ISSN 2348-1218 (print)
International Journal of Interdisciplinary Research and Innovations ISSN 2348-1226 (online)
Vol. 5, Issue 3, pp: (1-8), Month: July - September 2017, Available at: www.researchpublish.com

Partnership in Agricultural Community Entrepreneurship (PACE)

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Abstract: **This pilot study examines how shared interest savings groups (SISGs) within smallholder farming communities will continue to play a major role in achieving the goal of sustainable food security. Our preliminary findings indicate that SISGS are an effective mechanism for bringing together farmers, farm families, suppliers, savings and credit schemes, transporters, processors, and marketers to collaborate in building value chains that assure a viable and sustainable local horticultural-based economy. Not everyone in a SISG is a farmer; but everyone is playing a part in creating, sustaining and scaling up a food-based economy. SISGs are a vehicle for local agricultural research and training institutions to introduce new farming technologies and practices. There is a process of shared knowledge, mutual learning and trust among farmers, researchers and consumers as new technologies and practices are adopted and adapted that assure the growth and marketing of safe and healthy vegetables.**

Keywords: **Savings, horticulture, adopted, adapted, healthy vegetables, shared knowledge, farming economies.**

1. INTRODUCTION

We have come to appreciate within the two years of the PACE project that bringing together disaggregated members of smallholder farming communities into shared interest savings groups (SISGSs) is as important for scaling up the production of healthy and nutritious foods as the introduction of new farming technologies and practices. This pilot study examines how these two approaches can work together toward assuring that smallholder farmers will continue to play a major role in achieving the goal of sustainable food security. Our preliminary findings indicate that SISGS are an effective mechanism for bringing together farmers, farm families, suppliers, savings and credit schemes, transporters, processors, and marketers to collaborate in building value chains that assure a viable and sustainable local horticultural-based economy. They all have a shared interest in building a local economy with an agricultural base. Not only do SISGS help amass lump sums of capital which can be drawn upon to invest in new technologies and practices, but SISGS serve as centers of informational exchange both horizontally among local stakeholders, and also vertically with two-way communication between agricultural communities and research and training institutions. SISGS offer its members needed risk protection for trying out new practices as well as a fertile ground for spawning new agricultural businesses. PACE began at a propitious moment following a recent global call to assist smallholder farmers in providing the world with clean and nutritious foods. We therefore believe it to be timely that our model be tested at a larger scale and with a more rigorous design in order to validate our preliminary findings.

2. BACKGROUND

The current project is a response to a resoundingly strong mandate at the highest levels to build a robust and sustainable system among smallholder farmers to provide the world with healthy and nutritious foods.

At the UN General Assembly in September 2012, Secretary of State, Hillary Clinton, called for $1 billion in aid to be targeted at the "local level" to secure the world's access to healthy food. [1] Three months later, President Obama's 2013 State of the Union address called for setting a goal to eradicate extreme poverty over the next two decades. [2] In response, Samuel Worthington, President of InterAction, an organization representing over 200 international development organizations, announced a commitment by InterAction's membership of over $1.5 billion in private funds to be directed toward collaborating with the ten member interagency program led by U.S. Agency for International Development (USAID) entitled Feed The Future (FTF). '"This groundbreaking agreement will empower communities to grow from the inside out," said Dr. Rajiv Shah, USAID Administrator. "By harnessing science, technology, innovation, and partnerships, we can unlock opportunity and end widespread hunger for the world's most vulnerable people."' [3]

The FTF mandate is to work "from farms to markets to tables to improve incomes and nutrition." Its plan is fourfold:

- Increase horticultural productivity and generate opportunities for economic growth and trade in developing countries
- Boost the harvests and incomes of rural smallholder farmers, who are the key to unlocking horticultural growth and transforming economies
- Improve horticultural research and development and get existing, proven technologies to more people
- Increase resilience to prevent recurrent crises and help communities better withstand and bounce back from crises when they do happen. [4]

