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FINAL PERFORMANCE EVALUATION OF USAID/CAMBODIA MICRO, SMALL AND MEDIUM SIZE ENTERPRISES II/BUSINESS ENABLING ENVIRONMENT PROJECT

December 27, 2012

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FINAL PERFORMANCE EVALUATION OF USAID'S "CAMBODIA MICRO, SMALL AND MEDIUM-SIZED ENTERPRISES II/BUSINESS ENABLING ENVIRONMENT" PROJECT

FINAL REPORT

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ACRONYMS

ADB	Asian Development Bank
ASEAN	Association of Southeast Asian Nations
CATA	Cambodian Association of Travel Agents
CBHE	Community-Based Wild Honey Enterprise
CF	Community Forest
CPA	Community Projected Area
CWA	Cambodian Water Supply Association
CWG	Community Working Groups
CWS	Cambodia Water Service Providers Association
DAHP	Department of Animal Health and Production
DPA	Department of Provincial Agriculture
DPWS	Department of Potable Water Supply
FA	Forestry Administration
FAO	Food and Agriculture Organization
FiA	Fisheries Administration
IDE	International Development Enterprises
IFC	International Finance Corporation
IG	Interest Group
M&E	Monitoring & Evaluation
MAFF	Ministry of Agriculture, Forestry and Fisheries
ME&A	Mendez, England & Associates
MIME	Ministry of Industry, Mining and Energy
MITI	Ministry of International Trade and Industry
MoC	Ministry of Commerce
MOI	Ministry of Interior
MOT	Ministry of Tourism
MSME	Micro, Small and Medium Enterprise 2/Business Enabling Environment Project
MSMEs	Micro, Small and Medium Enterprises
NGO	Non-Government Organization
PACT	PactCambodia
RGC	Royal Government of Cambodia
RIA	Regulatory Impact Assessment
SME	Small, Medium Enterprise
TPS	Trade Practice Sector
USAID	United States Agency for International Development
WEF	World Economic Forum
WSP	Water Service Providers
WTO	World Trade Organization

EXECUTIVE SUMMARY

Background

This is a report on the Final Performance Evaluation of the Micro, Small, and Medium Enterprise 2/Business Enabling Environment (MSME 2/BEE) project funded by the United States Agency for International Development (USAID) Mission in Cambodia. MSME 2/BEE project, referred in this report as "MSME," commenced in October 2008 and ended in September 2012. The project, implemented by DAI/Nathan Group, was dedicated to help micro, small, and medium enterprises (MSMEs) in rural areas increase their productivity and enhance the business enabling environment through the implementation of three components:

1. Strengthening selected value chains in order to improve the productivity and competitiveness of Cambodian businesses.
2. Increasing and improving the voice of the private sector to enable the business community to better articulate its views on issues of trade, investment and business management; and
3. Strengthening public institutions to enable the government at both the national and sub national levels to implement numerous policy reforms that will improve the business-enabling environment.

Purposes of the Performance Evaluation

The final performance evaluation of MSME project was conducted during the period October – December, 2012, by a team assembled by Mendez England & Associates (ME&A). The purpose of the evaluation was to help USAID management answer the following questions:

1. How have the interventions improved Cambodia's business-enabling environment by improving business productivity in selected value chains; increasing the voice of business in policymaking; and improving the Royal Government of Cambodia's (RGC) ability to respond to the private sector in reforming the business environment; and
2. What lesson(s) can be identified for future programming?

The performance evaluation report will inform future programming at USAID/Cambodia and, potentially, provide lessons learned for economic growth projects around the world.

Priority Questions

The priority questions presented for this evaluation included:

- How have the project interventions increased business productivity, profits, volume and/or sales of the MSME clients?
- In the case of experimental/innovative interventions (water/sanitation, honey, resin, and eco-tourism), have profits, productivity, or volume of sales of these targeted value chains improved?
- How effective have the project's interventions been in strengthening public-private dialogue mechanisms at the national and provincial levels?
- How effective was the project in equipping the different players (private sector as well as RGC officials) with the ability to improve Cambodia's business environment?
- Though not required in the original MSME project design, to what extent have the interventions assisted women entrepreneurs (as sole owners or as co-owners with family) and the poor/very poor/extreme poor household livelihoods within project target areas? How far reaching were the gains made as a result of value chain improvements?
- What considerations are in place for sustainability of the project's (interventions)?
- What is the approximate dollar value benefit on Cambodia's private sector of key interventions?

Main Findings

This summary of findings is organized according to the priority questions described above. A complete discussion of findings is provided in Section 5.0 of the report.

1. Productivity, Profits and Sales. The evaluation team found increases in productivity, sales volumes and incomes for most assisted enterprises over the course of MSME project. In addition, project participants interviewed acknowledged the beneficial impact of MSME activities on their businesses.

Among the value chains for which there is substantial baseline and end line data collected by MSME, the swine value chain appears to have achieved substantial increases in revenues and profits despite a challenging market environment caused by changing tastes and foreign competition, among other factors. In the aquaculture value chain, despite increases in volumes and revenues, fish producers appear to have experienced a decrease in net revenue over the course of the project, affected perhaps by lack of substantial producer price increases in the face of increased competition and costs of doing business. However, there were very substantial increases in volumes, revenues and profits for assisted fish traders, resulting in overall gains for the entire aquaculture value chain work. Discrepancies between the economic performance of fish producers and traders may be partly influenced by the very small sample of fish traders included in the project's evaluation sample. The brick and tile sector experienced downturns in all key indicators over the course of MSME, but those reversals can be largely attributed to severe downturns in the construction sector caused by, among other factors, the international financial crisis.

Among the "experimental" value chains targeted by MSME, the honey and eco-tourism chains have experienced solid growth and are well situated for the future. While there is no project survey data for these chains, interviews confirm continuing growth in output, revenues and profits. The resin collection value chain also appears to have made some progress in levels of output, revenues and profits. However, this value chain is also facing more market challenges than the other biodiversity communities from factors such as foreign competition, both legal and illegal, lack of government favor, and gradual encroachment on and reduction of community forest lands.

Perhaps the most successful experimental value chain intervention has been latrine construction, which resulted in extraordinary increases - far beyond initial project expectations - in new latrine installations in the targeted areas. New sanitary latrines are perceived to fill a large unmet demand, which the project exploited through a well-conceived marketing campaign directed to both consumers and government officials. In addition, technical support provided by the project suggests the possibility of further cost reductions, bringing new latrines within the reach of the poorest members of the community.

Data available for water service providers also suggest that most participants have experienced growth in output, revenues and profits. However, some participants continue to experience unsustainable returns caused in part by structural and market issues including seasonality of demand and lack of correlation between expansion of output and net margins within the range of output that may be expected for small providers.

The project's grants in aid to water service providers (WSPs) appear to have induced investment that may position them for future growth and has resulted in some increases in customer bases. However, the sustainability of these results remains to be seen.

2. Public-Private Dialog. MSME held or supported 39 public-private dialog events, 45 business forums, and 29 trade fairs over the course of its life. All of these were well attended by participants in the private and public sector. Training in communications skills was provided at 13 events. A significant number of project participants stated that improvements in communications between their interest communities and the government is one of the most important achievements of MSME. The evaluation team was told that efforts are already being made to incorporate public-private dialog into the policy development process by some important government agencies.

3. Capacity to Improve the Business Environment. MSME provided training to over 1,000 public officials in policy development skills such as regulatory impact assessment (RIA), and legislative and regulatory analysis and drafting. Expert project staff worked closely with numerous government working groups in hands-on analysis and drafting sessions in which skills were transferred. MSME provided analysis and advice on dozens of specific laws and regulatory acts to Ministries of the RGC. In many cases, MSME was able to delay adoption of legal acts that did not reflect international best practice and to improve their content.

4. Gender and Poverty. MSME did not specifically target gender or poverty issues. However, a significant number of women benefited from the project, either as owners or co-owners of businesses. The evaluation team found good evidence that, in some areas, the poor benefited from goods and services which they had not previously had access to, in particular clean water and sanitary latrines. The team also found evidence that many project value chains increased employment for low-skill workers either as employees or, as in the case of the forest community value chains, self-employed members of communes and cooperatives.

***5.* Sustainability.** Sustainability is a complex question; therefore, factors affecting it may differ among MSME's components and subcomponents. There is strong indication, however, that MSME's results will be sustainable, largely because of the project's model of creating ownership in project participants by: 1) relying on motivation of an emerging entrepreneurial class; 2) training in easily transferable skills; 3) promoting appropriate technologies, networking and other information dissemination; 4) creating sustainable local business membership organizations in the target value chains; and 5) providing longer term development of the legal and regulatory framework for private enterprise.

***6.* Value of Interventions.** Using only the indicator of increases in value of sales, the value added by the project's value chain interventions may be conservatively estimated in the range of $35,000,000, which would translate to approximately $2 of value added for each dollar invested in the value chain work. This estimate may be conservative because: 1) it is based only on added value in the final project year; 2) does not consider future streams; and 3) does not include several important value chains for which sufficient data was unavailable.

Main Conclusions

General

1. MSME used the right development approach with the right target group at the right time. Faced with the challenge of improving business productivity and the competitiveness of MSMEs in Cambodia, and given the capability and standing of its neighbors (Malaysia, Thailand, and Vietnam), the project devised an approach adopted for each value chain, comprised of five key features: 1) motivation of entrepreneurs; 2) transfer of appropriate technology already available in Cambodia or available in neighboring countries; 3) consolidation of value chains around products based on the technological or other upgrade; 4) "protection" of the space in which the private sector operates; and 5) legitimization of private enterprise. MSME demonstrated notable successes in each of these activities. The project's focus on emerging entrepreneurs, who had already demonstrated skills and ambition, leveraged MSME resources and allowed its initiatives to take root at a time when MSMEs will remain the mainstay of economic development in Cambodia for years to come.

2. MSME's development approach used the fewest resources necessary to motivate and make more competitive the target enterprises and, in so doing, increased the likelihood that the project's impact would endure. The project approach of facilitation of private action through motivation and education was relatively low cost for the project and participants. Incentives for project clients to adopt best practices were established by example, comparative study, and leveraging the ambition and will to succeed already demonstrated by the emerging entrepreneurial class recruited for project participation. Important project achievements gained through knowledge transfer cost virtually nothing to sustain. The end line M&E

survey found that large numbers of project participants were already sharing knowledge with non-participants, greatly leveraging the investment in training.

3. MSME's impact was clearest in the first component, increasing enterprise competitiveness; less so in the second, increasing the voice of the private business sector; and arguably least in the third component, upgrading government capabilities for policy analysis and legislative development. The intensive work in the value chains has had the clearest and most immediate impact in terms of improving the quality of lives through increased productivity and incomes, as well as developing long-term skills among clients. The results of the advocacy/increasing the public voice component are impressive but perhaps somewhat less certain in that there are significant questions regarding sustainability (see for example Section 5.2.3). Impacts from Component 3 cannot be fully assessed at this time as all major pieces of legislation in which the project invested time and resources have not yet been adopted; however, they remain under consideration and may eventually be adopted in the forms supported by the project.

Value Chains

4. Though there are generally good results for most key indicators in most value chains, MSME's success can also be measured in terms of sustainable capacity development that will support resiliency and future growth in the face of changing markets and other exogenous challenges. Most value chains targeted by MSME showed substantial gains in sales, revenues and incomes over the course of the project. The reasons for poor performance in some value chains' key indicators (e.g. fish, and bricks and tile) appear to be due to cyclical and other factors (e.g. foreign competition, both legal and illegal) outside of the scope of the project. However, field research shows that even in these chains capacities were developed through MSME's interventions. This will support resiliency in the sectors and will allow them to respond when other factors are addressed. Detailed discussions of conclusions regarding individual value chains are included in Section 6.0 of the report.

5. The project's offerings were available equally to and benefited men and women. MSME's objective was to ensure that women who were found working in the sector had equal access to all project benefits. The evaluation team found that this objective was clearly achieved.

6. The poor were served mostly indirectly, including primarily by increased number of jobs for low-skill workers. MSME's activities gave the poor access to services and products (e.g. latrines and piped water) at reasonable prices and appropriate low-skill jobs they would not otherwise have had. There is a widespread sentiment among project participants that jobs created by MSME activities contributed to a decrease in internal migration among provinces.

Strengthening Public Voice

7. Valuable advances were made in encouraging private sector actors to voice their concerns with government officials about matters affecting the business performance of the whole industry, especially at the provincial level. In general, the consensus view of most key informants interviewed for this evaluation was that MSME succeeded in strengthening the voice of its clients mostly at the local and provincial levels, and that there has been moderate success in influencing national authorities. Opinions of project clients were strongly favorable toward MSME's efforts in developing and training cooperatives, sectoral business associations, and networks.

8. MSME has been most effective in assisting firms engage with provincial government, helping both sides clarify the terms of their mutual dependence and encouraging a pragmatic approach to oversight of commercial activities along the length of the value chain. The dialogue between the representatives of rural business and officials of the provincial and local governments promoted by MSME appears to have clarified certain arrangements along the following dimensions: 1) adapting rigidities of the prior system to the new reality brought about by the increased inter-connectedness of the value chains; 2) revising

some policies and rules for which units of local government appear to have relative autonomy vis-à-vis the central government; 3) adopting rules that exhibit sufficient complexity to protect "legitimate" actors from those handling, say, illegal imports; and 4) establishing clear definitions of roles between government actors.

9. MSME pioneered dialog at the national level. It is likely that the efforts under Component 2 to create sustainable private sector advocacy organizations and skills will continue to work through the legislative process long after the end of MSME. MSME was credited by some interviewees with pioneering the place of private sector advocacy in the policy development process. MSME has established a good, and hopefully, lasting precedent on the legitimate role of the private sector in the policy making process.

10. Some issues of sustainability of advocacy initiatives remain. Issues of sustainability may arise after MSME ends relating to how much of government responsiveness was due to the presence of USAID and how much to a genuine willingness to open up the process. Local groups may lack the resources to affect policy at a national level. True national business membership organizations remain to be created in most sectors.

Business Enabling Environment

11. In terms of impact on the legislative framework for business, the failure to adopt new laws during the term of the project does not necessarily reflect the eventual outcome; policy initiatives supported by MSME may be realized after the project ends. MSME contributed to the strengthening of public institutions, educating public officials to Cambodia's obligations under the World Trade Organization (WTO) and commenting on the drafting of legislation. The political process in Cambodia is lengthy and important legislation takes years to prepare; therefore, MSME's contribution is difficult to assess with precision at this time. The technical contributions of MSME to key pieces of legislation, however, are considered by most interlocutors to be very useful and remain under consideration.

12. Issues of sustainability may arise once the support and encouragement of the MSME team ends. It is likely that MSME's efforts under Component 3 are sustainable in the sense that they have created precedent for dialog on legislative initiatives between the public and private sectors, and demonstrated for RGC policy makers a useful consultative process and high degree of professionalism in the analysis and drafting of legislative acts. Given the opaque and slow moving nature of the legislative process in Cambodia, it is possible that there will be a risk of entropy in the process that has just begun. Much may depend on whether the business organizations, which the project helped to create, become self-sustaining in dealing at the national level on policy issues.

Main Recommendations

1. **The model of minimal intervention should be used in similar future projects.** MSME model of "minimal intervention" relying on motivation of an emerging entrepreneurial class, training in easily transferable skills, promotion of appropriate technologies, networking and other information dissemination, and creation of sustainable local business membership organizations in the target value chains, was successful and should be replicated in similar future projects.

2. Further work in some value chains. MSME was not necessarily able to bring the skills of all clients in all areas and sectors up to the same level. Some assisted sectors (e.g. honey, latrines, fish) appear to be rapidly moving toward self-sustaining growth, while others (eco-tourism, resin collection) could profit from further training in management and financial skills, for example. Still others (e.g. swine, water and fish) need to address issues in the sectors - seasonality, illegal imports, environmental protection, and government support - that may affect their long-term growth.

3. Further institutionalize advocacy organizations. While good progress was made in creating local and provincial business associations that may have a long-term influence on policy development, these

organizations may be limited in their reach and capacities, particularly in technical policy development and legislative skills at the national level. Further work can be done in taking the local organizations to the next level by assisting in the creation of a sectoral business membership organization of national scope that may be able, through economies of scale and membership support, to retain technical skills and take a larger role on the national stage.

4. Further institutionalize advocacy training. These could include further development and dissemination of the training materials produced by MSME. Efforts could be made to induce certain NGOs to adopt advocacy training as part of their usual offerings. Work could be done with local educational institutions to develop courses on communications and advocacy for the private sector, including courses on policy analysis and legislative process.

5. Seek to institutionalize opportunities for public-private dialog. Public-private dialogs supported by MSME were essentially ad hoc events that may not have proceeded without project support. The question arises whether the same number or quality of events will occur now that MSME has ended, both from a perspective of initiative and the responsiveness of government to business groups. One approach that might be taken is to promote adoption of laws and regulations of administrative procedures that require, as part of any regulatory action, pre-publication periods for proposed acts and opportunities for public participation. At the local level, efforts could be made to induce provincial and local governments to institute permanent public-private dialog forums either in sectors through working groups or task forces, or generally through regularly scheduled question and answer sessions for public officials.

6. Perseverance in the legislative arena may ultimately pay off and ways should be found to continue support for the legislative initiatives promoted by MSME. Efforts can be made to determine which ongoing projects of USAID and other development partners will pick up the tasks of monitoring and contributing to the development of the key legislative acts that remain on the table. Too much time and effort has been invested in those to allow them to go without champions.

7. Further institutionalize opportunities for training in policy and legislative development. To assure sustainability of training efforts made with government officials, steps might be taken to establish permanent training in key disciplines such as policy analysis (regulatory impact analysis, cost-benefit analysis, standard cost modeling, etc.) and legislative drafting with an agency of government responsible for human resources and professional development or with interested academic institutions. To emphasize the need for such continuing training, some consideration might be given to promoting with the RGC an administrative rule that establishes mandatory regulatory impact assessments (RIA) requirements for proposed new regulatory acts, based upon existing models in other countries. Such requirements are rapidly becoming standard practice in both developed and developing countries.

1.0 EVALUATION PURPOSE AND PRIORITY QUESTIONS

1.1 Purpose

The main objective of the final performance evaluation of the MSME project was to review how the MSME's interventions have improved Cambodia's business enabling environment. In particular, USAID was concerned that the evaluation:

- Provide the USAID/Cambodia Mission senior management, and especially the Food Security and Environment Office, with an external assessment of the impact of MSME's interventions in improving business productivity in selected value chains.
- Determine how the activities under each program's component contributed to achievement of MSME's goals and to the improvement of RGC's ability to respond to the private sector in reforming the business environment.
- Identify lessons learned that can be used for future programming.

1.2 Priority Questions

The priority questions for the evaluation, as listed in the SOW, included:

- How have the project interventions increased business productivity, profits, volume and/or sales of the MSME clients?
- In the case of experimental/innovative interventions (water/sanitation, honey, resin, and eco-tourism), have profits, productivity, or volume of sales of these targeted value chains improved?
- How effective have the project's interventions been in strengthening public-private dialogue mechanisms at the national and provincial levels?
- How effective was the project in equipping the different players (private sector as well as RGC officials) with the ability to improve Cambodia's business environment?
- Though not required, to what extents have the interventions assisted women entrepreneurs (as sole owners or as co-owners with family) and the poor/very poor/extreme poor household livelihoods within project target areas? How far reaching were the gains made as a result of value chain improvements?
- What considerations are in place for sustainability of the project's (interventions)?
- What is the approximate dollar value benefit on Cambodia's private sector of key interventions?

2.0 PROJECT BACKGROUND

2.1 Historical Context

Although Cambodia has experienced strong growth fueled by tourism, garment exports and urban construction, the country's economy is still fragile. Poverty, although on the decline, is still prevalent, as the centers of economic growth are concentrated in urban areas and have little impact on the rural economy where most of the people and the poor live.

