These recommendations are not meant to suggest the most feasible product, but rather to guide a more thorough evaluation of the ideas raised in the group exercises with the community.

6.1 Assessment Phase

1. Investigate land tenure and resource rights. It will be difficult to promote either sustainable land use or investment in resource-based business development without secure land tenure arrangements. Further research into local land titling is necessary.

2. Create reasonable expectations based on careful market analysis. Clay suggests, the goal of small business development for conservation and poverty alleviation is to "make a decent profit, not a killing" (1996). It is necessary to carefully assess market conditions, costs of production, and possible profits. As always with business, it is highly recommended to perform a sensitivity analysis (what if…) and to overestimate costs while underestimating profits. It is also desirable to assess the production chain for different products and attempt to determine steps at which value can be added locally. Further, it is necessary to realistically estimate the time necessary for profits to be realized.

3. Plan financing for initial and on-going costs. Ideally financing should involve community investment. In the absence of sufficient financial capital, small, low interest loans or micro-credit should be used. It is advisable to use loans rather than grants to assure a sense of local ownership of the enterprise. It may be necessary to create micro-financing programs (Bovarnick and Gupta 2003). Increasing access to credit will allow the poorest households the opportunity to engage in these activities and thus equalizes the benefits received from off-farm employment (Rahman and Westley 2001).

4. Identify necessary training. This training must include skill training for production, as well as administrative training for successful business management. Skills needed include: bookkeeping, management, leadership, financial planning, sales/marketing, contract negotiation, technical expertise (Bovarnick and Gupta 2003). Because development NGOs are often focused on development, rather than business management, it may be necessary to bring in outside experts. It is also highly advisable to keep the business plan as simple as possible, as complexity increases rapidly.

5. Create a marketing strategy. As small-scale production creates higher priced goods, it may be advisable to look to niche markets. Promising avenues include: green or organic certification, capturing environmental premiums (Bovarnick and Gupta 2003).

6.2 Product Selection Phase

6. To promote conservation it is advisable to investigate products which uses natural locally-derived inputs in a sustainable matter. Although conservation will likely require complementary measures (ie regulations, conservation agreements, enforcement, education, etc) it may thus be possible to create a direct link to biodiversity conservation, while simultaneously decreasing transportation needs and input costs. Furthermore, using local, organic products may allow for entry into a niche market, as products can be marketed as 'green' (Clay 1996). An example is soap production.

7. Products should be matched to the local context. Recognize infrastructural constraints. As discussed, in the context of La Zahina, products should be easy to transport to market, require little immediate organizational or communications infrastructure, and be amenable to individual and non-continuous home production. In other words, production and distribution should initially be very simple and small-scale.

8. Ideally, products should capitalize on pre-existing skills and markets. According to Clay, creating a market for a product takes from 5-20 years. He suggests that it requires up to 10 years to create a market for personal care products such as soap, and requires extensive health and safety information (1996). Thus, it is advisable to select a product for which market research and development has been done, and a clear production and distribution network exists. For small-scale production, it may be best to

join with other communities already involved in production. Similarly, selecting a product already produced (even for consumption) in a community will reduce start-up costs, training requirements, and the necessity for cultural adjustment (Bovarnick and Gupta 2003).

9. Most importantly, product selection should be locally driven. Local involvement is necessary to promote the sense of ownership and empowerment vital to the success and continuation of small businesses (Bovarnick and Gupta 2003; Clay 1996).

6.3 Future development phase

10. Create cooperatives. While not immediately feasible, creating production cooperatives may allow small enterprises to capture advantages of scale. For example, coordinating bulk purchase of needed inputs, as well as co-renting transportation services to market, may reduce costs.

11. Create mechanisms for profit distribution. This may include local organization building (Bovarnick and Gupta 2003). Cooperatives may also be useful in profit sharing: a cooperative can potentially be used as a 'revolving fund' to buy consumer goods (the main expense in rural communities) at a lower cost in bulk for resale at below-market prices (Clay 1996).