At all levels, there is a belief that the promise of global health and good nutrition rests in the hands of smallholder farmers and the communities in which they work and live. Consequently, the Chicago Council for Global Affairs convened a study co- chaired by Catherine Bertini, former executive director of the UN World Food Program and Dan Glickman, former US secretary of agriculture. The study laid out a road map for meeting this challenge. [5] The final report states clearly that "The US government cannot hope to reach this goal without helping to boost the income of the poorest by putting more science in the hands of the developing world's smallholder farmers." [6] It goes on to state that "Science cannot create global food security on its own. Any drive to rejuvenate horticultural and food research is wasted unless the private and public sectors get these innovations into the hands of farmers, regardless of where they live or their economic status." [7]

The Horticultural Innovations lab (HIL) at University of California Davis (UCD) was established with a clear mandate to research and deliver innovative technological solutions into the hands of poor and near poor smallholder farmers. [8] Among its many accomplishments, it has introduced new seed varietals, affordable systems that include irrigation, integrated pest management, mulching, and post -harvest processing and storage.

Fortunately, the HIL understands that innovative technological design of new farm inputs cannot be the sole driver of change. According to the distinction made by Zhouying Jin [9], most of these innovations can be characterized as hard technologies. However, according to Jin, innovation requires an appropriate blend of "hard" and "soft" technology. Hard technology is "an operable knowledge system that is mainly derived from knowledge of natural science." It includes "the skills, tools and rules that are employed by people to alter, accommodate and manage nature for human survival and development." Soft technology "comes into being through the conscious use of those common laws or experiences in economic, social and humanistic activities, and then shapes rules, mechanisms, means, institutions, methods and procedures which contribute to the improvement, adaptation or control of the subjective and the objective world." [10] The pilot project has been conceived, in response to that distinction and sets out to test a set of *economic, social and humanistic* innovations that facilitate the adoption and adaption of new, hard technologies by end-users.

3. THEORY OF CHANGE

In the face of monumental efforts to introduce advanced technological changes among smallholder farmers, we recognize that the above goals set by policy makers cannot be achieved without an harmonious admixture of financial and social packaging fitting well within the boundaries of local custom, knowledge and acceptance of risk.

Clearly, smallholder agricultural communities around the globe, have existed for generations. Many of their farming practices hark back to times when the numbers to be fed did not strain resources. In more recent times, as demands on production have increased and new products and information have become available, many technological innovations are presented as panaceas. Throughout agricultural communities, there pulsates an inchoate expectation of change that

embraces input suppliers, financial service providers, farm families, landless laborers, postharvest processors, marketers and the ultimate preparers of food. Simultaneously, there is an obstacle to change sustained by convention, obligations, customs, and beliefs that reinforces a conviction that whatever was done in the past countenances continuance into the future. This juncture of discordance offers a space where a well-modulated introduction of hard and soft technology offers common ground. This conjunction of effort begins by supporting entrepreneurship within locally emerging civil society structures. SISGS play an important role in building these structures.

4. THE PILOT PROJECT

The RUA Example:

The HIL has collaborated with the Royal University of Cambodia and Oxfam America to introduce a community entrepreneurship strategy targeted at agricultural communities of Kandal Province of Cambodia. It is a systems approach that introduces SISGs as its cornerstone intervention. Together, we demonstrate how SISGs nurture the existing economic and social activities essential for scaling up smallholder farming into a major region-wide enterprise where farmers are the quintessential entrepreneurs. (According to the Organization of Economic Cooperation and Development, "entrepreneurship" is the "...human action in pursuit of the generation of value, through the creation or expansion of economic activity, by identifying and exploiting new products, processes or markets.") [11]

What Is a Savings Group?

A savings group is an autonomous mechanism for saving money among a group of trusted individuals who can then borrow the money at a low interest rate (usually 2% per 28 days) for personal and business investments. We adopted the *Savings for Change* methodology that had been developed and refined by Freedom from Hunger and tested in Mali by Oxfam America. Oxfam became an invaluable partner as we trained our team of facilitators in the field to assist in the creation of SISGs. [12]

SISGs function independently of any micro-finance institutions and the membership is self-selecting. The steps required in introducing the idea to the community include:

1. A household survey in the village that develops a profile of the potential membership and, in turn, provides general information about the model.

2. A promotion meeting giving more detail as to the benefits and responsibilities of membership

3. Seven group training sessions,

4. One year of periodic follow-up by the *Savings for Change* facilitator.

The group purchases a lock box, and an account book. All the funds that go into the box come either from the savings of the members or the payments of loans leveraged by those savings. They elect the level of weekly savings, the holder of the box and the holders of the two keys.