Cambodian economy is largely based on MSMEs which, hampered by a poor business enabling environment, have difficulty competing for domestic market share and products with neighboring countries. According to the *World Economic Forum's (WEF's)* "Global Competitiveness Report," Cambodia was ranked 109 out of 134 countries for the period 2007-2011. As it can be seen by Table 1, next page, its neighbors occupied a much higher ranking.

Table 1: Competitiveness Ranking According to WEF				
Country	**2007-2008**	**2008-2009**	**2009-2010**	**2010-2011**
Malaysia	21	21	24	26
Thailand	28	34	36	38
Vietnam	68	70	75	59
Cambodia	110	109	110	109

The country's poor competitiveness ranking is influenced by a number of factors such as corruption, endemic smuggling, lack of transparent regulation, and a small number of business development service providers. All these factors make it difficult for the local MSMEs to compete, and as a result, are preventing the improvement of the business environment in the country.

It is against this background that USAID/Cambodia funded MSME project, the purpose of which was to help MSMEs in rural areas increase their productivity and enhance the business-enabling environment.

2.2 MSME Objectives

As described in the evaluation SOW, MSME had three main objectives:

1. Strengthening selected value chains - swine, aquaculture, brick & tile, garments, water and sanitation, resin, honey, and eco-tourism - in order to improve the productivity and competitiveness of Cambodian businesses.
2. Increasing and improving the voice of the private sector to enable the business community to better articulate its views on issues of trade, investment and business management; and
3. Strengthening public institutions to enable the government at both the national and sub-national levels to implement numerous policy reforms that will improve the business-enabling environment.

3.0 EVALUATION METHODOLOGY

The principal methodology of the evaluation consisted of field interviews and focus group discussions with key informants, stakeholders, and beneficiaries including:

1. Participants in the eight value chains involved.
2. Relevant employees of the national and provincial government.
3. Representatives of the private sector; and
4. Representatives of international organizations and other donors.

Overall, the team conducted 64 key informant interviews and 7 focus group discussions. For a list of people were interviewed see Annex 5. Interviews were semi-structured and open-ended. This format allowed beneficiaries to present and explain points freely, while ensuring that the interview covered the information relevant to the priority questions in the evaluation SOW. During each interview, the team used as a reference guiding questions (see Annex 4) that were based on the priority questions in SOW, focused on respondents' perspectives on economic development in Cambodia as well as the MSME project, and included direct questions as to MSME's contributions and effectiveness.

Focus group discussions were conducted with Sankor Mean Chey, an agriculture cooperative at Veal village, Sankor commune, Kampong Svay district, Kampong Thom province; latrine users at Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province; eco-tourism committee; honey enterprise committee; and resin enterprise committee and members.

Field work for the evaluation was carried out over the period October 18 – November 15, 2012 (the team did not conduct interviews the last week of October due to an extended public holiday in Cambodia). Over the

course of the evaluation, the team split into groups (sub-teams) in order to increase the number of interviews and the amount of data collected, as well as cover all 8 value chains within the short time allocated for the evaluation. The teams visited a number of provinces including Kampong Cham, Kampong Thom, Prey Veng, Siem Riep, Koh Kong, Kandal, Takeo, and Svay Rieng. These provinces were selected because they were representative of the MSME project sites and because they allowed the team to visit multiple value chain actors in the same area. Table 2, below, summarizes the type and number of key person interviews conducted.

Table 2: Key Person Interviews

Type of Informant	Number
MSME Staff & Consultants	9
USAID Mission	4
National Government Officials	11
Latrine Value Chain	19
Aquaculture Value Chain	19
Swine, Pork Value Chain	28
Fish Value Chain	5
Resin Value Chain	3
Honey Value Chain	5
Brick & Tile Value Chain	4
Eco-tourism Value Chain	4
NGOs	5
TOTAL	**116**

4.0 EVALUATION LIMITATIONS

Some of the key limitations of the evaluation include:

- **Causal links not examined.** It is not possible to establish causal links or inferences between MSME activities and high level outcomes such as increased incomes, profits, and sales of the targeted sectors because the evaluation team understands that causal inferences are not expected in this performance evaluation.

- **Data not verified by evaluation team.** Limitations of time and resources devoted to the evaluation prevented confirmation or validation of data provided by MSME relating to key performance indicators in its monitoring and evaluation (M&E) surveys, and was not requested in the evaluation statement of work. Therefore, this project data were taken as given for the purposes of this evaluation. Additional information collected in the course of this performance evaluation did not suggest that the findings of the project's M&E surveys are incorrect in terms of describing trends in performance.

- **M&E surveys as representations of possible trends.** The project's M&E surveys should be seen only as broad pictures of possible trends in key indicators and not as precise quantitative answers to the evaluation questions regarding project's impact on indicators such as revenues, profits and sales. The project implementer acknowledges these limitations in their M&E reports.

- **Natural lag of some types of results.** While 4 years is a considerable amount of time, given that some improvements to economic performance will not manifest themselves until well after the conclusion of the project, some positive effect of MSME activities might not be discernible until after the project ends. This may be especially true for Components 2 and 3, in which many initiatives that were begun may not achieve

fruition in the short run because of an opaque and slow legislative process as well as the generally slow pace of change to government policy and procedures.

- **Limitations in review of legislative and regulatory content.** MSME was involved with many legislative and regulatory acts across a wide range of sectors. With regard to the legislative and regulatory acts sponsored by MSME, the evaluation is necessarily "content neutral." The evaluation team was able to confirm work performed and achievements such as adoption of legislation and regulatory acts and the fact that key stakeholders consider the work products to reflect best practice. However, given the time and resources devoted to this evaluation, detailed critique of the content of the policies, laws and regulations championed by the project was not possible.

- **Timing constraints.** The timing of the evaluation caused certain problems with the availability of key interlocutors. Once up and running, the team encountered many public holidays, the ASEAN summit, and the concurrent and joint visit by the U.S. President and Secretary of State, which limited the availability of many members of the RGC.

5.0 FINDINGS

5.1 Component One: Value Chains

5.1.1. Productivity, Profits and Sales

Unless otherwise noted, parenthetical references to tables in the following discussion of swine, bricks and tile, and aquaculture value chains are to those found in the Cambodia MSME Final Evaluation Survey Report (ES), September 2012, which reflects data collected through June 2011(see Annex 8).

For the purpose of brevity, the evaluation team focused primarily on the changes to mean values in the ES and not on increases in total volumes, values and incomes. Wherever provided in the ES, data references to the "adjusted mean" figures are used. Adjusted mean figures have eliminated severe outlying values, which can distort calculations, and were considered by the evaluation team to best represent results.[1] Adjusted means were not provided for all data.

MSME did not collect survey data for value chains other than swine, bricks and tile, and fish. The only available data on quantitative results in these indicators are what was collected during field work for this final performance evaluation.

5.1.1.1 Swine

Producers

When the ES was conducted, all assisted pig producers averaged an annual production of approximately 48 pigs, an increase of 60.3% over the baseline mean of 30 pigs (ES, Table 14). MSME-assisted pig producers generally experienced a 28% average increase in the volume of sales compared to the baseline (ES, Table 17). Productivity in terms of live-weight also improved, with average weight at sale reaching 72 kg, compared to the previous baseline figure of 66 kg. Productivity in terms of the days required to raise a feeder pig to 80-90 kg live-weight also decreased by 10%, taking only 141 days, compared to 157 days measured at the baseline.

Regarding the costs of pig production, project-assisted pig producers saw an average increase of 61% (ES, Table 3), which was largely offset by increased prices for all types of pigs. Over the course of MSME, assisted pig producers saw increases in the mean price per head for each swine type, ranging from 41% for piglets to 106% for sows. The price for all pig types increased by a mean of 30.5%, from $102 per head during the baseline to $133 per head at the end-line (ES, Table 17).

[1] See Cambodia MSME 2/BEE Final Evaluation Survey Report, September 2012, at page 6.

It was determined that additional costs resulted from: 1) the increased use of commercial feed (95% of producers); 2) materials for home-produced feed (66%); 3) vaccines (87%); 4) veterinary services (20%); and 5) medicine (64%). These types of costs were believed to be indicative of appropriate production methods learned from MSME-supported technical training. There was also an increased usage of electricity, feed mill machinery and transport vehicles, which were believed to be reinvestments of earned profits from the sale of stock.

Value of sales compared to the baseline saw percentage increases ranging from 85% for fattening pigs to 193% for sows (ES, Table 19).

Enterprise income for surveyed participants was computed as the difference between the cost of business and the volume and value of sales. From the foregoing figures, it was calculated that at the end of MSME, assisted pig producers earned a mean income of $1,340 or an increase of 72% over the observed baseline figure of $780 (ES, Table 19). In a span of three years, the project-assisted enterprises increased their income to $5.75 per day from swine production alone, or more than twice as high as the baseline figure of $2.14.

Assisted producers increased their levels of investment in various assets. The mean value of land holdings at the end of MSME increased 89% (from $2,902 to $5,499). Investments in artificial insemination (AI) also increased by 265%. There was also an increase of 62.5% in the investment in pigpen construction (ES, Table 13).

Table 3: Percentage change in mean values of business indictors of assisted swine producers from baseline to end line surveys

Indicators	Unit	Mean Values (USD) *		
		Baseline	End line	% Change
Investment	US$	4,712	3,254	- 31
Volume of Production	Head	30	48	60
Sales Value	US$	2,555	4,965	95.6
Profits	US$	780	2,098	169
Costs of Business	US$	1,775	2,855	60.8

*Source: MSME ES.. * Means may be "adjusted" as per explanation in the survey report.*

Traders

MSME's ES included a sample of pig traders, but the sample was so small (only 8 participants), as to cast doubt on whether the quantitative findings are truly representative, a fact acknowledged in the survey report. Nevertheless, the trends for MSME assisted traders were positive, showing an increase of 301% in the number of pigs traded (ES, Table 5). The mean end-line volume reached 2,069 heads traded, compared to a mean of only 516 at the baseline. Increases were noted for all categories of pigs. Over the course of the project, traders' value of sales also saw a marked increase in terms of price per head for each pig type, with price increases ranging from 54% for sows to 103% for fattening pigs (ES, Table 25).

The average cost of business per assisted pig trader increased by 1,702% (from $17,764 to $320,212 (ES, Table 4)). The income of project-assisted pig traders was determined by computing the difference between the annual volume of sales and the annual costs of business. The mean baseline value against the end-line showed a 1,245% increase in income. The cost of doing business and income increases are so large, particularly considering what is known about the state of the industry, as to suggest that they are the result of the very small sample.

Input suppliers

Samples of input providers in the end line survey were also quite small. Similar trends were found for input and service providers (ISPs) consisting primarily of veterinarians, suppliers of vaccines and vaccinations, treatment services and medicines, AI services and products/materials, feed and ingredients, pig pen construction and materials, and technical advisory services.

Veterinarians experienced an average increased value of sales of 335% compared to the baseline. AI sales increased by 7,361% during MSME's assistance, and insemination services grew by 2,735% (ES, Table 30). While very large, increases in AI may reflect both the low baseline use of the technique and the growing use of it by assisted producers, largely due to successes demonstrated by MSME.

Generally, for input suppliers in the swine value chain, the cost of business increased 285% (ES, Table 6) and veterinarians experienced a cost increase of 146% (ES, Tables 5 and 33). The increased cost of business for ISPs was interpreted by the survey analysts as either the cause or effect of increased operations of producers and traders and additional services offered by ISPs. The mean income of veterinarians increased by 622% (ES, Tables 5 and 33), and for other input suppliers, by 133% (ES, Table 6).

Jobs

MSME-assisted swine enterprises generated an estimated 502 part-time jobs (251 full-time equivalent jobs), equating to $415,656 in compensation. Accounting for both full- and part-time labor, swine enterprises generated an estimated total of 476 full-time equivalent jobs in the most recent fiscal year, compensating workers a total of $772,056.

Summary

Based on a review of MSME data and field work, the evaluation team believes that the findings of the ES are likely to represent broad trends in growth of sales and incomes for assisted producers and other participants in the swine value chain. Those findings agree with the evaluation team's own findings from the field. While the quantitative findings of the ES should be viewed cautiously as representing only trends or directions since survey samples were too small in some cases (traders, ISPs) to impart a high level of external validity on the actual numbers, it should be noted that the ES also relied on in-depth interviews and a number of focus group discussions to supplement its survey findings.

MSME's interventions enabled, at a minimum, most participating single family producers in the swine value chain to remain in business during a market downturn until 2012 and, in the majority of cases, to upgrade their technology and practices to the point where they will be able to resume production once the price of live hogs and the cost of feed realigns. This is true also of breeders, who supply piglets or insemination services. Suppliers of veterinary medications, on the other hand, continue to prosper as the value of their products is recognized by an increasing percentage of producers who continue to be faced with a variety of diseases. Slaughter-house operators and butchers continue business, albeit with a slightly reduced volume. This perceived resilience is judged sufficient to maintain the competitiveness of the better value chain actors for about ten years, maybe fifteen. Throughout this period, it is anticipated that the swine industry will become increasingly dominated by "integrators" such as the Thai firm, *Charoen Pokphand.* If integrators follow the model of "contracting out" the raising of hogs, then today's independent producers could survive in another form. However, integration will gradually squeeze out independent feed producers, breeding service and veterinary medication suppliers.

5.1.1.2 Brick and Tile

MSME supported 58 brick and tile enterprises in 8 provinces including Banteay Meanchey, Kampong Cham, Kampong Thom, Kampot, Kratie, Prey Veng, Siem Reap, and Battambang, primarily through facilitating workshops and business forums, organizing provincial trade fairs, producing business directories, and facilitating international and local exposure trips to neighboring provinces and to Thailand and Vietnam in order for manufactures to see advanced producers and derive solutions to their own problems.

The ES report discusses several significant problems with the data collected: 1) it was limited to 15 enterprises, comprising only 27% of total brick-and-tile enterprises supported by MSME; and 2) nearly all respondents were micro- or small-scale enterprises, as larger project-assisted enterprises were not available for interview. Without consideration of larger-scale enterprises, which were taken into account during the baseline, comparisons between the two observation periods were considered by the ES analysts to be questionable. Project analysts considered the absence of large-scale enterprises in the final survey to be the cause of the overall decrease in performance shown for participants, as it was believed that the larger-scale enterprises managed to whether the downturn in construction activity and other financial shocks over the period which affected small producers.

In summary, the business indicators of the brick and tile enterprises, including investment, volume of production, sales and profits, have decreased over the life of the project (see Table 4, next page).

ES found that the value for mean investments per assisted enterprise decreased by 64% between baseline and end line measurements, which was attributed to the depreciation of permanent current assets without the investment in new capital.

Table 4: Percentage change in mean value of business indictors of assisted brick and tile enterprises from baseline to end line surveys				
Indicators	**Unit**	**Mean Values (USD) ***		
		Baseline	**End line**	**% Change**
Investment	US$	168,009	60,289	- 64%
Volume of Production	Piece	1,486,133	1,268,893	- 14.6%
Sales Value	US$	59,073	43,748	- 30%
Profits	US$	23,854	11,675	- 51%
Costs of Business	US$	35,220	32,073	- 9%

*Source: MSME ES. * Means may be "adjusted" as per explanation in the survey report.*

While the overall level of investment was down, the value of investments increased across several categories, including those in new kilns (ES, Table 7). The mean volume for brick production decreased by 14%, and for both brick and tile by 14.6% (ES, Table 8).

Average prices decreased by 7%, both for brick and tile products. The downward trend in prices per unit (in 1000 units) was reflected in all product quality types (see Table 5, below).

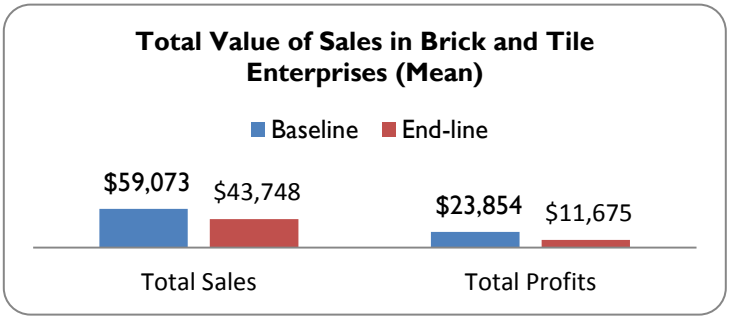
Table 5: Price changes for bricks and tile between base line and end line surveys			
	Baseline Price USD	**End line Price USD**	**% Change**
Type 1 bricks	34	30	- 11.7
Type 2 bricks	34	29	- 14.7
Tile 1	55	51	- 7.3
Tile 2	55	27	- 51

Source: MSME ES

Low production is believed to have caused a 9% decrease in the cost of production of both brick and tiles. The mean cost of business per brick enterprise at end-line is $30,471, while for tiles it is $23,845 (ES, Table 10). Overall, brick and tile respondents experienced a 26% decrease in sales value. Total sales value for brick products dropped from $37,108 to $29,086, and for tile products from $36,610 to $31,044 (ES, Table 9).

Taking into account the difference in value of sales and costs of business, mean enterprise income experienced a 51% drop from the baseline as shown in Figure 1 below (ES, Tables 11 and 12).

Figure 1: Sales and Profits of Brick and Tile Enterprises



Source: MSME ES

Jobs

Figures for full-time equivalent jobs and compensation generated by MSME-assisted enterprises, as well as non-client exposure and adoption of project methods, were estimated for each value chain. In total, for the fiscal year represented within the ES, MSME-assisted enterprises were able to generate 3,171 full-time equivalent jobs (swine: 476 jobs; aquaculture: 1,321 jobs; brick and tile: 1,374 jobs), providing $3,327,769 in compensation to employees (swine: $772,056; aquaculture: $1,546,984; brick and tile: $1,008,729).

Summary

During the life of the project, the brick and tile industry was especially hard hit by a dramatic downturn in the construction sector caused by a number of factors including the international financial crisis. However, the evaluation team found that some enterprises were still making gains in terms of production and productivity. While there was undoubtedly a downturn in activity, some assisted producers showed resilience and were able to pull through, and some continue to invest in new technology and facilities. Program participants interviewed acknowledged and appreciated the impact of MSME assistance on their businesses.

5.1.1.3 Aquaculture

Despite the long tradition of raising fish in Cambodia, aquaculture is underdeveloped due to the preference of locals for, and the availability of, wild fish. Recently, as wild fish stocks in rivers have depleted and lakes are no longer able to meet demands, the market for farmed fish has increased rapidly and has opened up new opportunities for the sector. These new opportunities have been accompanied by the interventions of MSME, which assisted 803 enterprises in total. The project worked in 12 provinces using a facilitation value chain approach with minimum direct intervention.

Fish Producers

Most MSME-assisted fish producers did not increase new capital investments. For producers, the mean value of investments decreased 53%, from $12,028 to $5,644 (ES, Table 47). This decrease was attributed by project analysts to the continued use of prior investments by participants. For example, new fishpond excavation, the largest investment for 78% of MSME-assisted fish producers, actually declined by 42% after adjusting for outliers, from $2,285 to $1,235.

Overall, fish producers' production volume of all species rose by 1,199%, to a mean volume of 55,801 heads against the baseline of 4,294 heads per producer (ES, Table 47). Increases were attributed to high demand in local markets as well as their fast maturation. In explaining these volume increases, fish producers interviewed mentioned the importance of exposure to new technologies and techniques through exposure missions organized by MSME, and the coordination and networking of project-assisted producers.