12. Diversify production at a regional scale. While it is likely not advantageous to diversify production at the household level, diversity at the regional level may serve as a buffer against variability in the larger market context. Surplus from successful products can be used to invest in the research and development of future products. It is best,

however, to add one product at a time, and each with similarly careful analysis (Bovarnick and Gupta 2003; Clay 1996).

6.4 Conclusion

Ultimately, rural development will come from both small local-scale development projects, such as rural business development, combined with larger changes in the socio-economic landscape which currently disenfranchises rural communities. There must be decentralization of institutions, encouraged by civil society, such that the rural poor are able to help themselves. It is also necessary to remove the agricultural bias from development policy so as to promote the rural economy as a whole. These future investments must not be done at the cost of developing the agricultural sector. Thus, agricultural and non-agricultural development must occur in tandem for poverty alleviation to succeed.

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APPENDICES

APPENDIX 1: Interview guides

A) Baseline socioeconomic data interview

1. Introduction
   - Presentation of ourselves and of CREA
   - Why are we here?
   - Presentation of the methodology

2. General Information
   - Name, date of birth
   - Family size, composition and organization
   - Origin, date of arrival in the community

3. Institutions in the community
   - Schooling
   - Which institutions are present in the community?
   - What services are available to the community?

4. Income generation
   - What are the income generating activities of the household?
   - Land property

5. Characterization of the agricultural system
   - What crops are cultivated?
   - What is the cultivation cycle?
   - What crops are sold and what crops are for personal consumption?
   - What food items need to be bought?

6. Community issues/problems
   - Are there any problems in the community?
   - What has been done to solve these problems?

7. Additional comments/questions

8. Conclusion
   - What we are going to do after
   - Thanks! (picture)

B) Women's income diversification and schooling interview

1. Women's income section

1.1 Introduction

- Presentation of ourselves and of CREA
- Why are we here?
- Presentation of the methodology

1.2 General information
- Date of arrival in the community
- Family size, composition and organization
- Schooling

1.3 Household roles and responsibilities
- Who is the decision-maker of the household?
- Woman's responsibilities in the household
- Description of daily activities

1.4 Work-related questions
- Previous work out of the house?
- What type of work you like to do?
- What is the income-generating activity of the household? Do you contribute to this?

1.5 Future training possibilities
- Do you have special abilities, skills, knowledge?
- What type of work would you like to learn?
- How do you think you could contribute to the income of the family?

2. Youth schooling

2.1 Schooling level of family members
- Schooling level
- Reasons for sending kids to school

2.2 Implications of sending kids to school
- Where do children live?
- Advantages/disadvantages of secondary schooling
- Financial implications

2.3 Post-graduate impacts
- Success rate
- Return to community
- Employment rate
- Why is the enrollment for secondary school so low?
- Is the curriculum relevant to today's job market?

2.4 Steps for the future

- What could allow more kids to continue schooling?

2.5 Additional comments/questions

2.6 Conclusion

- What we are going to do after
- Thanks!

APPENDIX 2: Work Schedule

January

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

11: 3hrs
12: 3 hrs
18: 3 hrs
19: 4 hrs
31: 1.5 hrs

Total: 14.5 hrs **Total field days: 0**

February

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

1: 3 hrs
2-14: field work, average day: 10 hrs

Total: 133 hrs **Total field days: 13**

March

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

8: 7 hrs
9: 7 hrs
17-22: field work, average day: 10 hrs
29: 7 hrs
30: 7 hrs

Total: 88 hrs **Total field days: 6**

April

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

5: 8 hrs
6: 8 hrs
19-26: report writing week, av. day:8 hrs

Total: 80 hrs **Total field days: 0**

TL # OF HOURS WORKED: 315.5

APPENDIX 3: Budget

Purpose	Cost per person	Total
Transportation – 2 return trips	$3.25 x 4	$39.00
Food	$70.00	$210.00
Lodging (donation to school)	$30.00	$90.00
Printing (reports and pictures)		$30.00
Total		**$ 369.00**