The groups, between 15 – 20 members, meet weekly to deposit their savings and take or repay loans every fourth week. There is no external seed money. The bylaws, the funds, the decision making around the entire process is owned and controlled by the membership. In some cases, they elect to leverage a fine for those who come late or are absent. Some groups choose the weekly topics for discussion. External input is limited to providing training on finance and accounting systems, often tailored for those with limited literacy skills.

In the current project, we use the Savings for Change (SfC) model developed jointly by Oxfam America and Freedom from Hunger to form SISGs. [13] SfC is a savings scheme that uses the weekly member meetings to target module of education and training around such topics as financial literacy and preventative health. For our purposes, it is an empowerment mechanism that engages group members as agents of change:

- It offers good horizontal informational exchanges essential for group evaluations of costs and benefits of new technologies being introduced.

- It amasses lump sums of capital against which smallholder farmers can borrow to invest in new technologies.

- It particularly attracts women who see these groups as a means to avoid social isolation, build collaborative structures and protect their small savings.

- It becomes a first step in greater cooperation in planting and post-harvest processing, supplier generated product differentiation regarding farm inputs, and marketer established pricing options.

- It stimulates new local businesses that produce and market farming innovations.

- It facilitates collective assessment of the risks involved in changing practice and the review of available options to mitigate against those risks by building trust and mutual support.

- It is the first step in building incipient civil society structures that encourage collaboration among all parties within the agricultural community that includes farmers, farm families, input suppliers, local laborers, processors, transporters, and marketers.

- It provides basic financial tools essential to manage the group savings, make financial decisions and monitor the results.

- It offers a locus for a highly participatory monitoring and evaluation framework.

- It creates and supports a new cadre of leadership as groups grow in strength.

- It provides a two-way vertical mutual learning system between the joint agricultural faculties at the top and civil society organizations at the grassroots that represent the interests of the local private sector. By linking groups at the base with institutions at the summit, local groups gain greater voice in decision making. Representatives from RUA are present at some of the savings group meetings to discuss farmer choices and participate in mutual learning of what works and what does not.

Such a practice is in keeping with the September 2013 findings of the Advisory Committee on Voluntary Foreign Aid (ACVFA).

[S]everal of the countries where FTF agencies operate, the political support for civil society is constrained - this very constraint threatens sustainable gains in long-term food security. FTF, with its focus on smallholder agriculture and equitable economic growth, can and should be a vector for increased voice and representation of civil society —making this a cornerstone of efforts to promote an enabling policy environment for agriculture. [14]

5. RESULTS

***Group Formation*:**

Within a period of six months, 148 people were formed into twelve SISGS with an average of 12 members per group. One hundred and fifteen farmers. The rest were in one way or another dependent upon the success of farming as the mainstay of the community. One hundred and twenty-five were women who were mainly either farmers or members of farming households.

Table 1: Profile of savings group: 85% are women; 78% are farmers

	Total	Average per group
Registered members	148	12
Members who are farmers	115	9.6
Female members	125	10
Male members	23	2

Table 2 Financial Benefit: On the financial side of the ledger, after only one year from formation, the groups were able to save $15,798 with an average of $1,317 per group. On top of that, they placed on average $36 into a social fund set aside for emergencies

Key economic indicators and savings portfolio		
	Total	**Average per group**
Total value of savings	15,798 USD	1,317 USD
Cash in social fund	434 USD	36 USD
Value of cash in box	3,748 USD	312 USD
Members with outstanding loans	84%	-
Number of outstanding loans	124	10.3

Value of outstanding loans	13,370 USD	1,114 USD
Average loan amount	108 USD	-
Number of loans for farming activity	101	8
Total value of loans taken	20,705 USD	1,725 USD

Adoption and Adaption:

In November 2013, RUA hosted a workshop that brought farmers from SISGS and high value vegetable marketers together to learn about horticultural technologies and market opportunities in Phnom Penh. Farmers selected protective nets among their top three picks of technologies. Following the workshop one farmer provided land to test the protective nets on his farm. The other technologies selected were soil solarization and compost.

A farmer in a savings group tested the nets on his field using his preferred design of the net covering four rows of Chinese kale. Results were compared with the same crop grown outside of nets that received four pesticide applications. There was a 62% increase in production using the nets.