MSME-assisted fish producers experienced an overall 466% increase in the adjusted mean value of sales, reaching $11,030 against the baseline of $1,947 (ES, Table 48). Inclusive of all costs, the producers' mean cost of business increased by 119% over the baseline. Producers interviewed attributed the increased cost of business to the costs of implementing improved methods learned from MSME-supported activities.

Table 6: Percentage change in mean value of business indictors of assisted fish producers from baseline to end line surveys

Indicators	Unit	Mean Values (USD) *		
		Baseline	End line	% Change
Investment	US$	12,028	5,644	- 53
Volume of Production	Head	4,294	55,801	1,199
Sales Value	US$	1,947	11,030	466
Profits	US$	1,339	1,056	- 22.4
Costs of Business	US$	608	1,330	119

*Source: MSME ES * Means may be "adjusted" as per explanation in the survey report.*

For assisted fish producers, there was an unadjusted increase of 1,056% in income to a mean value of $15,482 compared to $1,339 (ES, Table 50). However, with the removal of outliers, there was actually a 22% decrease in mean income of producers shown in the ES. Table 6, below, summarizes the results in the aquaculture value chain.

Fish Traders

Regarding fish traders, the ES included only 3 respondents. The small sample size throws into question the external validity of many of the findings regarding fish traders. Nevertheless, the findings are believed to represent a trend and show that fish traders experienced increases in investment, volume of transactions, sales, and income.

The mean investment of assisted fish traders increased 8,400%, with a value of $76,745, compared to the baseline of $902. Fish traders were able to increase all transaction volumes for each type of fish species being traded (ES, Table 55), as well as the value of sales for all fish species. Overall, the value of fish sales increased by 6,999% (ES, Table 55).

For traders, the primary cost of business, the purchase of stock, increased by 7,473%. Findings from the ES suggest that while larger transaction volumes account for increases, fish market prices were also a factor, e.g., the market price of mature tilapia grew from $0.63 to $1.69 (ES, Table 57).

Overall, the incomes of fish traders increased by 3,127%, from $2,403 to $77,544 (ES, Table 57). These income increases were attributed to higher transaction volumes and increased demand, along with an improved and growing network of fish producers in which traders may seek products.

Jobs

MSME's ES estimated that aquaculture producers generated roughly 1,002 part-time jobs (501 full-time equivalent jobs), equating to $681,360 in compensation. For full-time labor, aquaculture producers generated an estimated 820 full-time jobs, which would account for $865,624 for full-time laborers. In total, with part and full-time combined, MSME-assisted aquaculture producers generated an estimated 1,321 full-time equivalent jobs, compensating workers a total of $1,546,984 in the final project year.

Summary

The evaluation findings from field interviews essentially comply with the findings of the MSME's ES on the aquaculture value chain. It was clear from the field interviews that fish producers were experiencing substantial gains and growth, largely as a result of increases in demand for fresh fish, which can today be satisfied only by farmed products. During interviews conducted by the evaluation team, assisted producers attributed much of their progress to participation in the MSME program and, in particular, to the resulting opportunity for the exchange of information with more advanced foreign producers as well as local producers in other provinces of Cambodia. Fish traders in particular adopted practices in the preservation and storage of fish, and learned from MSME-supported activities, which enabled them to store live fish on trucks and transport them to large markets in Phnom Penh and Siem Reap. Through interviews, traders mentioned that MSME facilitated networking opportunities between producer-suppliers and small traders, allowing these actors to consolidate purchased stock and sell to larger-scale traders with links to urban markets.

5.1.1.4 Honey

MSME assisted 32 community-based forest groups to conserve 80,493 hectares of biologically significant landscapes, such as forestlands, through improved management practices. In total, the project trained 3,353 persons on improved natural resource management, sustainable resin and honey production, conservation practices, and advocacy skills to safeguard the rights to forest areas.

Although the biodiversity (eco-tourism, honey, and resin) value chains were primarily a means to improve the incomes of residents, a main result of the initiative was to also improve advocacy skills and the protection of forestlands. The majority of the $1.5 million invested in biodiversity efforts was earmarked for obtaining legal rights for the forest communities through legally enforceable forest concessions. MSME also invested in the

mapping of all boundaries of these areas and all resources within those boundaries to help protect them from economic land concessions and migrants from other provinces who seek to extract natural resources in an unsustainable manner.

MSME supported the formation of community-based honey enterprise groups and protected areas. The enterprise groups were provided with support through technical trainings in forestry management, honey collection, filtering, packaging and marketing networks. They also participated in cross provincial and international exposure trips to other countries to learn about honey production, sustainable harvesting, honey enterprise management, and marketing network linkages. In addition, these enterprise groups participated in business forums, workshops, and trade fairs where the traders, government agencies and community representatives came together to discuss issues and establish linkages for buying and selling honey, as well as creating a support network for the future.

Prior to MSME's intervention, the communities practiced unsustainable production methods, allowing wild bees to create hives and then cutting entire hives down for honey, often killing the bees in the process. MSME has shown enterprise groups how to build rafters and preserve hives, which allows them to increase their productivity. Similarly, before MSME's intervention, most honey was sold in a raw, unprocessed state along the roadside in buckets. With the technical assistance of MSME, the communities now filter the honey and sell it at higher prices to buyers in Phnom Penh and the respective provinces including Siem Reap, Kampong Thom, Koh Kong, Preah Vihear and Steung Treng.

MSME's ES did not produce analyses of the biodiversity value chains and, therefore, there are no quantitative estimates of increases in profits, sales and volume other than those collected in the course of this performance evaluation. In general, the field research for the evaluation suggests that there have been significant advances in honey production, sales, prices and profits since the inception of MSME, and that the project interventions have contributed to these increases.

Honey productivity, among the assisted enterprises, has increased from 4800 liters in 2011 to 5200 liters in 2012 (through October), with an expectation of 7,000 liters for the entire year. These volumes are significantly larger than previous years. As a result of MSME activities, many more buyers have been located, such as the Cambodian Federation for Bee Conservation and Community Based Wild Honey Enterprises (CBHE) and CEDAC. These traders have been contracting community honey enterprises to buy honey to retail in super markets, shops and for export. Currently, the main buyer is CBHE, a company based in Phnom Penh. CEDAC is the second largest buyer. Sales volumes of all assisted enterprises to these companies in 2011 and 2012 are described in Table 7 below.

Table 7: Honey Sales to Companies

Year	CBHE	CEDAC	Other
2011	700 liters, 6 provinces	4,000 liters, 6 provinces	100 liters
2012	7,000 liters (5,200 delivered to date)		

As a result of the improvements brought by MSME, communities see honey production as a real business in terms of deriving a sustainable, living income. It is estimated that collectors participating in the project will be able to derive a profit of $5 per day. Two examples of honey enterprises that have benefited from improved productivity, sale and profits as a result of MSME's intervention are discussed in Annex 1.

5.1.1.5 Resin

The resin value chain intervention, which began in 2009, is located in Oddar Meanchey, Preah Vihear, Kampong Thom, and Steung Treng provinces. Currently, there are more than 20 resin tapping communities in the 32 Community Forest (CF) & Community Protected Areas (CPA). Overall, based on documents reviewed, interviews, and observations, resin's production, volume of sales, and profit have increased over the life of MSME for 85% of the collecting communities. The other 15% suffered a decrease in production due to loss of forest access from economic land concessions and deforestation. Some groups also lost profits due to the Ketsana storm in 2009. It is estimated that 1,000 tons of resin are collected each year from the 20 participating communities and sold to traders and enterprises in Cambodia, Thailand and Vietnam. One example of this is

the Resin Enterprise in Rong Knay Village**,** Kampong Thom province. By October 2012, this enterprise was purchasing 50 tons of resin from members and non-members, selling it in local markets and through the networks that MSME helped to establish.

Resin Enterprise in Rong Knay Village, Mean Rith Commune, Sandan District, Kampong Thom. The resin enterprise in Rong Knay village was established in 2006 with 63 member families, and has grown to 97 member families in 2012. Among the 97 families, 50 have actively been collecting resin. On average, one family can collect 20 kg in three days. Each kg of resin is sold for 2000 riels, which amounts to a total of 40,000 riels or approximately $10, which is a good income for these communities.

Prior to MSME, individual traders, not the Resin Enterprise Group, bought most of the resin and most of the income flowed to a few traders. Since joining the project, the Resin Enterprise Group has begun to buy and sell resin, which is considered beneficial as the revenue and profits go back into the community and can be used for investing in other businesses or saved.

5.1.1.6 Ecotourism

The Eco-Tourism sub-component was launched in 2009. With the MSME-sponsored Hidden Treasure Contest starting in 2010, 6 eco-tourism sites were awarded a certificate and subsequently promoted through tourism websites such as Lonely Planet. MSME assisted these sites by providing improved management skills, facilitating better market linkages and understanding, and improving the relationships with tour operators.

MSME improved the abilities of the communities to: 1) keep the sites attractive to tourists and interact with tour operators; 2) learn about how to do business with tour operators; and 3) create good linkages and plans that encourage tourists to the sites. Because of these activities, the homestay, guesthouses, restaurants, handicrafts and some necessary tourism products and services have all increased as a result of growing inflow and demand from tourists, which demonstrates that there is good demand for eco-tourism sites when they are well marketed.

The Ministry of Tourism believes that the number of visitors to these sites will continue to increase. It is expected that by 2015, 35% of the 3 million international tourists that visit Cambodia each year and the 6 million national tourists will visit the Community Eco-Tourism sites.

The evaluation team found that, in general, there have been significant advances in eco-tourism sales, prices and profits since inception of MSME, and that its interventions have contributed to these increases. Based on interviews, documentation review and analysis, it was found that the 6 Community Eco-Tourism sites have been doing well financially, providing a good income to the community eco-tourism members as well as non-members. At least 75% of these communities are estimated to be benefiting from the development of the communities from activities such as selling tickets, providing boat transport, running restaurants, guesthouses, hotels, tour guide services, vehicle station fees, ox cart transportation, and homestay and eco-lodge stays. Specifically, for the 2 Community Eco-Tourism sites visited for this evaluation (Chi Pat and Peam Krasob), it was determined that the average income of each site is roughly $33,750 per year. For details on these two sites, please see Annex 2.

5.1.1.7 Latrines

The latrine subcomponent was a pilot carried out in partnership with the World Bank and sub-contracted by International Development Enterprises (IDE). It is located in the provinces of Svay Rieng and Kandal, and takes a private sector approach by facilitating market linkages.

A total of 147 private construction firms and masons were involved with the project. The sub-component provided the following activities: technical and design guidance on specifications and marketing assistance to latrine entrepreneurs; social marketing campaigns via radio programs and public service announcements on the benefits of sanitation, what investments are required, and sources of supplies; direct marketing using community-led total sanitation approaches to promote wet pour sanitary latrines (through sanitation marketing meetings in villages and commissioned sales agents in villages); and technical training and supply chain strengthening with the producers of concrete components and hardware retailers. The progress of the pilot

was disseminated through the use of various mediums (e.g. radio shows, newspaper articles, web success stories and videos). The benefits of safe latrines and the importance of mainstreaming it within larger efforts was communicated with local government officials through official meetings.

The MSME's ES did not produce analyses of the latrine value chain; therefore, there are no quantitative estimates of increases in profits, sales and volume other than those collected in the course of this performance evaluation. In general, the field research for the evaluation suggests that there have been significant advances in latrine sales and profits since inception of MSME and that the project interventions have contributed to these increases.

Under the MSME project, a total of 4,974 latrines were installed, equivalent to a 167% increase of latrine sales in the 2 pilot provinces (Kandal and Svay Rieng). In total (together with the World Bank pilot project), latrine producers have increased sales from 3,550 to 14,198, equal to a 300% increase during project period in all project provinces (Kandal, Svay Rieng, Prey Veng, Takeo, Kampong Speu, Kampong Cham). It is estimated that 10,621 easy latrines were sold without subsidy by project partners and copycat enterprises, twice the 5,000, that were projected at start of the project.

5.1.1.8 Piped Water

MSME has supported 26 WSPs in 9 provinces including Takeo, Kandal, Svay Rieng, Prey Veng, Kampong Speu, Battambang, Siem Reap, Kratie, and Kampong Cham. The project developed a water investment strategy to invest $1.4 million through a matching incentive-based payment process with 26 WSPs in 7 provinces in order to expand clean water supply into rural areas. As a result of the water investment strategy, the project is credited with initiating clean water access through new household piped hookups to 20,003 families, and increasing access to piped water for over 100,000 families.

The approach adopted by the project helped to overcome the financial barriers faced by many WSPs and households alike. By covering a portion of the system's expansion costs through grants, MSME allowed participating WSPs to offer discounted connection fees that, in turn, enticed many new customers to connect to their systems. The investment rebate approach relied on the business judgment of WSPs on how best to expand their water services. The WSPs, not MSME, drove business expansion plans. Each WSP independently planned, designed, financed, and executed their water service expansions and managed all regulatory and business risks, and all relations with communal or provincial authorities.

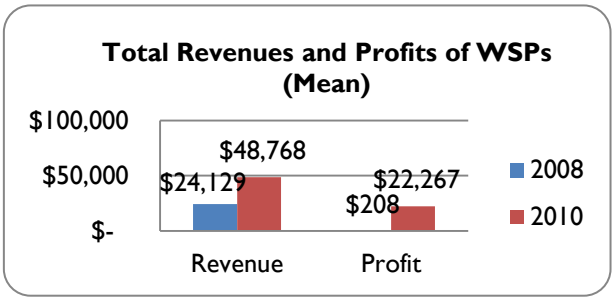
MSME also assisted rural water supply businesses to overcome technical constraints, improve business relationships with other WSPs, engineers, material supply firms, banks and government regulators. MSME acted primarily through business forums; cost-shared international exposure missions; cross-provincial visits; and public-private dialogs where WSPs, materials suppliers, government officers, engineers, financial institutions, and other stakeholders could discuss their problems and define solutions.

The piped water chain was not included in the MSME's ES. However, there was a project study of the value chain work completed in 2011, and it is from that study that some limited data on project performance indicators is available.[2] MSME generated improvements in the piped water business, increasing both revenues and profits. As of 2010, the increase in revenues of participating WSPs over the course of the project amounted to 102%. For most participants studied in 2011, profits had also increased compared to the mean figures in 2008 (Figure 2).

MSME has helped WSPs improve productivity through greater investments in assets for their business. For example, Mr. Ly Kok Heng, WSP in Kampong Cham province, currently has 820 clients (increased from 270 at the project's inception) and a volume of production amounting to 7,086 cubic meters per month. At the time of this report Mr. Ly Koh Heng was investing $40,000 in a filtration plant and additional pumping well to be able to supply the remaining 400 clients in his area.

[2] See USAID Cambodia MSME Project Water Survey: Final Report, September 2011.

Figure 2: Average Growth in Revenues and Profits of Project Assisted WSPs – 2008-2010



Source: USAID Cambodia MSME Project Water Survey: Final Report, September 2011.

In general, the evaluation team found that there have been significant advances in the sales and profits of participating WSPs since the inception of MSME, and that the project interventions have contributed to these increases. A case study of Mr. Try Youseth, operator of a piped water utility in Phnom Kong Commune, Angkor Chey District, in the Province of Kampot, illustrates this point (see Annex 3).

5.1.2 Value of Interventions

The evaluation team prepared an estimate of the total value of project interventions in the value chains based on data provided in the MSME's ES, other project documents, and data gathered through interviews with project staff and project participants. Given the limited time and resources for this evaluation this is a very rough estimate.

Table 8: Value Added by MSME's Value Chain Interventions

Value Chain	(1) Mean Value of Sales at Baseline	(2) Mean Value of Sales at End Line	(3) Mean Net Value Added Per Business (2-1)	(4) Number of Businesses Participating in Final Project Year	(5) Total Value Added in Final Project Year (3 X 4)
Pig Producers	2,555	3,307	752	3,849	2,894,448
Pig Traders	20,598	358,353	337,755	28	9,457,140
Pig ISPs	16,054	62,576	46,522	65	3,023,930
Fish Producers	1,947	11,030	9,083	759	6,893,997
Fish Traders	22,040	1,563,439	1,541,399	8	12,331,192
Brick and Tile	59,073	43,748	(15,325)	55	(842,875)
Piped Water	24,129	48,768	24,639	26	640,614
Latrines	88,750*	354,950*	266,200*		266,200
TOTAL					34,664,646

It was determined that the most conservative indicator of value would be the change in the mean value of total sales by assisted businesses between baseline and end line surveys multiplied by the number of assisted businesses in each value chain in the final project year. There are other approaches to this, including for example the value of jobs, but it was decided that the value of total sales subsumes value added by increases in employment and is overall a better proxy for general welfare benefits produced by the project.

According to reports, MSME invested approximately $24,000,000. As shown in Table 8 below, the value added by MSME's value chain interventions may be conservatively estimated in the range of $35,000,000, which might translate to approximately $2 of value added for each dollar invested in the value chain work, depending on what portion of total project expenditures was invested in the value chain work.

** Total sales; based on estimates provided by project staff for number of installations under project and price per installation. Sources: MSME ES 2012; USAID Cambodia MSME Project Water Survey: Final Report, September 2011.*

This estimate may be conservative because the calculation was done only for the final year of MSME and does not take into consideration the cumulative increases in value of output over the prior project years, or the discounted values for future years. Nor does the calculation take into consideration spillover effects of MSME activities such as value created by the adoption of project techniques by non-participating businesses, the transfer of knowledge between participating and non-participating businesses, or the amount of matching investment the project may have leveraged through its grants in aid. Furthermore, useful data was available only for the value chains specifically included in the MSME's ES and the 2010 survey of a small sample of assisted WSPs. It was not possible to estimate the value added in the biodiversity based value chains, though it is known that the value of production has been increasing in those as well. Were all of these limitations to be addressed through a more complex analysis, the total value added for all project value chain work would likely be substantially larger than presented here.

5.1.3 Intended Project Results

The intended MSME results for the value chain component were that **average sales for at least 6,000 project client enterprises, in at least 10 provinces, are increased by at least 75 percent**.

The ES states that over 7,000 client businesses in 17 provinces were assisted, and these results appear to be well-documented from project records. Figures for sales in each of the assisted value chains are provided above under Section 5.1, and appear to support the proposition that the desired sales increases were substantially achieved.

5.1.4 Other Accomplishments of Value Chain Projects

MSME work on value chains had many other accomplishments that are not easily expressed in profits and sales, nor easily monetized. Such qualitative accomplishments were evident in all value chains. It is possible only to mention a few highlights here which were confirmed by the evaluation team in the course of its fieldwork. More complete discussions of qualitative project accomplishments may be found in MSME's 19 quarterly reports.

- An MSME-sponsored visit to Vietnam became the inspiration for building a new slaughter-house using more hygienic practices.
- The sequence of events in the swine value chain - workshops, inter-community visits, overseas observational tours - all contributed to a networking process that built trust among all actors but particularly among those adjacent to producers: input suppliers and intermediaries connecting them to butchers.
- The communities involved in biodiversity sectors have become strong advocates for the protection of forestlands. Communities were able to negotiate concessions that included many of their bee raising areas, and to protect the forest.
- MSME produced the "Honey Profiles/Book" that provided information to potential buyers about how much honey was available in different communities, when it was available, and who could be contacted.
- MSME facilitated a trip to Indonesia to observe community forestry and honey products, sustainable forest management practices, and bee-keeping and production. The trip included 17 participants (2 DAI staff and 15 clients from the Forestry Administration, Ministry of Environment, and honey enterprise management committee representatives).
- MSME cooperated with CEDAC to establish market linkages, provide training on hygienic handling (filtering and processing), and conduct on-the-job training on rafter bee-keeping as well as sustainable harvesting techniques. In addition, the project contracted with PACT for providing trainings to the CF, CPA and Honey Enterprises on the introduction to natural resources management and sustainable harvesting, community organization and management, business management (planning, packaging, communication), product quality from the beginning stages until the final product, and honey harvesting techniques.
- Resin collectors were able to establish good relationships among all the stakeholders in the value chain, including processors, collectors and traders. Traders are more willing to share information now that more

communities have been introduced to more, new traders. Most communities remain highly active and have regular meetings and discussions with other members, communities and local government representatives. The overall quality of resin being sold is believed to have improved since traders began sharing information about segmenting the different varieties of resin; however, many communities still mix varieties.