Table 3 Production benefit: More than 60% increase in production and cash value

Preliminary results:
Yield with net: 160 kg
Yield control (no net): 100kg
Market price with net: 0.25 USD/kg
Market price control 0.15 USD/kg

Other examples of vertical learning occurred as technologies such as drying beads, used to keep seeds dry for the next planting season, were not adopted. Group members identified alternative, locally produced technologies that served them just as well.

A variety of horizontal learning activities also take place among group members. For example, farmers and marketers have come together in workshops, focus group discussions and field visits to share information on production of niche market crops, market demands and prices. In another case discussions were held with those in the community interested in starting local production of the pest nets.

The introduction of a new technology creates a ripple effect. Seeing the effectiveness of the nets, farmers have begun to test new crops such as tomatoes. A member of a savings group is now considering a business making the nets locally.

Preliminary Findings:

The following observations of this short study of less than two years offer anecdotal information that calls for follow-up with more rigorous research:

1. The weekly meetings have opened up new information channels among members who have increased their financial management skills.

2. The commitment mechanism not only serves to strengthen the group but works to increase member savings and willingness to invest.

3. SISGS develop strong trust and self-confidence among members, especially as resilience and household food security are improved.

4. SISGS are an effective platform used by RUA and UCD to deliver training on horticultural technologies and to study how the technologies are adopted and adapted by these groups.

5. There is a qualitative difference working with SISGS in which all members share a common interest. In this case, the common interest is that when farmers win, everyone wins. Although SISGS in agricultural communities do not consist solely of farmers, on average 85% are farmers, and the rest is a mix of farm laborers, input suppliers, transporters, food processors, machinery repairers, marketers. Groups also include members of farm families seeking to subsidize farming through off-farm employment and merchants and service providers who possess a strong self-interest in the well-being of farm families.

6. Interviews with loan group members reveal that the majority of the loans are enterprise loans. At a distant second are income smoothing loans to be repaid at harvest time.

7. Focus group discussions reveal a common entrepreneurial purpose to scale up their industry. When members of these shared interest agricultural SISGS are asked what would happen if they won the lottery, their most common response is they would buy more land or acquire better equipment and plant more vegetables; almost too embarrassed to admit they would put their feet up. This is sharply different than the response among multi-interest groups that respond with dreams of leisure.

Next Steps:

We propose a parallel program that scales-up both practice and applied research that expands upon our preliminary findings. Ten to twenty disaggregated members of a shared interest savings group working in common purpose to increase local production and marketing of healthy vegetables is a mutual enterprise. Ten to twenty SISGs of shared interest collaborating to build a tight value chain offering healthy food is building an industry. This can only be accomplished if the economic and social environment is so structured that members of these agricultural communities become equal partners in building that industry. Recommendation #4 of the ACVFA working group states in full:

- Leverage FTF multi-stakeholder engagement at the country level to strengthen coordination and mutual influence among actors engaged in agriculture, food security, and nutrition. This should include local civil society, multilateral agencies, local government, and the private sector. Where appropriate, strengthen existing platforms or alliances to harmonize and amplify local civil society's "voice" for food security and nutrition at the country level, ensuring authentic representation of the rural populations served by FTF. [15]

A recommended next step would be to form a province-wide association of agricultural community SISGs that subscribe to a well-defined standard of practices as have been tested and established by the Horticultural Innovations Lab. This association would establish a leadership structure with representation at the highest levels of government and linkages with private sector international markets. This would lead to the following advantages:

1. Pooling of savings from the SISGs will provide financial inclusion into the formal banking system. This would gain greater access to larger sources of capital that could build the industry and provide state of the art mechanization for production, processing and transport. However, there is one cautionary note from Jeffrey Ashe, formerly Director of the micro-savings program at Oxfam, "What happens when savings are pooled is that transparency can break down and the impact on creating social capital is lessened." 16]

2. Assuring the standardization of the six Ps of farming industry: Planning, planting, production, procurement of capital, postharvest processing and food preparation.

3. Representation at the highest levels of decision making puts horticultural communities at the table when it comes time to formalize the policies that impact the industry.

4. Direct vertical communication with essential horticultural research institutions that assure that farmers play a major role in shaping and informing the direction of the research.