- Business forums facilitated by MSME allowed producers and traders to discuss issues, especially in regards to transportation, with government and communities exchanging information across many provinces, such as Kampong Thom, Preah Vihear, Steung Treng and Siem Reap.
- MSME provided many events that linked eco-tourism communities with tour operators, including the Hidden Treasures National Contest for community-based eco-tourism sites and familiarization tours for tour operators and travel agents where they could directly meet the communities and share their customer requirements. Six eco-tourism sites participated in the MSME-supported "Hidden Treasure" contests.
- MSME facilitated and supported the community based eco-tourism committee representatives and line agencies to visit Lao. The objective was to see the eco-tourism operation and management, and private sector led eco-tourism such as Green Discovery Lao that works with communities, providing training and good cooperation with the private sector. After the mission retuned, this information was applied in Chi Path, Ta Tai, Peam Krasob, and Cham Bok.
- MSME promoted the concept of sanitation as an excellent business opportunity that has spread far beyond IDE-trained entrepreneurs through production innovation, which has in turn stimulated both supply and demand. Copycat enterprises adopted sales and marketing strategies that IDE-trained entrepreneurs are using, such as displays and sales agent networks (new latrine installations upwards of 40-50% are coming from latrine competitors other than those trained by IDE). Due to the project, a widespread and fully functioning sales agent network now exists in communes and villages in the areas mentioned above, which is generating wide-spread sales. Many latrine producers now employ commission-based sales agents who actively market latrines in their areas of influence.
- MSME assisted businesses to build strong relationships and networks to solve industry-wide problems and engage in dialogue with government regulators. The Cambodian Water supply Association (CWA) was established on December 20, 2011 and officially launched on August 31, 2012. The association has 26 WSP members to date.
- MSME has improved access to drinking water supply for 100,015 people (200% of the target).
- MSME coordinated with WSPs and local authorities to facilitate the "Hand Washing and Hygiene Campaign" to improve hygiene and health through hand washing,

5.1.5 Gender and Poverty

Gender

While MSME was not intended to explicitly target women, it was asked to reach MSMEs. Since it is believed that women currently own the majority of enterprises in Cambodia, and that over 90% of all enterprises have under 5 employees (and women comprise an even larger percent of the ownership of smaller enterprises) it was, nevertheless, expected that a significant numbers of women would be represented as MSME clients and beneficiaries. Also supporting this expectation is the belief that women typically control finances in Cambodian households and businesses even when they are not the listed owner. It is estimated that women take out 50% of formal loans, and that most informal lending occurs between women of different households or of different businesses.

MSME collected a limited amount of formal data concerning women's participation in value chain benefits. However, data gathered from MSME's reports suggests that there was a reasonable participation of women in value chain activities, but perhaps not as high as might be expected given the premises described above. Table 9 below describes the results found in MSME's reporting, and suggests that women owned about 26% of the total number of aquaculture enterprises assisted, 10% of the assisted swine enterprises, and 7% of the brick and tile enterprises.

Table 9: Women's participation in assisted value chains			
Value Chain	**Total Assisted Enterprises**	**# of Women Owned Enterprises**	**% Women Owned Enterprises**
Aquaculture	772	199	25.7
Bricks and Tile	55	4	7.2
Swine Producers*			11.2
Swine ISPs*			9.2

*Source: MSME ES 2012; * Estimates for the swine value chain are based on the number of women in the sample distribution of the final evaluation survey, which is presumed to track the total number of women participating.*

Similar quantitative data was not available for the remaining value chains but some anecdotal information is provided below. It should also be noted that the project refers, in its quarterly reports, but not systematically, to women's participation in the many trainings, study tours, public-private dialogues, and business forum events supported by the project.

Based on field interviews, the following also came to light:

- At both swine markets visited, the majority of the butchers, including the market leader at Ang Tasom, were women. Raising hogs is considered to be a good option for the mother who seeks a business close to the home where she is the parent primarily responsible for the couple's children. A woman's potential for social interaction is limited to events in the community, hence the importance to women of the technical workshops imparted by the suppliers of veterinary medications and insemination services. (Men, on the other hand, alluded more frequently to the exchange visits between communities as the better source of technical and practical knowledge).
- At the inception of MSME, the main role of women was in the sale of honey; however, through interviews, the evaluation team found that women now accompany men into the forest to help establish and look after rafters, as well as with honey processing including filtration. In addition, women were observed to fully participate in trainings, community meetings and committee elections.
- Based on interviews in resin communities, it was determined that 60% of MSME beneficiaries are men who go to the forest, collect the resin, transport resin from the forest, guard the resin, and look for new resin trees even though women also participate in these activities and accompany their husbands to get resin from the trees, make fires, contact traders, and sell resin on the markets. There is a sense in the community that as a result of working with MSME, both men and women now understand one another's roles and responsibilities, and have more respect for each other than before the project.
- The Community Eco-Tourism project has provided support to both men and women, depending on the activity. However, there are clear gender divides. For example, tour guides, forest guards and boat owners are male-dominated, whereas restaurateurs are primarily female-dominated. Homestays and guesthouses benefit both men and men equally.
- The Brick and Tile enterprises normally employ both men and women. From the interviews, it was observed that about 50% of the laborers were women. In one specific case study, the factory was found to employ mostly women from female-headed households.

Poverty

Similarly to gender, MSME was not specifically tasked with addressing issues of poverty, and in some value chains it was assumed that participants had to have some minimal level of capital or credit in order to invest. This was particularly true of the more capital-intensive chains such as fish, swine, latrines, water, and bricks and tile. In responding to survey questions on the social impacts of project assistance, only 1.6% of the swine value chain and 1.3% of aquaculture value chain respondents chose poverty reduction. (This same question was not reported for brick and tile value chain enterprises). Field interviews suggested that direct benefits for the poor were more likely to be seen in the biodiversity communities.

The most likely effect on the poor was the creation of new jobs for low-skilled workers in most of the value chains, including aquaculture and bricks and tile. Table 10 describes the project's own estimates of new job creation in key value chains as a result of project interventions.

Table 10: New jobs generated by project assisted enterprises in final project year

Value Chain	Part time jobs	Full time jobs
Swine	502	225
Fish	1,002	820

Source: MSME ES

It should be noted that project effects on health and hygiene ultimately benefit the rich and poor alike. For example, it is estimated that during MSME, about 20% of poor households gained access to easy latrines in project provinces. Through the use of improved latrines, especially during the rainy season, many sicknesses and diseases lessened, as did the associated costs of health care, which can be substantial for the poorest. Similar advances are believed to have been made with respect to the increases in families served with clean water by MSME-supported enterprises. Thus, increasing the availability of goods and services previously inaccessible to the poor may be a direct benefit of MSME. Access may have improved because of the reduced prices enabled by MSME support, as was the case with latrines, which introduced new lower-cost technologies, and with piped water, which encouraged reductions in hook-up fees by participating WSPs.

MSME's reporting contains limited data on poverty and most of the information regarding the project's effects on poverty was acquired anecdotally in field interviews.

- On average, it is possible that upwards of 60% of the poorest, poor and moderate-income households within the assisted resin communities benefited from MSME. The activity provided a good income to satisfy daily consumption needs, send children to school, and invest in other activities (such as vegetable growing, and poultry and animal raising). In the community visited for this evaluation, it was found that five poor and poorest households were supported by their community forestry to build houses. The poor, poorest and moderate-income families also participated in community trainings, meetings, and cross exposure trips in and outside the provinces.
- Through interviews with beneficiaries, it was determined that between 40-60% of the members of honey enterprises are considered to be poor, or the poorest, within the communities. These members have benefited from higher incomes through increased productivity and sales in honey collection. Specifically, it was found that honey production has been very helpful for the poor who are living in remote areas such as those in Koh Kong, Kratie, Mondul Kiri, Preah Vihear, Rattanak Kiri and Steung Treng.
- The Community Eco-Tourism project, based on information provided by the Community Eco-Tourism Committee and analysis in Chi Pat and Peam Krasob Eco-Tourism sites, found that 75% of the people living in these target areas were supported and benefited from the project, which is likely to include many families classified as poor.
- Among assisted brick and tile enterprises, even though MSME did not specifically target the poorest households, it did help generate a source of employment for local people, including the poorest. As a result, it is believed that MSME contributed to a reduction of migration in some areas. Specifically, full- and part-time employment opportunities have opened up for handling grinding machines and for loading and transporting bricks and tiles. In some cases, the brick and tile enterprises have also provided simple houses at the factories for the laborers.

5.1.6 Sustainability of Value Chain Results

There are a number of points pertaining to the sustainability of MSME results, both negative and positive, under Component 1. While there are some common factors affecting several communities (e.g. forest preservation and the biodiversity communities, illegal imports and the swine and brick and tile industries), different factors may affect each of the targeted value chains.

Points supporting the sustainability of the value chain results include:

- Most participants acknowledge acquiring permanent knowledge, skills, and experiences that will enable them to adapt their commercial activities to market conditions. The increased interaction between all members and segments of the value chains assisted all value chain actors in having positive experiences and develop the mutual trust necessary to continue cooperation.
- At the close of MSME, many value chain communities supported by the project remained in contact and regularly communicate to discuss common issues and prices.
- MSME imparted a good deal of technical know-how. For example, some of the honey communities have become skilled at building rafters and some are becoming skilled at building bee boxes and catching queen bees. These technical skills have had a major impact on productivity and can be handed down.
- MSME's entrepreneur-driven approach worked well with the experienced entrepreneurs who should be capable of continuing to provide products and services after the project closed.
- The creation of community organizations that were supported by MSME appears to have given participants in many value chains a new confidence in advocating for their interests with the government. Most of these local organizations appear to be on a self-sustaining path. Project participants expressed confidence that they will be able to continue the work they began under MSME.
- Some value chains show very positive signs for economic growth, particularly including fish, honey, latrines, and ecotourism. Others, such as swine and brick and tile, have experienced some market setbacks but nevertheless have displayed resiliency and are on a firm footing for future growth.
- Capacity building was provided to allow participants to plan and implement improvements without MSME support, leading to their translating ownership into action. The level of ownership that stakeholders feel over project results appears to be very high.
- MSME's achieved successes in many value chains conform and contribute to the provinces' own development agendas.

Points negatively affecting the sustainability of value chain results include:

- Deforestation and economic land concessions may be the main threats to the biodiversity based value chains of honey and resin collection. Future productivity in biodiversity based chains may depend on good community forest practices, including the ability of MSME participants to manage conservations efforts. While RGC professes to support these objectives, there is some doubt among the forest communities.
- Strong competition from neighboring countries will likely continue to affect several chains, in particular brick and tile, swine, resin and fish. These competitive pressures may be exacerbated by the absence to date of good trade regulation.
- Several of the chains will continue to be subject to cyclical setbacks that are beyond the scope of the project interventions. The turndown in the construction industry and its effect on brick and tile incomes was one example. Similarly, several chains (water, bricks and tile) suffer from seasonality issues that have not yet been addressed.
- Small and medium producers in some chains may experience greater competition from larger enterprises, enjoying greater economies of scale and access to finance. The local water utilities, in particular, are vulnerable to larger utilities that are "waiting in the wings" to enter the Cambodian market.
- While only a small portion of MSME activity involved outright aid grants, grant-based project assistance raises issues of sustainability or replicability in the absence of further grants.
- Not all government bodies or individuals are cooperative or mindful of the needs of emerging small businesses. Vehicles that are identified as government work vehicles continue to frequently damage the distribution network of the utilities. Some progress has been made under project auspices to address this problem but it remains significant. There appears to be a tendency of some government bodies or individuals to pick favorites. Honey and eco-tourism, for example, seem to be favored over resin collection.
- Inadequate attention to aquaculture-related environmental issues can lead to water pollution, which impacts first on water quality, and then on human health, the environment, and fish quality, and mortality.

- MSME could not address all issues equally among all communities. Some communities and community organizations see the need for further assistance in marketing, financial and general management, and leadership development.

5.2 Component 2: Strengthening Public Voice

5.2.1 Strengthening Public-Private Dialog Mechanisms at the National and Provincial Levels

MSME approached the Component 2 objective from several directions primarily including: 1) creation, training and continuing management support for business associations and networks, with an emphasis on advocacy and communications skills to influence policy; and 2) support for a wide variety of events, including study tours, business conferences and trade fairs, training events, and public-private dialog forums (public-private dialogs) at which both project beneficiaries and government officials participated. Table 11, next page, shows the impressive number of events sponsored by MSME in support of strengthening the voice of its clients. Activities under Component 2 grew out of the needs of clients in the targeted sectors, and were aimed at assisting them to improve the policy regime affecting their particular business environments. Therefore, they were carried out under each value chain program in support of their objectives.

Table 11: MSME 2 Activities in Support of Strengthening Public-Private Dialog

Activities	Number of Events	Number of Persons
Technical Trainings	382	12,370
Cross-Provincial Visits	135	2,229
Technical Workshops	94	5,670
Business Forums	45	3849
International Exposure Missions	22	326
Strategic Communications Training	13	481
Provincial Investment Promotion	18	120
Rural Trade Fairs	29	Est. 350,000
Public Private Dialog Events	39	5,760
Success Starts With You! Weekly Radio Talk Show		Est. 2 million/week

Source: MSME ES

Perhaps the main achievement of Component 2 was the creation of client organizations, as the necessary infrastructure to support advocacy activities. It is estimated that MSME contributed directly to the creation of 63 provincial industry working groups or networks in its targeted industry, including 20 that today are registered agricultural cooperative or associations, and one national business membership association.

MSME was a 4-year project, which initiated many tasks, both large and small. The complete listing of its accomplishments can be assembled from the quarterly project reports filed by the project implementer. For purposes of illustration, some specific accomplishments of MSME under Component 2 included the following:

- Under the honey sub-component, government officers were typically invited to participate in all activities and they demonstrated strong support for project activities. With MSME's assistance the honey communities were able to negotiate concessions from the government, which included many of their bee-raising areas and increased protections for their forest lands. For example, MSME's legal advisors assisted the honey communities to negotiate with government officers to allow easier transport of community-based honey.
- MSME supported a tour to Indonesia to study biodiversity (Community Forestry (CF) and Honey Products), sustainable forest management practice, bee-keeping and production. These tours included not only program beneficiaries but also representatives of the Forestry Administration (FA) and the Ministry of Environment.

- MSME supported committee members and line government agencies to participate in a tour to Indonesia and Nepal to study community-based forest, and honey and resin collection industries. Upon their return, these experiences were shared with others, resulting in improved community forestry conservation and protection. Most resin and honey communities are highly active now and have regular meetings and discussions with other members, other communities, and government representatives. In the opinions of most people interviewed, advocacy by the communities has improved as a result of MSME efforts.
- Under the resin value chain, MSME promoted and obtained good cooperation with local and provincial authorities, the Department of Agriculture, FA, Ranger Conservation Officers, Department of Environment, and the Department of Forestry in the provinces. Local authorities participate regularly today with the community Forest Boards as well as in various trainings and cross-provincial trips. The Department of the Environment, at local and Ministry levels, has provided technical assistance to the communities on use of GPS; boundary demarcation; resource inventory (mapping of community areas, species of trees); and forestry conservation and patrolling. MSME assisted the resin communities particularly with public-private dialogs aimed at resolving transportation issues relating to police stops.
- MSME has supported eco-tourism exhibits in each project year, thereby providing an opportunity for marketing and building networks. These trade fairs have averaged 80 to 100 booths in Siem Reap, Svay Reing, Takeo and Kampong Thom, Battambang, Kampong Cham, Prey Veng, and Kampot. The products and services displayed from different provinces attracted guests from national and provincial governments. There is a prevalent perception among clients that today, as a result of MSME's assistance, eco-tourism community members and committees have more confidence in managing forestry and eco-tourism activities, and in facilitating meetings and communication with the private and public sectors.
- In the latrine sector, the prevalent opinion is that relations between entrepreneurs and local governing bodies have strengthened and grown considerably as proof of the effectiveness of sanitation marketing by MSME, which has enticed these actors to become more involved in the promotion and delivery of latrines in their areas.
- CWA was officially launched on August 31, 2012, with the technical assistance of the MSME project, in collaboration with the World Bank. CWA will function by itself independently with the strong support from its active members to promote the networking of WSPs, to share experience or problems/solutions with one another, as well as to strengthen their voice within the public sector.
- Under the swine value chain sub-component, the largest and most active value chain, MSME:

  - Organized Swine Community Interest Groups (IGs) and Working Groups (CWGs) in all 12 provinces as the first step toward competitiveness and policy advocacy.
  - Provided provincial workshops to prepare the private sector to lobby for their interests at the National Swine Forum.
  - Organized the National Swine Business Forum for 226 private sector and government officials to discuss dumping issues.
  - Facilitated an international exposure trip to the Philippines to show the private sector and government how cooperatives work with government offices to improve national swine competitiveness.
  - Facilitated discussions between leading swine industry representatives and MAFF at which MAFF committed to quarterly meetings.
  - Facilitated provincial private-public dialog on improving slaughterhouse hygiene.
  - Organized a series of provincial private-public dialogs to discuss transport, import, smuggling and bio-security issues with MAFF's Department of Animal Health and Production.
  - Prepared two strategic communication workshops to improve skills at investigating and presenting issues to the government by the private sector.
  - Facilitated the increase in numbers of embedded technical trainings, cross-provincial missions for feed producing CWGs and Feed Cooperatives, and less formal and private sector driven provincial discussions between CWGs and government officials.

  - Supported cooperative members in initiating and pursuing dialog with the MAFF and provincial authorities on a range of issues, including the surge in imported pigs, transportation, costs and permits and increasing competitiveness in the industry.
- MSME assisted in the creation of local cooperatives through provision of technical advice, assistance with preparation of charters and by-laws, guidance on registration procedures and requirements, and continued advice for organizing and conducting annual meetings. MSME's Component 1 and 2 teams continued to provide support to cooperatives pertaining to problems, solutions and work plans, and observed their developments and progress, in particular by participating in their annual assembly meetings.
- To improve business communications between public and private sectors, MSME facilitated training on strategic communications to Aquaculture and Swine Working Groups and Agriculture Cooperative members. The practical and interactive training aimed to build capacity of cooperative members on effective strategies for communicating and solving business issues, and emphasized processes and networking between businesses and public sector officers. A total of 4 strategic communication trainings were conducted for 168 agricultural cooperative members and CWGs in 4 provinces. Participants included 25 government officials (6 women) from 10 provinces, representing the Provincial Department of Agriculture, Fisheries Administration Department of Animal Health and Production, and FiA. The MSME team has developed training manuals to build specific skills needed by the private sector to strengthen their capacities regarding communication, negotiation, public speaking, and business networking.
- MSME has assisted in the formation of 3 Safe Water User groups in Steung Trang District, Soung District and Kang Meas District, Kampong Cham Province. The Water User groups consist of 7 to 10 members with representatives from water consumers, commune councils, water service providers and health center staff. The WSPs trained members of the group in how to check water quality (check residual of chlorine and PH in water), and encouraged them to join the collective effort of MSME staff and WSPs in promoting health and hygiene. These groups will be the representative body for all water users in their location and have agreed to set regular meetings every 6 weeks.

5.2.2 Intended Results

The status of intended project results (per the SOW) for Component 2 at the close of the project in 2012 is shown below.

5.2.2.1 At least 9 laws, policies, regulations, sub-degrees and/or prakas were changed or newly promulgated with private sector input.

Even though the key laws promoted by MSME have not yet been adopted, the minimum output of 9 legal acts changed or promulgated appears to have been substantially met. The project claims to have contributed to the modification or enactment of eight legal acts.[3] The evaluation team was not able to confirm this number from review of project reporting, as project reports are not organized to validate these intended project results and data found in the 16 quarterly reports as well as the final project report was ambiguous. It is recommended that USAID request an enumeration of the affected regulatory acts by the project implementer in a final project report.

While it was not possible to confirm the precise number of legal acts influenced by project activities, or how those acts were influenced, there are strong indications that the project contributed to modification or development of at least 8 or more legal or regulatory acts, as described further under sections 5.3.1 and 5.3.2.3, below. Those acts include at least the following:

- Trade Remedies Law
- Law on Animal Health and Production
- Animal Transportation Regulations
- Prakas No. 178 on the Procedure in Controlling Sanitation of Animals and Animal Products (2009).

[3] See Cambodia MSME 2/BEE Final Report, November 2012.

- Ministry of Agriculture, MAFF instruction letter in late January 2011 (in which the traders are allowed to buy and transport pigs without quota or location restrictions)
- Slaughterhouse Regulations
- Draft Regulation On Farm Management
- Draft Sub-decree on Contract Farming
- Draft Framework Regulation On Good Agricultural Practices to meet ASEAN 2009-2014 Roadmap
- Agricultural Cooperatives Regulations
- Fisheries and Aquaculture Regulations
- Fish Transportation Regulations
- Potable Water regulations
- Factories and Handicrafts Regulations
- Draft Community Protected Areas Law and Regulation

5.2.2.2 At least 4 sustainable provincial public-private dialog mechanisms established.

MSME sponsored and facilitated 39 public-private dialog events in which almost 6,000 clients participated. However, whether MSME has left behind any sustainable provincial public-private dialog "mechanisms" is a matter of interpretation. In its final report, MSME claims that it has established 8 "sustainable" public-private dialog mechanisms but does not clearly identify which those are.

The evaluation team did not become aware of any formal mechanisms – for example, officially sanctioned public-private working groups or task forces at the provincial level - created to serve as ongoing forums for public-private dialog. However, if a "mechanism" is characterized as any recurring opportunity for dialog, then annual provincial trade fairs (29 of which were supported and facilitated by MSME in the targeted sectors) would be an opportunity for a public-private dialog mechanism, especially when attended by government officials. Furthermore, if a mechanism is characterized as an organization that has the capacity to formulate and advocate policy to government, then the CWGs, cooperatives and communes that MSME assisted in creating and training would be considered public-private dialog mechanisms.

The MSME project contributed significantly to legitimizing the process of public-private dialog at the provincial level, which may be a first step towards institutionalizing the dialog. A good example is MSME's extensive work to bring together project participants and public officials to discuss transportation issues affecting inter-province trade in hogs. For example, in 2009, in close coordination with the Svay Rieng Department of Agriculture, MSME facilitated the participation of 48 clients and 4 provincial officers (3 From DAFF and 1 from Taxation Department) in a public-private dialog between the Pig Traders Cooperative in Svay Rieng and the Provincial Department of Taxation. This dialog resulted in an instruction from the Deputy Director of Taxation to his customs officers not to impose unofficial transportation fees in the transport of live swine in intra-provincial trade. Accordingly, traders in Svay, are no longer being charged informal fees in transporting their goods within Svay Rieng Province.

Whether the events and organizations that have been created and assisted by MSME, or the precedent of public-private dialog it has pioneered in the provinces will endure, is subject to many factors; however, it appears at this time that they are on firm ground.

5.2.2.3. At least 3 Business Membership Organizations become at least 50 percent self-funded by fee paying members.

MSME's ES claims to have created 16 financially self-sufficient advocacy organizations, but does not specifically identify which they are. Nevertheless, considering that MSME contributed to the creation of over 60 local organizations this claim is more than reasonable. The project focused primarily on creating CWGs, cooperatives and communes, which it considered to be predecessors to full blown national Business Membership Organizations. Many such organizations were created or assisted in their creation by MSME through legal assistance and management training. A number of them appear to be financially self-sustaining but current information on the financial status of such groups, assisted by MSME, was not available. Field interviews suggested that some of these groups were on a sound financial footing while some others were experiencing

problems in financial management. One attractive aspect of these organizations is that their funding needs are very low, as most of their work is done on a participatory/volunteer basis.

Regarding creation of Business Membership Organizations that are national in scope, the evaluation team became aware of the MSME's role in only one case, CWA, which was launched with the technical assistance of MSME in collaboration with World Bank. There is a possibility for the World Bank to provide three years of support for CWA, if the three-year work plan of CWA is correlated to the World Bank's mission. While it is expected that CWA will become financially self-sustaining through membership fees, this remains to be seen.

5.2.3. Sustainability

Whether the new-found voice of the small rural businesses will be sustained will depend on many factors. Factors in favor of sustainability of the Component 2 work at this time include:

- **Increased confidence of clients.** Field interviews frequently encountered the opinion that MSME clients had a new confidence in their right and ability to petition government to express their needs and grievances, and that this confidence was in large part attributable to the support provided by MSME.
- **Increased communications skills**. Supporting growth of confidence are the skills developed through MSME assistance, which included 13 training events involving almost 500 clients and focusing specifically on strategic communications skills. Moreover, in line with the project approach of learning by doing, business forums (45) and public-private dialogs (39) provided good examples to participants of the process of communications and dialog, as well as a chance to develop communications skills.
- **Legitimization of public participation in the policy process.** There is widespread opinion that MSME legitimized the role of the public in the policy development process, and some state that a return to the prior ways of government behavior seems unlikely now. One senior official revealed that the public-private dialog, organized with MSME's support early in the project to allow client to express views and concerns about the proposed animal health laws, was the first time he had seen direct public input into a legislative process. Since that early event, the projects sponsored many similar events, and there are increased occasions of public officials actually requesting or ordering public dialog events in connection with policy initiatives.
- **Institutional infrastructure.** Many of the local working groups, networks, cooperatives and communes created with MSME's assistance appear to be on a sound footing as of the end of the project. This institutional infrastructure should be able to carry on the advocacy work of the project, particularly at the provincial and local levels.
- **Low cost activity.** Once established, communications activities do not require a great deal of financial or technical support.

Factors which may adversely affect the sustainability of the Component 2 work may perhaps include:

- **Absence of direct USAID link through a project.** The evaluation team encountered some opinion that some local clients may be reluctant to aggressively represent their interests to various levels of the Cambodian government in the absence of the ability to state that they are working under a US Government-sponsored program with deep credibility and connections in the national government.
- **Powerful interests and lack of government support.** A main lesson of the field interviews was that some participants believe that the government only listens to what it is predisposed to hear. The different results for the honey and resin communities are an example, with the former being a provincial and local favorite supported by several large national purchasing organizations, and the latter largely lacking in both government and important private sector support. In addition, there was opinion expressed in several biodiversity communities that powerful forestry and agricultural interests were making serious inroads in their domains and that most advocacy efforts today were spent simply preserving gains already made.
- **Transfer of skills.** While quite a few clients were trained in advocacy and communications skills, it remains for the organizations created and assisted by MSME to assure that these skills are passed on to further generations of leaders. This is particularly true of provincial organizations and those sectors which lack a strong national business organization.

- **National influence.** For the provincial organizations and those sectors lacking a strong national Business Membership Organizations, such as the MSME-supported CWA, maintaining communications with the national government may be problematic. Most such communications appear to have been accomplished by large-scale business forums and public-private dialogs organized with project assistance. At the same time, some Ministries and government agencies (e.g. MIME and FiA) have indicated their interest in seeing forums and public-private dialogs continued in some way. However, it remains to be seen whether they will create their own mechanisms for doing so.

5.2.4 Value of Interventions

It was not possible, given the time and resources for this evaluation, to monetize the value of Component 2 work. In theory, the value would be measured by the impact on the costs of doing business of policy and regulatory changes attributable to project activities. For example, the extensive work done by local working groups and at project sponsored public-private dialogs on reducing the number of multiple informal assessments made by government officials on transportation of products, or customs fees improperly charged on inter-provincial trade, could be valued by simply aggregating the savings of each producer. Similarly, reduced costs because the roads ministry agrees to take more care to avoid disrupting existing water lines in roadways, a discussion championed by MSME, could also be calculated. Standard cost modeling could be applied to other regulatory changes to determine the cost of time invested in complying with government application and other documentary requirements. The data that would be necessary to make meaningful calculations along these lines was not available to the evaluation team and, consequently, most such exercises would have been purely speculative.

The value of Component 2 work can, of course, be measured in terms of such indicators as the satisfaction of the clients with the assistance provided and the quality of the skills imparted, which are generally deemed to be high.

5.3 Component 3: Business Enabling Environment

5.3.1. Developing Capacity to Improve the Business Environment

There is considerable overlap between Components 2 and 3 with respect to the central importance of developing advocacy skills, but Component 3 appears to emphasize the adoption and modification of laws and regulations governing business activity and trade. That activity will be the focus of this section. Points regarding public-private dialog and participation of project clients in the policy development process, including legislative development, are made also under the discussion of Component 2, above.

The evaluation team found that MSME has, since inception, diligently advocated for and supported development of a more transparent and comprehensive legislative framework to govern its targeted sectors. Activities have included, among other things, collection and representation of client's needs and opinions to policy makers; review and critique of legal and regulatory drafts; drafting of new laws and regulations; cooperation and coordination with other development partners on policy development recommendations; facilitating public-private dialogs for discussion of legislative and regulatory issues; meetings with policy makers to discuss legislative and regulatory proposals; and dissemination of policy guidance and legal acts to clients.

MSME has worked on 5 key pieces of legislation, none of which have been adopted as of the close of the project (see Table 12 below).

These initiatives are in the control of the national government, and there is a widespread sense that the national government is neither interested in adopting comprehensive legislation at this time nor particularly efficient in conducting the legislative process. There are no good predictions as to whether or when the main legislative initiatives of the project may be adopted into law.

The evaluation team believes that adoption of these acts should not be the measure of either the MSME's efforts or successes under this Component, and that more emphasis should be placed on the question of whether

Component 3 activities have improved the capacity of government to make effective policy and thereby laid the groundwork for future progress.

Table 12: Laws and Regulations Adopted or Modified by Close of Project	
Product	**Status**
Number of laws, regulations, and Prakas revised	35
Draft Trade Remedies Law and Sub-decree	Pending
Draft Law on Animal Health and Production	Pending
Law on Factories and Handicrafts and other regulations	Pending
Draft Law on Aquaculture	Pending
Draft Sub-decree on the MOT Marketing and Promotion Board	Rejected
Draft Prakas on Water Supplier Company Licensing	Pending

Source: MSME

A point that should be noted is that the success of the Component 3 activity may be measured not only in actual adoption of legal acts, but also in preventing or slowing the adoption of ill-considered acts as well. In fact, MSME invested a great deal of effort in trying to improve or correct legislative proposals developed by others – both RGC agencies and development partners. There is evidence and opinion among stakeholders that MSME inputs in the legislative process resulted in avoidance of serious policy errors and improvement of the quality of the proposals and drafts that remain under consideration.

Short of inducing actual adoption of major legislative initiatives, some accomplishments under Component 3 include:

- MSME provided systemic policy advice and training services to RGC counterparts on drafting of the Trade Remedies Law. This effort has attempted to protect Cambodian consumers and businesses against the adverse effects of importers selling products in Cambodia below the cost of the same products in the exporting country and exporting products into Cambodia in volumes that harm Cambodian industry. In addition to participating directly in drafting the law at numerous drafting sessions, MSME facilitated an international exposure mission for the drafting team to Malaysia to learn about Malaysian regulations on Trade Remedies and about anti-dumping cases and practices, and to meet with the Trade Practice Sector (TPS) of the Malaysian Ministry of International Trade and Industry (MITI).
- Upon request of Department of Animal Health and Production (DAHP) the project analyzed the draft Prakas on Animal Farm Management and, subsequently, worked with the deputy director of DAHP and his team on ways to improve the draft Prakas. MSME determined that the Prakas was poorly drafted, imposing heavy licensing and compliance burdens on all commercial scale livestock farms, and advised DAHP to establish a registration system for all animal farms rather than requiring licenses for all farms in order to encourage investment in the livestock sector. In early December 2011, MSME submitted a revised draft Prakas to the DAHP with substantial changes and additions to the part on the procedure and timeframe in applying for licenses, duration and renewal process of the licenses, redress measures and transitional periods.
- MSME supported DAHP and slaughterhouse owners in strengthening legal compliance, sanitation and hygiene standards in the sector. The project supported an international exposure trip to Vietnam, which provided an excellent opportunity for selected slaughterhouse owners and government officials to learn good practices and operational management of slaughterhouses, hygiene standard maintenance, and how the Vietnamese government manages slaughterhouses and enforces regulations on slaughterhouses.
- MSME received a draft law on aquaculture in late 2010 from FiA with a request to prepare a concept note on aquaculture law. The concept note, which focused on how to encourage investment while protecting the public health, was submitted in May 2011 in both Khmer and English language. The project also prepared a detailed analysis of the draft Law from a business perspective. In response to an FiA request to help organize public consultations, the MSME team, in coordination with the Aquaculture Value Chain team,

organized 3 one-day consultative workshops with the private sector: in Kampong Thom for clients in Kampong Thom and Siem Reap in July 2011; in Kampong Cham for clients in Kampong Cham and Prey Veng in September 2011; and in Phnom Penh for clients in Kandal and Phnom Penh in December 2011. Each workshop, was attended by 5 to 7 high ranking officers from FiA that led the workshop as well as MSME's clients in the aquaculture chain. As a result of these successful events FiA promised that they will consider comments and inputs from the private sector by revising the draft law accordingly. The project also received assistance from a group of students from the University of San Francisco School of Law, under the International Development Law Initiative, to conduct desktop research on law and regulations of the aquaculture sector in Vietnam and Thailand. MSME translated the research findings into Khmer and submitted both English and Khmer versions to the director of the aquaculture development department of FiA. The research documents were used by the FiA as consultation documents to orient themselves and better regulate the aquaculture sector in Cambodia.

- The MSME policy team worked intensively with the Department of Potable Water Supply (DPWS) at MIME to develop a simple, clear set of subordinate legal acts to help guide investment in the private potable water sector and to provide practical tools to help MIME better regulate WSPs. This work generated a number of documents including multiple drafts of Prakas for WSPs, a contract between MIME and WSPs, a formal contract between WSPs and customers, and a concept note on tariffs and a draft tariff on Prakas. All drafts were translated into Khmer and discussed in frequent meetings with MIME counterparts. Based on the strong level of cooperation, DPWS requested MSME support to develop a WSP database for better and more transparent management of WSPs. The team coordinated work in water regulation with colleagues from the World Bank and Asian Development Bank (ADB) to ensure that suggestions were in line with their approach and did not overlap with their efforts.
- The draft Law on Animal Health and Production was issued for public comment by MAFF in May 2011 and the latest draft initialized in September 2011. To help development partners better understand the changes and areas of possible discussion with MAFF, MSME prepared a detailed analysis of the draft law, which was circulated to development partners for their review as well as verbal briefings to interested development partners about the latest version. MSME's senior legal advisor prepared detailed comments on the draft law in English.

5.3.2 Intended Project Results

5.3.2.1 At least 200 relevant officials at the national and/or provincial level demonstrate basic knowledge required for effective regulatory drafting, communications, and public-private dialog related to the implementation of at least 8 policies or regulations that are relevant to the project's 6,000 MSME clients.

MSME's ES claims to have provided capacity building training for 1,080 public officials. Based upon review of project documents and field work, this appears to be accurate. Many public officials received training in policy analysis, drafting and communications through their interactions with MSME, and it is likely that their capacities were improved. In fact, most government interlocutors interviewed for this evaluation were thankful for the capacity development efforts of MSME and strongly believed they had a positive impact. Examples of MSME capacity building efforts include:

- Worked hand-in-hand with many government agencies on the preparation of significant draft laws and regulations, jointly participating in drafting sessions and roundtables, and likely imparted a sense of professionalism and technical mastery of these skills.
- Prepared numerous professional analyses of proposed laws and regulations at the request of government officials, which were considered in the policy development process. Many government officials had access to these reports and analyses, and likely benefited from the analytical techniques.
- Provided one day training-workshop for 45 people from MoC, MIME, MOI, Customs, other agencies, private industry and academia as an introduction on Developing Trade Remedy Laws in Cambodia,
- Supported a two-day conference in Siem Reap, at which counterparts from the Ministry of Environment worked with a variety of NGOs on draft regulation and guidelines for community protected areas.

- With cooperation from the MoC, organized a two-day meeting for the trade remedies drafting team in Phnom Penh to review a first draft of a trade remedies law. Around 40 participants attended (24 people from MoC, 2 from MAFF, 3 from MIME, 3 from Council of Jurist, 2 from Ministry of Justice, 1 from CamControl and 1 from Customs). Of the participants,15 out of the 18 members of the drafting working group participated.
- Organized a presentation for more than 15 ECOSOCC leadership and staff at the OCOM on the Standard Cost Model for assessing regulatory burden.
- Organized and implemented, in collaboration with the MOT Legal Department, a one-day training in Phnom Penh about rule making and regulatory impact. The training was designed to bring together officials from different departments, both national and provincial, in order for them to learn about general principles of good rulemaking. It was attended by 41 MOT officials (including 11 provincial officials).
- Provided interactive training on the draft Trade Remedies Law. Participants included officials form MoC, National Assembly and other line ministries (MAFF, MIME, OCOM, General Directorate of Custom and Excise and Provincial Departments of Agriculture). Private sector representatives included academia, lawyers, small and medium enterprises and research institutes. The training was designed to bring private sector actors with real potential trade remedy complaints together with the drafting team, to present them for "diagnosis" and analysis. The day-long session was attended by 60 people, including 26 national level officials and 4 provincial officials.
- Facilitated a one-day communication skills training for 23 national and provincial level public sector officers, including 4 women. In partnership with Equal Access, facilitated 2 communication skills trainings for private and public sector participants to strengthen their capacity to speak to the media, target the right audience and share information.
- Conducted a series of "one issue, one hour" training sessions with MIME staff about the Operations Regulation.
- Jointly organized, with the ADB and IFC, a two-day, highly interactive, executive retreat for over 40 national policy makers from many ministries and government offices in regulatory impact assessments and better regulatory practice.
- Provided a one-day training course on regulatory drafting to more than 38 participants from the MIME General Department of Industry, coming from all over the country, and including many Department Directors and provincial office heads. Revised and simplified drafting training for regulators, structuring it so that more than half the training was provided by MSME local staff, without having to use outside counsel to facilitate.

5.3.2.2 At least 15 significant commercial policies, regulations, sub-degrees and/or prakas have been communicated to the private sector systematically in at least 9 USAID project provinces. At least 8 government regulatory procedures or fee schedules have been published and made available systematically to the private sector.

The evaluation team considers these results to be essentially the same. MSME's ES claims that only 5 significant commercial policies and 8 regulatory and fee schedules were made systematically available to the private sector, but does not specifically identify which these were. However, there is considerable evidence that these results were substantially achieved. It is known, for example, that MSME:

- Successfully completed 7 trainings on procedures for filing fisheries offences, co-organized with the FiA, with the participation of about 350 authorities and private sector clients, to allow government officials to learn about the new filing procedures and to correctly implement the regulations.
- Addressed the issue of unclear procedures to apply for permits to transport aquaculture products across provinces and from a province to Phnom Penh. The MSME's Component 3 and Aquaculture team, in collaboration with the Legal Department of FiA, facilitated 4 workshops: 2 in Kandal and Kampong Cham in December 2011; and 2 in Kampong Thom, Takeo and Kandal from January to February 2012. About 100 participants took part in these workshops including aquaculture clients and provincial cantonment officials from 8 provinces (Kandal, Kampong Cham, Prey Veng, Siem, Reap, Kampong Thom, Takeo, Kampot and Kampong Speu).