5. Horizontal communication among suppliers, farmers, processors, marketers throughout the industry to assure fair competition, coordination and collective action.

6. Spawning local ancillary businesses that provide the tested technologies such as the pest nets or new varietal or state-of-the-art postharvest storage and processing facilities.

7. Coordination of production that mitigates against market gluts and responds to market demand.

8. Increasing access to capital markets and "healthy food hubs"

Establishing a province-wide horticultural food industry both serves as a model to be taken country-wide and perhaps into the entire region. In fact, to do so is sound business practice. As mentioned above, Samuel Worthington of InterAction has announced that over 30 NGOs have collectively amassed $1.5 billion to be used to support the production of healthy and nutritious food. We must imagine how such a fund, well structured, could seriously capitalize a community development financial institution that targets horticultural communities in FtF countries.

6. DISCUSSION

Smallholder horticultural entrepreneurship forms a special niche in every sense of the term within the smallholder agricultural world. A 2013 review of smallholder financing for CGAP has segmented smallholder agriculture into three distinct groups, each drawing upon different packages of financial services. [17] The first group includes those with no land or less than one hectare producing staple crops mostly consumed by the household for subsistence. There is very little engagement with any markets as a seller of food. They have very little access to improved agricultural technology and very limited access to financial services.

The second segment represents those who farm one to two hectares; a large number are women. They produce mostly staple crops and have a reliable surplus of staple crops sold through relatively informal, local markets. Their access to financial services is mainly informal.

Within the third segment are smallholder farmers in tight value chains; namely they sell on contract to commercial buyers and often receive their inputs from them as well. Fewer women are involved. Although there may be a reliable surplus of staple crops sold through relatively informal, local markets, there are also cash crops sold in regional or export markets through contract farming. This group also has a rather advanced use of technology and greater access to formal credit, often provided by the buyer. In addition, those smallholder farmers producing commodities as diverse as cocoa, almonds, chocolate, maize, rice are operating in an environment that requires even greater segmentation of financial services. Loans for coffee and almonds, for example, look quite different due to matters such as input demands, seasonality, post-harvest processing and markets. According to the Food and Agriculture Organization:

"Smallholders provide up to 80 percent of the food supply in Asian and sub-Saharan Africa. Their economic viability and contributions to diversified landscape and culture is threatened by competitive pressure from globalization and integration into common economic areas; their fate is either to disappear and become purely self-subsistence producers, or to grow into larger units that can compete with large industrialized farms." [18]

This current project is working with the second segment, mainly with producers of fruits and vegetables. The prevailing conditions are such that at current production levels, the lump sums of capital within the SISGs are sufficient for the members' needs. However, we do see that following the introduction of SISGs, production is increasing and input requirements show a commensurate increase. Farmers and the members of the horticultural community are quite entrepreneurial in nature. With their increase in earnings they are looking to scale up. This will lead to demands for greater inclusion in the formal financial system. We therefore recommend that a next step will include a thorough examination as to how a responsive banking system will become available to small-scale horticultural communities that will offer an array of financial services from savings to credit to insurance.

Although more than $22,000 in loans were made over the one year of the program, we must raise the question whether the groups will reach a moment when financial inclusion into the capital markets will become necessary to permit scaling up of the smallholder horticultural sector to meet projected demand.

7. CONCLUSION

Many studies have been carried out that examine SISGs and their link to poverty alleviation. This is a study that links SISGs to healthy food production and the entrepreneurial horticultural communities responsible for it. The Horticultural Innovations Lab at UC Davis sees SISGs as a systems approach that not only furthers the adoption of healthy and nutritious horticultural practices among smallholder farmers; but also increases farmer income and a greater collaboration among previously disaggregate smallholder farmers that offers the promise of scaling up into a sustainable agricultural industry. Agricultural communities include not just farmers but the entire farming value chain. They include members of farm families that often sustain the efforts of the farmer through off-farm employment. They also include suppliers, processors, transporters, laborers, marketers and the providers of capital. Within these communities there is a shared interest to maximize the production of high quality, healthy vegetables that will bring the greatest return on investment. If the farmer thrives, so does the community. We believe that

Mrs. Clinton would concur that it takes a community to raise a healthy vegetable.

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