- In collaboration with the Department of Administration and Legislation of FiA, MSME facilitated a public-private dialog on the translation of Sub-Decree 66 OR NOR KRO dated November 1988. The forum provided opportunities for aquaculture clients to ask questions and to seek clarifications as well as foster relationships with the public sector to resolve future issues.
- In 2011, MSME supported Business Forums on the Dissemination of Factory and Handicraft Regulations for SMEs in Siem Reap and Phnom Penh. The one-day event in Phnom Penh was attended by 190 people including 120 SMEs from the provinces and Phnom Penh, and 70 government officials from relevant institutions.

5.3.3 Sustainability

Factors positively affecting sustainability of Component 3 work include:

- **Training provided to government experts.** The project devoted a good deal of effort to training hundreds of government officials in the processes of policy and legislative development, including RIA and legislative drafting skills. Moreover, the project provided good examples and templates for the organization of business forums and public-private dialogs, a crucial part of the policy development process. These skills may be reflected in future policy and legislative development activities in government.
- **Main project legislative proposals are still on the table.** The key legislative efforts of the MSME have not been rejected but remain pending mostly with the content agreed upon at the close of the project. Whether they will be adopted or adopted in a form that reflects MSME's inputs remains to be seen, but there is widespread opinion that most of the key laws on which the project worked will be adopted before long. In several cases (e.g. the Law On Animal Health) other development partners have indicated that they will continue to monitor and provide input to pending laws until adoption. The efforts of these other development partners with long-term project interests may be crucial to the outcomes under Component 3.

Factors negatively affecting sustainability of Component 3 work include:

- **Technical nature of legislative development is beyond the capabilities of most local organizations.** The legislative and regulatory development activities of Component 3 are highly technical activities undertaken by skilled practitioners, in particular policy analysts and lawyers. These skills may not be available to the primarily local organizations left behind by MSME and intended to be the main vehicles for influencing policy. While these organizations may continue to be able to make their voices heard on the broad outlines of policy, they may lack the ability to exert the influence that comes from hands-on work with policy makers around the drafting table, or the ability to put credible legislative documents on the table as alternatives to government proposals. It also remains to be seen whether the level of analytical skills imparted to clients outside of government will be sufficient to provide them with a seat at the table.
- **Transfer of skills.** While a large number of government officials received some training, either formal or interactive, in policy and legislative development skills, there does not appear to be a long-term mechanism for transferring skills to future generations of leaders. Other projects have addressed this issue by working with local NGOs or universities to establish ongoing training courses in policy analysis and legislative process.

5.3.4 Value of Interventions

Placing monetary value on the achievements of Component 3 encountered the same problem as under Component 2. The data that would allow standard cost or cost-benefit analysis of regulatory changes was not readily available to the evaluation team and, in any event, would have required a level of effort far beyond the time and resources devoted to this evaluation. Such analysis would likely be possible under other circumstances and, in our experience, is typically made part of the project's M&E component.

6.0 CONCLUSION

6.1 General Conclusions

Conclusion 6.1.1. The project used the right development approach with the right target group at the right time.

Faced with the challenge of improving business productivity and the competitiveness of small and medium-sized Cambodian firms and, given the capability and standing of its near neighbors (Malaysia, Thailand, and Vietnam), the project devised an approach adopted for each value chain, comprised of 5 key features:

1. Motivation of entrepreneurs
2. Transfer of technology
   a. already available in Cambodia
   b. already available in neighboring countries
3. Consolidation of value chains around products based on the technological or other upgrade
4. "Protection" of the space in which the private sector operates
5. Legitimization of private enterprise

Motivation of Entrepreneurs

The most vulnerable class of actor in Cambodian value chains is the primary producer of products like hogs, farm fish, resin, and honey. Many were locked in a cycle of random success and failure or stagnating sales. In the case of hogs, the majority of producers in 2008 raised an indeterminate breed that yielded a fatty carcass and was prone to disease and early mortality. The easiest species of fish to grow in ponds yielded the lowest market price. The resin tappers had difficulty in sustaining the flow of resin after collection. Honey gatherers destroyed the natural hive during collection, delaying its replenishment. Moreover, service providers of piped water had difficulty enticing new customers beyond a core group. Sales of the materials for making simple septic systems were sluggish. Manufacturers of bricks and tiles had difficulty delivering a consistent product recognized by intermediaries specializing in construction materials as a rival for those imported from Cambodia's neighbors.

MSME sought to appeal to business people with a history of failure by offering them the prospect of success. Only those with sufficient confidence in their ability to improve their business situation—or successfully do something new—stayed with the project over time. That is to say, the core participants in the project selected themselves and remained committed as they saw the positive impact.

The process of motivating participants was not easy. In many areas, promoting a technical solution to a persistent problem ran counter to prevailing attitudes. For example, in many rural locations, there was no tradition of purchasing medications because they were seen as expensive and unnecessary. As for confronting more successful with less successful operations, most smaller operators were not familiar with the larger facilities in their midst, and it was not initially easy for all producers to recognize that their historical efforts had serious shortcomings. MSME consistently stressed the positive future over the disappointing past. The fact that many participants volunteered to take part in the project is a characteristic of the MSME's approach that permeates all the other elements of the approach and accounts particularly for the perceived resilience of the actors.

Transfer of Technology

MSME employed a two-pronged approach to technology transfer. First, it capitalized on technology already present in Cambodia. Second, it introduced to Cambodian value chain actors technology available in neighboring countries (and others at a similar level of competitiveness) and potentially available in Cambodia.

One of MSME's first moves was to observe the business behavior of suppliers of veterinary products and AI, and conclude that, while they had been well trained by multinational firms in the technical area, they underperformed in the sales function and seemed unfamiliar with the concept of promoting through education, which usually serves as a fundamental requisite of introducing a novel product or concept. MSME introduced various service firms to the concept of educating the future client by making a presentation of the "bundle of benefits" of their products. For example, providers of veterinary services began by focusing on the high morbidity and mortality rates common when raising hogs. They followed the identification of the causes—

various diseases common to swine in Cambodia—and then, the solution: the medications readily available at a price below the monetary value of the losses caused by illness and death.

One veterinarian described to the evaluation team the transformation of his clientele from "skeptics" to "regulars" as they first made the association between the (low) cost of medications and the (high) cost of having an animal die. At the beginning, only a subset of the potential clients "believed" his sales pitch. Over time, it became a commonplace understanding by the majority of hog farmers he served. There is no reversing a habit brought about in this fashion: through a combination of personal experience and growing trust in an interested advisor.

Consolidation of Value Chains

With the transfer of techniques and practices came the promotion of consolidating a value chain around the "new" product or service introduced as a result of the technology transfer. This was achieved primarily through a wide variety of events, where actors from different segments of the value chain were able to interact (even though this may not have been the primary purpose of the encounter). The principal examples are: i) widely-attended workshops and provincial trade fairs; and ii) community meetings primarily of producers and some input suppliers.

In simple cases, such as clay bricks, this consisted of putting together a manufacturer and an itinerant intermediary. The intermediary's promise about the willingness to buy, say, a standard tile, permitted the kiln operator to: a) plan the upgrade of processing equipment to produce a superior tile; and b) contract with the intermediary to supply the superior tile based on the earlier discussion and a frank indication of price. Such a course of events would have resulted from even the intermediary's comment to the tile manufacturer that the market preferred a standard product to any of the irregular items resulting from the existing artisanal production method.

"Protection" of Business Space

The main approach of MSME was to form IGs that ventilated, in a community forum, the grievances of the members. Most of these grievances had to do with making "extra-legal" payments, foregoing revenue, or otherwise being harmed by government behaviors. What the evaluation team came to understand is that, in the case of the extra-legal transfers, the enterprises accept that government officials are going to take a little from what each business generates (e.g. "it's the system"), but that should be: 1) "reasonable" (not kill a business that they can gain more from over the long term); 2) "equitable" (not giving businesses in one province an advantage over those in another); and 3) "finite" (payable once to the representatives of one or more ministries, not left open for the next person to ask for more, and then the next ad infinitum).

The evaluation team learned that with the support and encouragement of MSME, a significant number of IGs eventually met with their public sector counterparts and came to a series of understandings about when something should be paid, how much, and to whom. In some cases, senior public officials took up the cause of the groups to seek reasonableness in these practices and senior officials at MIME suggested that the ministry go after officials from other ministries, whose behavior in this regard had been reported by SME groups.

When it came to foregoing revenue or being harmed by third parties, IGs were able to voice their discontent, but there is little evidence that many cases were actually remedied. Cases brought to the attention of the evaluation team include, government offices - and even some officials - hooking up to a water utility but not paying their water bill, and the complex case of alleged dumping by Vietnamese and Thai firms of hogs, fish, fingerlings, and, in theory, anything they want to dump into the defenseless Cambodian market, which continues today in the absence of a trade remedies law and policy. Some improvements are being made. MIME indicated that about 20 percent of business licenses are now granted on a long-term basis so that entrepreneurs do not have to pay every 3 years in order to stay in business. This change was supported by MSME activities.

There is no doubt that with the support and activities of MSME – such as, training in communications and advocacy skills - more producers and their organizations are finding a voice to at least try to affect government policy and behavior. Continuing pressure from the private sector ought to lead to a business environment that is regulated in the interest of all, not just the few. One key concern of the evaluation team is that it is one thing for the private sector to speak out when it has the "cover" of a USAID project and quite another to do so just

as volubly after the project has stopped. During the last set of field-trips to Kampot and Takeo, the leaders of two interest groups complained about (what they perceive as) dumping by Thai hog producers. When asked whether they had voiced this complaint to the provincial government officials, they indicated they had not. When pressed, they said it was because the officials had already told them there was nothing they could do. Whether the producer groups are simply worn down by frustration and lack of response or they will not act as boldly without the encouragement, support and cover of the USAID project, will remain to be seen.

Legitimizing Private Enterprise

The MSME project team emphasized that their interaction with the entrepreneurs, and the interaction of IGs and communities with one another played an important role in legitimating the role of the private sector and communicated that people do not need to wait for the state to act but can take action themselves.

The MSME pro-private sector approach proved to have many successful elements. It offered a pragmatic and cost-effective way of improving productivity and competitiveness while compensating for the relative backwardness of business thinking, especially in rural areas. This approach is supported by the radio shows and the constant "talking up" of the private sector. The momentum and energy the pro-private sector talk generates is an integral part of the approach in that it compensates for attributes that are currently beyond the reach of most Cambodian entrepreneurs.

Conclusion 6.1.2. The project's development approach used the fewest resources necessary to motivate and make more competitive the target enterprises and, in so doing, increased the likelihood that the project's impact would endure.

The MSME approach of facilitation of private action through motivation and education was relatively low cost for the project and participants. With the exception of a few grant based initiatives, such as in the piped water value chain, incentives were established by example, comparative study, and leveraging the will to succeed already demonstrated by a budding entrepreneurial class. Important project achievements gained through knowledge transfer, cost virtually nothing to sustain so long as clients take the time and interest to pass on what they have learned to others. This was particularly true in the biodiversity communities where necessary capital investment is limited. In fact, the MSME's ES found that large numbers of MSME project participants were sharing knowledge with non-participants, greatly leveraging the investment in training. Skills in organizational management and local advocacy were largely volunteer activities needing minimal outside resources to sustain. Perhaps most impressive are the mutual savings groups created under the local working groups and in the cooperatives, which rely on participants' own savings for investment. If some of these initiatives do not thrive, it will not be for lack of external funding.

Conclusion 6.1.3. The project's impact was clearest in the first component, increasing enterprise competitiveness, less so in the second, increasing the voice of the private business sector, and arguably least in the third component, upgrading government capabilities for policy analysis and legislative development.

It seems clear that the intensive work in the value chains has had the clearest and most immediate impact in terms of improving the quality of lives through increased productivity and incomes, as well as developing long-term skills among clients. The results of the advocacy component are somewhat less certain as in that area questions remain regarding sustainability (see e.g. section 5.2.3). Simple changes in government or certain officers (both of which are apparently rare in Cambodia today) could have significant adverse effect on public access to the policy making process. Moreover, while the process of advocacy was well established by the project, the actual changes to policy and procedures remain somewhat more ambiguous. There is considerable opinion that while the public-private dialogs were useful exercises and good precedent, the actual change that has arisen from them is limited and government still keeps its own counsel on key matters.

Impacts from Component 3 cannot be fully assessed at this time. We know that all major pieces of legislation in which MSME invested time and resources have not been adopted. That is not surprising and the same result has been obtained in many other countries. At the same time, these acts are still on the table and may eventually be adopted somewhat in the form promoted by the project. Whether the sub-objective of raising policy analysis and legislative development skills of public officials has been achieved remains to be seen, perhaps when the key

laws are finally adopted. What is known is that officials interviewed in the course of this evaluation had high regard for the training provided as well as for the opportunity to work alongside MSME experts in the legislative development process.

Conclusion 6.1.4. In general the project's offerings were available equally to men and women.

It appeared to the evaluation team that MSME did not focus on expanding women's participation but rather chose to assure that women who were found working in the sector had equal access to all project benefits. Those women who took advantage of the project were primarily the joint-owner or spouse of the owner of an existing business that decided to add an activity linked to the pork or fish value chain. The spouses of some wage-earners also started raising hogs at home so that they could be with the couple's children. Women entrepreneurs are not unusual in Cambodia hence the opportunities offered by MSME reinforce that custom but did not necessarily break new ground. Nevertheless, available data and field interviews suggest that a significant number of female business owners benefited from MSME activities (see section 5.1.5 above).

Conclusion 6.1.5. The poor were served mostly by new jobs and access to some goods and services that were previously unavailable to them.

The project's approach was suitable for those who could assemble at least a minimum amount of capital to start a business. If the "very poor" are to be defined as those without resources adequate to do this, then they were not served by the MSME project. However, project activities may have given the poor access to services and jobs they would not otherwise have had. The project has estimated that 20% of latrine purchasers and 18% of water survey respondents were poor or very poor, and that some of this effect may have been due to price reductions enabled by project interventions (e.g. reduced hook-up fees). Other indirect beneficiaries may include, for example, workers at bricks and tile factories, most of whom tend to be poor or near poor (see section 5.1.5 above).

6.2 Component One: Value Chains

Conclusion 6.2.1. Though there are generally good results for most key indicators in most value chains, MSME's success can also be measured in terms of sustainable capacity development that will support resiliency and future growth in the face of changing markets and other exogenous challenges.

The detailed results for performance indicators are described in Section 5.1 above; however, they are not necessarily the only indicators of performance. Many key informants interviewed were of the opinion that the organizational structures as well as management and technical skills imparted by the project to its clients have provided them with resilience in the face of changing market conditions and adverse exogenous shocks, and positioned them for sustained growth in the future.

Conclusion 6.2.2. The swine value chain interventions had positive effects despite turbulent market conditions caused by factors such as changing tastes, illegal imports, an economic down-turn, competition from large-scale producers, and poor bio-security leading to disease epidemics. Positive effects can be attributed to improvements in mortality, disease reduction and introduction of new breeds promoted by MSME.

The project's quantitative targets and performance measures reflect two things:

- The increase in participant productivity and competitiveness despite the lackluster performance of the industry itself, particularly movements in commodity prices; and
- The continuing need for marketing guidance to participants in order to supplement the production and sales skills developed by the project that, from time to time, may need to be refined in response to changes in competitor's strategies.

In the swine value chain, most producers participating in the project survived the market downturn into 2012. They are, in principle, ready to resume operations when market fundamentals improve and should enjoy a degree of competitiveness for a decade or more. In this way, the rural economy benefited directly and indirectly from the project, building a reserve of business knowledge and even capital that can be deployed in other

industries at a later date. This potential would, of course, benefit from future economic growth projects to which MSME would be seen as foundational.

Conclusion 6.2.3. The honey value chain subcomponent of Component 1 has achieved most of its objectives in a sustainable way.

Though some communities are still unskilled and unsophisticated at marketing honey and developing business to expand the numbers of buyers, the honey value chain work appears to be an unqualified success.

Accomplishments include:

- MSME contributed to the improvement of the communities' living conditions through increased income.
- MSME contributed to the Forest Conservation efforts.
- Honey is viewed as a real business for communities in order to generate a living income, and not as a supplementary income source.
- There have been significant improvements in the production techniques and sustainable harvesting, including use of rafters and pioneering of use of bee boxes, and capacity building on filtration which increased the value of honey at first stage in the value chain. All of these improvements, attributable to the project, hold a strong likelihood of resulting in increased productivity and incomes.
- Strong linkages to many honey processors and honey traders were established such as Honey Federation (CBHE), CEDAC, Happy Farm, Body Nature, Restaurants and Triple F.
- MSME has had at least some benefits for most of community members, including the poorest, poor and moderate income families.
- The honey enterprise success is largely based on the strong support from RCG as well as the good performance of community forestry management to protect existing community forestry and other forestry land from economic land concessions. These successes were in significant part attributable to MSME's work in organizing the communities for effective advocacy work.

Conclusion 6.2.4. The resin value chain work made moderate progress, often in the realm of social impact, but continues to lack the public support that has been achieved by other biodiversity sectors.

The trade in resin is exceptionally difficult to track because, as an unclassified product, a good part of it is smuggled across international borders in small amounts. The resin sector continues to suffer from lack of public sector support, low incomes, and widespread illegal importation, and has been less successful over the life of MSME than other biodiversity sectors such as honey and eco-tourism, both of which enjoy a modicum of official support. In addition, administration work and financial management remain to be improved in some community forest and resin enterprises. Nevertheless, MSME accomplishments in this value chain include:

- Improved livelihood of the households involved in the collection, buying and selling of resin. Interviews and surveys suggest that improved income of actors has helped them to further invest in education, their homes and their businesses.
- Increased awareness on the advantage of community conservation, environmental impact and management.
- Introduction of sustainable harvesting practices. MSME supported training on limited duration burning of resin trees has already enhanced survivability of the forest resource.
- Reduced migration as opportunities in resin collection and sale have increased.
- Resin in particular has affected the poorest members of the community. It is estimated that 60% of poorest, poor and medium households in the target communities have been benefited from the project activities.

Conclusion 6.2.5. The aquaculture value chain subcomponent made satisfactory progress under each of its three objectives.

The aquaculture project made satisfactory progress despite constraints such as limited inter-connection among value chains, severe market price fluctuations, and the recent economic crisis. Some issues such as increasingly high production cost, quality of inputs, environmental degradation, and gender specific constraints may have received insufficient attention. Key impacts of the project may be demonstrated only over a longer period of time. Probable project accomplishments included:

- Strong partnerships evolved with the stakeholders, and coordination among stakeholders improved significantly, which is fundamental to the project's facilitation approach and to potential for further progress.
- There is a high level of client ownership of the project, which is important for effectiveness and efficiency, as well as sustainability.
- Significant progress was made with building capacities for enterprises and training services delivery. A number of enterprises and associations have benefited by project trainings and other educational opportunities.
- There are indications of positive behavioral changes, job creation and income increases.
- Current demonstrable outreach is relatively limited, but there is scope for scaling up. If this is done effectively, thousands of clients could benefit.
- Although a number of key regulations and laws are still not finalized and issued, there have been a number of positive regulator developments in the aquaculture sector and the main efforts of the project in this area may still be adopted.

Conclusion 6.2.6. The eco-tourism value chain work achieved moderate successes, in particular with developing marketing skills and value chain connections between operators and other members of the tourism industry.

- Improvement in services such as homestay, transportation, food and hospitality have been established.
- Partnership with private sectors such as CATA: members and non-members participated and made recommendation to communities for further improvements.
- The employment opportunities for people within the target communities have increased over the course of MSME.
- Strong economic impacts from increases in income have helped improve the living conditions of the target communities.
- MSME had a positive impact on tourism - communities are now more environmentally aware, installing rubbish bins, cleaning and caring for the environment.
- Community members and committee have more confidence in managing forestry and eco-tourism activities, and are able to facilitate meetings and communicate with private and public sectors.
- MSME had some difficulty assisting some eco-tourism sites as communities expected the project to do everything for them.

Conclusion 6.2.7. The economic crisis had a strong negative affect on the construction sector, which had a knock on effect to the brick and tile enterprises; however, these do not necessarily reflect the value of the work.

The brick and tile sector was one of the few targeted sectors to show declines in volumes and incomes. Reversal in this sector was also compounded by the strong competition from neighboring countries. As a result, overall business indicators for the target project clients have decreased remarkably. Some significant problems continue which the project did not address. For example, the issue of labor is not addressed by the project; typically enterprises involved with the project have invested in several kinds of technologies to increase production, but the scale of production does not fit with the supply of labor and, therefore, enterprises cannot run at full production year round.

However, the evaluation team believes that the project has helped to promote good technical skills, and increased market information and business relationship among the enterprises and government bodies. These have helped enterprises achieve a good asset base to maintain their businesses and support resilience in the face of change.

Conclusion 6.2.8. The latrine value chain, though a pilot and an add-on in the later stages of MSME, was very successful in promoting growth in the local industries and holds out promise for significant continued growth.

- The latrine project was well managed and implemented efficiently and creatively by IDE with a capable and committed team. Outsourcing of this implementation may have been key to MSME's success.

- Many project clients showed substantial growth in installations and revenues, based largely on improvements in marketing and business skills.
- There were good efforts to establish coordination and collaboration with other similar projects (WB), though not as flexible and comprehensive in implementation when identifying other sanitation-related issues such as animal waste and daily garbage.
- MSME initiated a very effective social campaign to promote the use of safe and easy latrines, which has mostly been adopted by the producers themselves and will likely continue.
- The number of households buying latrines remains limited but growing, indicating that the price may still be too high for the lowest income households.

Conclusion 6.2.9. The piped water project has helped in increasing sales and profits of a number of the participating WSPs through upgrading production and sales functions, and in a few cases has sustained failing enterprises by timely capital grants.

- The project is considered by many to have generated significantly improved access to safe water for rural households as well as improvements in convenience and time savings in collecting water for households in the rural areas.
- While there appears to be growth in volumes, revenues and incomes of assisted enterprises,
- In a few cases, WSPs have survived because of timely capital support from MSME. The value of the capital grants is appreciated by the recipients but questions arise as to sustainability of any project component that entails free money.
- Some criticism of the project was that by limiting itself to upgrading the production and sales functions of the enterprises but not marketing and expansion of customer bases, some enterprises are today vulnerable to larger firms that adopt an innovative business strategy since they will have difficulty responding while the larger utility enterprises enjoy economies of scale from large customer bases.
- This is the only value chain sector in which a full blown national Business Membership Organization – CWA - was created.

6.3 Component 2: Strengthening Public Voice

Conclusion 6.3.1. Valuable advances were made in encouraging private sector actors to voice their legitimate concerns with government officials about matters affecting the business performance of the whole industry, especially at the provincial level.

The work of Component 2 was thoroughly integrated with the work of Component 1and grew organically from Component 1as necessary to address the needs and objectives of clients in the targeted sectors. The project was most effective in initiating a "natural" public-private dialogue at the provincial level as an integral part of its approach to developing the private sector.

In general, the consensus view of most key informants interviewed for this evaluation was that MSME succeeded in strengthening the voice of its clients mostly at the local and provincial levels, and that there has been somewhat less success in influencing national authorities. Moreover, the level of success may differ among the targeted sectors, and those in which provincial and national officials have already expressed their own strong interest (e.g. latrines) may have met with more success than those sectors in which interest is still developing (e.g. resin). Opinions of project clients are strongly favorable toward MSME's efforts in developing and training cooperatives, and sectoral business associations and networks. In the project's final evaluation, survey respondents frequently cited better relationships with government and other producers as a main social impact of MSME's work (see Table 13 below).

Table 13: Social Outcome/ Impact As Perceived By Participants in the Brick and Tile Sub-Component	
Impact *	**% of Respondents**
Good relations with other enterprise actors and government authority	53.3
Provide more work for workers/migrants/Villagers	53.3
Sharing experience and knowledge from training to villagers/neighbors	26.7
Supply production and Services	26.7
Knowledge to make brick and tile	20.0
Afford children at school	13.3
Money for saving/Lent/Donate to parentless children	13.3
Reduce migration	13.3
Increased Revenue in family	6.7
Do not know	6.7

*Source: MSME 2 Final Evaluation Survey; * Multiple responses possible.*

Conclusion 6.3.2. The project has been most effective in assisting firms engage with provincial government, helping both sides clarify the terms of their mutual dependence, and encouraging a pragmatic approach to oversight of commercial activities along the length of the value chain.
The dialogue between the representatives of rural business and officials of the provincial and local governments promoted by MSME appears to have clarified certain arrangements along the following dimensions:

- The rigidities of the prior system were adapted to the new reality brought about by the increased inter-connectedness of the value chains.
- The units of government appeared to have relative autonomy vis-à-vis the central government in relation to the revised rules.
- The rules exhibit sufficient complexity to protect "legitimate" actors from those handling, say, illegal imports; and
- There is a clear definition of roles as between, say, personnel from the police and the department of agriculture to give coherence to the arrangement.

Hence, the patrimonial system in rural areas and applicable to the pork and fish value chains, for example, today shows the characteristics of stability.

Conclusion 6.3.3. A dialogue at the national level was pioneered by the project.
It is possible that the efforts under Component 2 - create sustainable private sector advocacy organizations and skills - will continue to work through the legislative process long after the completion of MSME. The project is credited by some with pioneering the place of private sector advocacy in the policy development process. Though not all public officials have been responsive, and this is particularly true of the national government, few interlocutors see the possibility of return to former behaviors if the current trends in governance continue.

Conclusion 6.3.4. Issues of sustainability remain.
As MSME ends, issues of sustainability relating to how much of government responsiveness was due to the presence of USAID and how much to a genuine willingness to open up may arise. Local groups may lack the resources to affect policy at a national level. True national business membership organizations remain to be created in most sectors.

6.4 Component Three: Business Enabling Environment

Conclusion 6.4.1. In terms of impact on the legislative framework for business, the failure to adopt new laws during the term of the project does not necessarily reflect the eventual outcome; initiatives begun by MSME may come to fruition in the future.

MSME contributed to the strengthening of public institutions, educating public officials about Cambodia's obligations under WTO, and commenting on the drafting of legislation, in the name, so to speak, of the private sector organizations the project dealt with under the first two components. The political process in Cambodia is lengthy; important legislation takes years to prepare and some bills are dropped. Hence MSME's contribution is difficult to assess with precision at this time. The technical contributions of MSME to key pieces of legislation in terms of analysis and drafting are considered by most key informants to be good and useful and they remain on the table. The draft laws produced with MSME 2 assistance are not dead, and could eventually be adopted. Whether before adoption they will be changed to eliminate the best practice recommendations made by MSME 2 is an open question, but continued attention to the legislation through other projects may help to assure a good outcome eventually.

Conclusion 6.4.2. MSME has established a good precedent for the legitimate role of the private sector in the legislative process.
By no means all public authorities were welcoming or responsive to the MSME's initiatives, but enough were that there is reason to expect a growing acceptance of the private sector's role in policy making.

Conclusion 6.4.3 Issues of sustainability may arise once the support and encouragement of the MSME ends.
It is possible that MSME's efforts under this component are sustainable in the sense that they have created precedent for dialog on legislative initiatives between the public and private sectors and demonstrated for RGC policy makers a useful consultative process and high degree of professionalism in the analysis and drafting of legislative acts. Given the opaque and slow moving nature of the legislative process in Cambodia, it is possible that there will be a risk of entropy in the process that has just begun. Much will depend on whether the sectoral organizations themselves become self-sustaining, and whether the MSME's support was viewed by project participants as essential "cover" to their own more aggressive approaches to the government. And, even if the business organizations and networks that MSME helped create remain capable and interested in communicating their needs, it seems doubtful that they will be able to provide at the national level the same level of analysis, best practice information and drafting assistance that was provided by highly trained staff and consultants of USAID projects.

7.0 RECOMMENDATIONS

7.1 General Recommendations

Recommendation 7.1.1. Adopt the minimalist approach as a "norm" in similar projects.
The project team is of the opinion that the minimum intervention model implemented by MSME was effective in creating ownership, instilling confidence, conserving resources, and promoting sustainability. It is recommended that this model be replicated in similar projects.

Recommendation 7.1.2. Further work in some value chains. MSME necessarily was not able to bring the skills of all clients in all areas and sectors up to the same level. Some assisted sectors (e.g. honey, latrines, fish) appear to be rapidly moving toward self-sustaining growth, while others (eco-tourism, resin collection) could profit from further training in management and financial skills, for example. Still others (e.g. pigs, water and fish) need to address issues in the sectors - seasonality, illegal imports, environmental protection, government support - that may affect their long term growth.

7.2 Component One: Value Chains

Recommendation 7.2.1. Honey

- USAID should consider further support on honey production in the next biodiversity program as it has proven valuable for both income generation and advocacy for Community Forestry Conservation and Community Protected Areas.

- USAID should continue to support the "Bee Box" technique of bee keeping and continue training in rafter building so wild honey production can continue to grow and communities can have year-round income through bee box production. This initiative was only recently initiated, before the project ended, and has not had sufficient time to justify itself.
- USAID policy should continue to promote expansion of the area for community forests for community people (especially to the northern region like Mondul Kiri, Steung Treng, Kratie and Rattanak Kiri) so more trees and bees are available. The honey communities have demonstrated good forestry management and conservation skills.
- More needs to be done to link producers getting "Honey to the International Market" such as updating the quality, branding, labeling, and packaging.

Recommendation 7.2.2. Resins

- See recommendations regarding expansion of protected forest areas under honey, above.
- More work is needed to invest in activities that promote improved processing and those that make international trade possible, such as local certification.
- Local authorities (village and commune councils) and line government agencies need more encouragement to support the community resin enterprises; this enterprise sector has not yet been adopted by the government.
- More work is needed to help community forest and resin boards to develop their own business plans and, in particular, increase trading activities to make sure that profits are re-invested into the community.

Recommendation 7.2.3. Aquaculture

- In this sector there remains a need to consolidate producers into community production groups or cooperatives which will work as forums for experience sharing, and potential collective action (collective purchase and sales, collective bargaining, advocacy/lobby) and communication and/or networking with other actors in the value chain.
- The aquaculture project could be followed by another USAID-supported phase designed to facilitate sustainability of innovations, replication and scaling up (assuring satisfactory return on funds invested and realization of the government's pending adoption of the new fisheries/aquaculture law). Any new phase supported by USAID should continue the "facilitation" approach and not take a greater direct assistance role as many stakeholders desire.
- In any project continuation private and public sectors and target beneficiaries could be given a greater role in planning and implementation. A continuation project should, in design and in implementation, foresee a much more prominent role for private and public sectors than was the case here. More collaboration with public and private sector is possible.
- Any continuation project should be flexible in design (should avoid many pre-determined outputs, activities and methodologies)
- Further work could place more focus on women participants and gender empowerment.
- Consideration could be given to replication in other comparable provinces.
- USAID should continue to support adoption of regulations and laws governing the aquaculture sector that the project supported but which have not yet been adopted

Recommendation 7.2.4. Ecotourism

- The Ministry of Tourism could take greater interest in eco-tourism development and its possible roles in this sector should be explored further.
- RGC planning should take into consideration the need for new and improved roads to serve the eco-tourism sites in order to improve accessibility and encourage more tourists to visit.
- The Community Based Eco-Tourism sites need further assistance to improve financial transparency, management accountability, and leadership skills.

- There remains a need for an Eco-tourism Business Membership Organization on a national scale. Pending that, the eco-tourist sites should conduct a regular general assembly meeting (once a year) with a clear mandate with communities to facilitate ongoing involvement and participation.
- The Community Based Eco-Tourism sites need to make more efforts in terms of conservation (forestry, wildlife and waterfall) and diversify the range of products and services available.
- More work is needed among the Community Based Eco-Tourism sites to build partnerships with the private sector.

Recommendation 7.2.5. Brick and Tile

- There remains a need for further systemic analysis of the industry to address the specific bottlenecks, such as the shortfall in the supply of labor, and the seasonal production of the factories. Addressing these issues would help build competitiveness of the industry as whole.
- Brick and tile enterprises need to be educated to analyze their businesses in a way that focuses on the efficiency of investment in order to avoid future risk from the onset of strong competition.

Recommendation 7.2.6. Latrines

- An effort could be made to mainstream latrines into government programs (health care, rural livelihood development programs implemented by government) to replicate the model to other households, particularly poor households, and upscale to other areas. If possible, poor households should be provided support with some construction materials for installing latrines.
- Collaborate with other NGO projects on livestock management (manure compost, disease control) to improve social environment and reach the goal of sanitation and health care.
- Further collaboration with commune and village levels is needed to disseminate information, organize workshops and media campaigns on benefits of latrine to improve their awareness, and change their practices.
- Continue to work closely with producers to improve design and quality of latrines and reduce their costs. This will help targeting more of the population, particularly the poor.

Recommendation 7.2.7. Piped Water

- Continue to strengthen and upgrade production and sales functions of the enterprises to make business operations more competitive.

7.3 Component 2: Strengthening public Voice

Recommendation 7.3.1. Further institutionalize advocacy organizations.

While good progress was made in creating local and provincial business associations that may have a long-term influence on policy development, these organizations may be limited in their reach and capacities, particularly in technical policy development and legislative skills at the national level. Further work can be done in taking the local organizations to the next level by assisting in the creation of sectoral business membership organization of national scope that may be able, through economies of scale and membership support, to retain technical skills and take a larger role on the national stage.

Recommendation 7.3.2. Further institutionalize advocacy training.

Further steps might be taken to assure survivability of the communications skills imparted by the project. These could include further development and dissemination of the training materials produced by the project, even if necessary through a profit making publisher. Similarly, efforts could be made to induce certain NGOs to adopt advocacy training as part of their usual offerings. Work could be done with local educational institutions to develop courses on communications and advocacy for the private sector, including courses on policy analysis and legislative process. These activities may represent an attractive source of earnings for some NGOs and institutions.

Recommendation 7.3.3. Seek to institutionalize opportunities for public-private dialog.

Public-private dialogs supported by the project were essentially ad hoc events that may not have proceeded without project support. The question arises whether the same number or quality of events will occur once the project has ended, both from a perspective of initiative and the responsiveness of government to business groups. The evaluation team did not find much evidence of long-term mechanisms created to assure continuation of the public-private dialog precedent established by the project. One approach that might be taken is to promote adoption of laws and regulations of administrative procedure that require as part of any regulatory action pre-publication periods for proposed acts and opportunities for public participation. Modes of public participation can include mandatory comment periods in which stakeholders can submit their views in writing, but also, and preferably, generous provisions for public hearing in appropriate forums at which stakeholders may appear and engage in dialog with policy makers. Laws and regulations of administrative procedure can also require that public officials obtain public input through a menu of possible methods prior to submitting a proposal to cabinet or legislature for adoption.

At the local level, efforts could be made to induce provincial and local governments to institute permanent public-private dialog forums either in sectors through working groups or task forces or generally through regularly scheduled question and answer sessions for public officials. (In Vietnam, several ministries have made use of periodic on-line question and answer facilities during which designated public officers are on call to respond to inquiries and comments submitted electronically by citizens to a special interactive web site.)

7.4 Component 3: Business Enabling Environment

Recommendation 7.4.1. Perseverance in the legislative arena may ultimately pay off and ways should be found to continue support for the legislative initiatives promoted by MSME.
Efforts can be made to determine which ongoing projects of USAID and other development partners will pick up the tasks of monitoring and contributing to the development of the key legislative acts that remain on the table. Too much time and effort has been invested in those to allow them to go without champions.

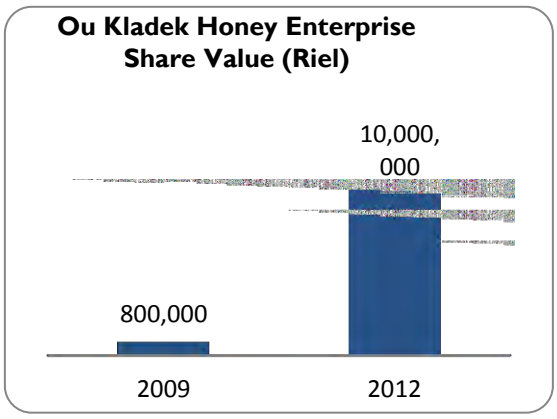
Recommendation 7.4.2 There may be a conflict of interest inherent in combining in a single project representation of interests of producers and development of new legislation; future projects might seek to put more space between development of advocacy skills and provision of technical guidance on legislative best practice and drafting.
For future consideration, projects that seek to both work with national officials on the basis of best practice principles while at the same time representing the specific interests of various trade groups may have an inherent conflict of interest. There is a clear distinction between the public interest and the interests of specific producer groups. This may color the perception of some officials of assistance offered by outside groups.

Recommendation 7.4.3. Further institutionalize opportunities for training in policy and legislative development.
To assure sustainability of training efforts made with government officials, steps might be taken to establish permanent training in key disciplines such as policy analysis (regulatory impact analysis, cost-benefit analysis, standard cost modeling, etc.) and legislative drafting with an agency of government responsible for human resources and professional development or with interested academic institutions. To emphasize the need for such continuing training, some consideration might be given to promoting with the RGC an administrative rule establishing mandatory RIA requirements for proposed new regulatory acts, based upon existing models in other countries. Such requirements are rapidly becoming standard practice in both developed and developing countries.

ANNEXES

ANNEX 1: TWO EXAMPLES OF HONEY ENTERPRISES BENEFITTING FROM MSME

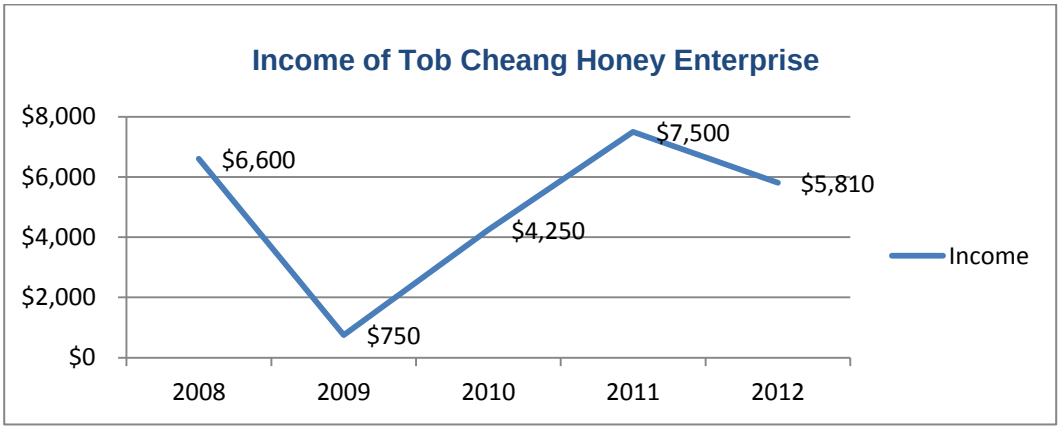
OuKladek Honey Enterprise Group: By 2012, the OuKladek Honey Enterprise Group (the Group) had grown to 40 member families (including 12 committee members), from the original 30 member families at its inception in 2009. Originally, each of the member families agreed to pay 20,000 riel to purchase a share in the group, totaling 800,000 riel, or approximately USD 200. With this money the group was able to invest in activities to promote the buying and selling of honey as well as extend small credits to members. The Group reported that by September 2012 the value of the total shares had increased to 10,000,000 riel, or approximately USD 2,500, of which USD 625 is kept as honey, and the rest in cash.



The Group is also engaged in buying honey from non-members for 12,500 riel per Kg (USD 3.16), somewhat less than the price paid to members. This activity helps contribute to their overall profits.

The Group is a solid example of an enterprise that has significantly increased its production and sales of honey over the course of the intervention and thus generated considerable and increasing profits. The committee is confident that going forward that they will be able to grow the enterprise more by increasing membership and further innovations.

Phnom Tob Cheang Honey Enterprise Group. The Honey Enterprise Group at Phnom Tob Cheang generates an income from buying honey from members and non-members and selling to traders.

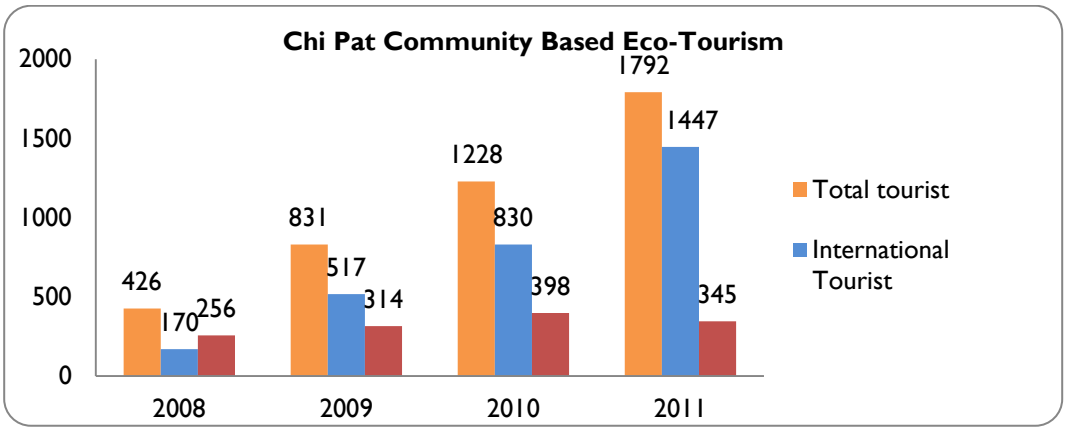


In 2008, the income from the Tob Cheang honey enterprise was $ 6,600. In 2009 the enterprise lost its main client and income decreased dramatically (see graph above). However, with MSME's assistance through trainings, cross provincial exposure trips, international exposure trips, workshops, business forums and trade fairs, the enterprise has recovered. In 2010, its income increased to $4,250 selling 500 liters of honey. In 2011, income peaked at $7,500 from selling 1000 liters. At the time of this report, however only 700 liters had been sold in 2012, for an income of $5,810. This was due to problems caused by forest economic land concessions granted by the RGC, an issue which continues to threaten such enterprises. In general, however, despite several setbacks caused by exogenous factors, the trend in production and income of the group appears to be positive.

ANNEX 2: EXAMPLES OF TWO COMMUNITY ECO-TOURISM SITES

Chi Pat Community Based Eco-Tourism Site. Chi Pat Community Based Eco-Tourism has increased the number of tourists visiting from year to year (Figure 1) and the number of tourists for 2012 is expected to be higher still, although these numbers have yet to be consolidated.

Figure 1: Growth in Eco-Tourism Visitors to Chi Pat Community

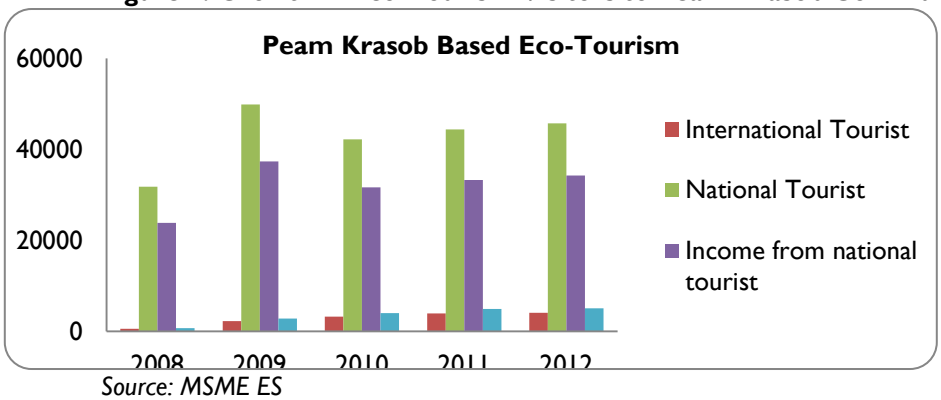


Source: MSME ES

On average, tourists in Chi Pat Community Eco-Tourism site stayed for 2 nights/3 days. As of October 2012, Chi Phat Community Based Eco-Tourism has received gross revenue of approximately USD 130,000. Part of this revenue has been re-invested into restaurant expansions, a bridge crossing the rivers, small houses for tourists, products such as handicrafts, and facilities improvements such tables, chairs, cabinets, cook materials, and administration costs. The balance after re-investments was approximately USD 30,000, which is kept in the bank. The Community Eco-Tourism Committee and its members will discuss on how best to invest this balance in order to derive the most profit in a well-managed and transparent manner. On the whole, the increase in the number of tourists to the Chi Pat Community Eco-Tourism site has resulted in increased incomes for the community every year. Local community members are hopeful that the number of tourists will continue to grow and this sentiment is echoed by the strategic plan of the Ministry of Tourism.

Peam Krasob Community Based Eco-Tourism. The Community Eco-Tourism leaders in Peam Krasob Community Based Eco-Tourism reported that the numbers of tourists have been increasing from year to year (Figure 2). The income derived from tourism in Peam Krasob has also improved significantly, from USD 23,840 in 2008 to USD 39,348 in 2012.[4]

Figure 2: Growth in Eco-Tourism Visitors to Peam Krasob Community



Source: MSME ES

[4] This based on the computation of service charges with 3000 riels equal to 0.75 $ per national and 5000 riels equal to 1.25 $ per international tourist.

In addition to the revenue generated by the direct MSME actors, additional revenue equal to 5% of the total is generated from other sources via a charge for services on the periphery of the Eco-Tourism site. These services include a vehicle parking lot and other boat owners.

The Peam Krasob community has also created a savings and credit fund for 10 groups, totaling 100 members. Each member is required to invest 20,000 to 30,000 riel in order to become a member. Loans can be taken out over a two-year period. The Peam Krasob Eco-Tourism site has provided an additional working capital to each group worth USD 1,000, as a loan. This mechanism has been helpful for some households because it has allowed them to make productive investments in boats and grocery shops. However, some investments, in fish or shells, did not produce good returns.

ANNEX 3: CASE STUDY: TRY YOSETH PIPE WATER LINE

Prior to MSME, Try Youseth served 850 clients who consumed 8,000 cubic meters of water per month during the dry season and half that amount during the rainy season. He and his family began the business in 2006 and, by 2008, had gradually increased the number of customers to 400, the maximum he could serve with his existing plant capacity of 15m³ per hour. Since the flow of untreated water was not the constraint, he constructed a storage tower and, during the rainy season when demand was low, filled it up so that he could attend more customers during the dry season. This investment of USD 12,000 exhausted the family's available capital for expansion.

Try's gross margin on the sale of piped water is estimated to have been about USD 14,000 before any salary for Try or his family. For example, if Try paid himself USD 60 per day, the net margin would be zero. Annual revenue per client was about USD 72 and operating expenses about USD 37, leaving a contribution margin per client of USD 35. Try Youseth accepted MSME's proposal and invested USD 33,000 in a new filtration facility and an estimated USD 3,000 in additional underground distribution piping to reach new neighborhoods. Approximately half of this investment was funded by Try and half by an MSME project grant. As a result of the investment, Try has been able to increase the number of clients served to 850.

After this investment, Try's gross margin on the sale of piped water is now estimated at USD 28,000, which is an effective doubling compared of his amount in 2008. Assuming the firm's overhead remained the same, all the increase in the gross margin may be deemed a return on the USD 36,000 of additional capital invested. This corresponds to an internal rate of return of approximately 30%.

In 2012, revenue per client dropped to USD 53 per year, suggesting that the new clientele is slightly poorer than the original group and includes fewer businesses. The average operating expenses per client also dropped to about USD 20. However, the contribution margin remains about the same at USD 33 per client per year. The reduction in operating expenses per client is probably achieved because many of the new clients tap into existing distribution networks that do not require additional investments in underground piping. Inspection of the area closest to the new filtration plant showed that only half of the households are connected to the network. However, the number of new clients since the end of the project has been low – about 20 - raising the issue of the connection charge.

Water utilities typically charged $50 per hook-up but one of the conditions of the MSME project's grant was that the utility should charge new clients only the cost of installing the meter ($15), tap ($1), piping ($4) plus labor ($5). The project wanted the utilities to understand that the (perceived as) high hook-up cost was the constraint limiting the number of new clients. Since the end of the project, Try raised the hook-up chargeback to $50. Whereas, after the expansion, the utility added clients at the rate of over one hundred a year while charging only $25 per hook-up, that rate has dropped now that the hook-up charge has doubled.

In summary, in the case of the Try Youseth water utility, the project's grant and requirement of a low hook-up charge resulted in a sizeable increase in the number of clients served with piped water, and return of about 30% on the capital invested (half of which was "donated' by the project). It seems unlikely that the Try Youseth Utility would have expanded without the project's assistance. First, he had insufficient capital of his own to finance the venture, and secondly he would not have lowered the hook-up charge as an inducement to less well-off clients to receive the service.

ANNEX 4: GUIDING QUESTIONS FOR INTERVIEWS

QUESTIONNAIRE TO MSME II/BEE PARTICIPANTS

1. Preliminary

1.1 Introduce the visitors
1.2 Ask after the family
1.3 What type of Eco-Tourism/ other value chain are you operating? Tell us the history of your operation.
1.4 How has the operation evolved over the years?
1.5 Do you have another line of business or work for a wage?
1.6 Why you decided to operate this kind of business and join the Community?

2. MSME Approach/ Methodology (Value Chain)

A. Production

2.1 When you started out, what kind of training did you receive?
2.2 Where did you get the training?
2.3 What types of "product and service" have you been providing?
2.4 How do you still need to improve your Eco-Tourism/Other Value Chain activities or other community operations?

B. Market

2.5 To whom do you sell your eco-tourism/other value chains community product and service?
2.6 Who helped you find the market or the buyer?
2.7 How does the price you receive now compare to the price you received before? How does the price *you* receive compare to that of your neighbors?

3. Livelihood Outcome/ Impact of the project

3.1 When you first started to earn a little extra, where did you spend it?
3.2 Are there any foods you buy now that you didn't before?
3.3 Did you re-invest any in the business? Example, please.
3.4 Have you made improvements to your home?
3.5 How else has your life changed now that you are better off?

4. Cost Analysis

4.1 Would you tell us the value of your sales today compared to the time before you started with the project?
[Assuming the answer indicates *higher* sales revenue:] Have your expenses also risen? If so, would you tell us about the increases?
4.2 [After calculating the net advantage—increase in sales minus increase in cost:]
So, you are better off by _____?
4.3 All in all, are you satisfied with this increase in gross margin?
4.4 What is your current ambition in this business?

5. Law reform

5.1 Do you ever run into problems with the law/prakas/degree or sub-degree?

Has the project helped you in any way?

5.2 Is there currently anything that needs to be done in relation to the law/prakas/degree or sub-degree? If so, what?

6. Cooperation with Government

6.1 With which levels of government have you been involved?

6.2 What support to does the government give and with what?

6.3 What the other private sectors have been co-operate in this?

6.4 How effective was the collaboration?

7. Project Sustainability

7.1 Are you still working with the project?

7.2 [Assuming the answer to 5.1 is "No."] Has anything changed in the way you work? [If so, what?]

7.3 What are the main things you will continue to do after the project ends?

7.4 Which things you used to do because of the project will stop doing?

7.5 As far as you know, will other people like you do the same?

7.6 If a problem comes up between you and other people in the value chain, how will you resolve it?

7.7 How many staff have you employed? And will you continue to employ the same number of staff or workers in future?

7.8 Gender participation, how many females and males participating in this value chain and what are their roles and responsibilities?

Project design and implementation

- Who did the situation analysis and need assessment? How did they do it? (check for participation of stakeholders)
- Do you think that the situation analysis and need assessment were well-analyzed?
- How did the project select value chains to intervene? (check for the participation of stakeholders/partners)
- How did you plan the interventions? Are there written up intervention plans?
- Was gender mainstreaming adequately incorporated into project design and implementation?
- Does project design take into account poor/very poor/extreme poor households and ethnic groups?
- What were the advantages and disadvantages you encountered in planning and implementing the interventions? (per value chain, component)
- Were there any changes in project implementation? What were the reasons? How did you address these?
- What do you think could have done better?
- Do you think the M&E system of the project was well-built, cost effective and well-functioned?
- Do you think information provided by M&E activities helped identify problems in due time? Are practical, feasible solutions proposed and applied?

Project management and staffing

- How would you describe the way you work with other stakeholders and partners? What do you think about it?
- How often do you meet? How do you share information?
- How were the planning, decision-making and responsibility allocating procedures?
- What do you think could have done better?
- Are there weaknesses in the team that should have been to be addressed? How?
- What training have you received? What did you think of it? Is other training required? Is there a plan for developing your skills?
- What do you think of the quality and frequency of backstopping?

COMPONENT 1: Strengthened selected value chains

- How have the project interventions affected business productivity, profits, volume and sales of the project actors?
  (Please pay attention to asking about those of *water/sanitation and biodiversity – honey, resin and eco-tourism* per request in the ToR)
- How appropriate have implementation approaches been in reaching the objectives of Component 1?
- 4 provinces have participated in the first MSME project since 2005, whereas 13 provinces joined later. Are there any significant differences in project results that can be attributed to the difference in time length of project interventions?
- To what extent do you think the project has helped reduce the sector imbalance in the Cambodian economy?
- How have the project interventions affected the poor, very poor and extreme poor households?
- How have the project interventions affected job creation in selected value chains?
- How has the project affected the access to credit of small businesses?
- To what extent have the project targets on the garment industry been achieved, with particular focus on woman workers?
- How have the project interventions made changes in natural resources management in project areas?
- How the project interventions improved access to *safe water* and *basic sanitation*?
- Please give examples of some good practices of Component 1.
- What are the unintended consequences and effects of Component 1?
- What do you think could have done better?

COMPONENT 2: Strengthening private sector voice

- What are the contributions of the project to the establishment, consolidation and self-reliance of private sector associations?
- How appropriate have the project interventions been in strengthening public-private dialogue mechanisms at *the national level*? And *the provincial level*?
- How appropriate the project interventions been in increasing private sector participation in policy, law and rule-making, especially around environmental sustainability?
- Please give examples of some good practices of Component 2.
- What are the unintended consequences and effects of Component 2?
- What do you think could have done better?

COMPONENT 3: Strengthening public sector to improve the business environment

- How effective was the project in enhancing the capacity of the private sector to improve Cambodia's business environment?
- How effective was the project in enhancing the capacity and knowledge of Cambodian officials (at national, provincial and local levels) to improve Cambodia's business environment?
- How did the project support the drafting laws, policies and regulations, particularly those related to WTO accession?
- Did the USAID policy against paying salary supplements to officials work?
- How effective was the project in facilitating the communication and information flows between the authority and the business community and vice versa?
- Please give examples of some good practices of Component 3.
- What are the unintended consequences and effects of Component 3?
- What do you think could have done better?

CROSS-CUTTING ISSUES: Gender (women: 80% of workforce in agriculture)

- How have the project interventions affected women entrepreneurs in selected value chains (in business results, workload, capacity building, women empowerment)?
- How have the project affected women farmers who participated in selected value chains (in livelihood improvement - income, workload, unpaid labor, capacity building, women empowerment)?
- Please give examples of some good practices of woman participation and gender empowerment in entrepreneurs and value chains.
- What do you think could have done better?

IV.3. Cost-effectiveness

- Are the results achieved being produced at an acceptable cost compared with alternative approaches?
- What alternative approaches exist which could achieve results with greater efficiency?

IV.4. Relevance

- Donor: How has the project linked to USAID's strategy in Cambodia?
- Government of Cambodia: How has the project been consistent with the development strategy, policies and priorities of the Government of Cambodia?
- Value chain actors: Was the project responsive to the changing needs of the actors and unforeseen opportunities and challenges (such as natural disasters and economic recession)?

IV.5. Sustainability and replication

- Was a clear sustainability and exit strategies developed and implemented?
- What evidence suggests that *the government and its ministries* have taken ownership of the project activities, tools and results and committed to continuing to implement and use them without the project support? Who will pay?

- What evidence suggests that *the private sector* have taken ownership of the project activities, tools and results and committed to continuing to implement and use them without the project support? Who will pay?
- What are the challenges to the sustainability of the project? Does the flow of public sector staff with enhanced capacity and skills to the private sector still continue?
- How has the project affected indirect beneficiaries? Any significant results or lessons from indirect beneficiaries?
- Have other donors/government taken advantage of and/or learned from the project approaches, tools and results?

IV.6. Donor coordination

- To what extend have each component coordinated, supported or complemented other USAID projects or those of other donors in the same project areas?
  (Trade SWAP, International Finance Corporation / Multi-Donor Trust Fund, the Asia Foundation, the European Commission, AusAID)
- What do you think could have done better?

ANNEX 5: LIST OF PEOPLE INTERVIEWED

No.	Name	Gender	Chain	Position	Address	Contact
1	Veng Nam	M	Aquaculture & Brick	Aquaculture and Brick producer	Andong Trang village, Sror Mo commune, Cherng Prey district, Kampong Cham province	
2	Keat Kheng	M	Aquaculture	Aquaculture and fingerling producer	Thmar Da village, Boeung Nay commune, Prey Chhor district, Kampong Cham province	
3	Sang Ly Hong	M	Swine	Swine producer	Andaung Chros village, Ampil commune, Kampong Siem district, Kampong Cham province	
4	Than Vanna	F	Swine	Swine producer	Veal Ri Koet village, Svay Teab commune, Chamkar Leu district, Kampong Cham province	
5	(unknown)	M	Swine	Swine producer (Ms. Than's husband)	Veal Ri Koet village, Svay Teab commune, Chamkar Leu district, Kampong Cham province	
6	Chhor Kimthy	M	Government	Director of Provincial animal health and production office	Kampong Thom town, Kampong Thom province	
7	Yib Prang	M	Aquaculture	Aquaculture and fingerling producer, Head of agricultural cooperative	Kok Thnout village, Kandeth commune, Prasath Bakorng district, Siem Reap province	
8	Som Phetra	M	Retailing	Market manager	Chas market, Siem Riep town, Siem Riep province	
9	Som Bunthol	M	Feed	Animal feed producer	Siem Riep town, Siem Riep province	
10	Bou Kok Hour	M	Swine	Swine producer and AI service provider	Slor Kram commune, Siem Riep town, Siem Riep prvince	
11	Ly Sovan	M	Swine	Swine producer, AI and animal drug service provider	Anglang village, Prolay commune, Stoung district, Kampong Thom province	

No.	Name	Gender	Chain	Position	Address	Contact
12	Chhor Srey Mom	F	Processing	Pork processor	Chher Tiel village, Kampong Chen Tbong commune, Stoung district, Kampong Thom province	
13	Kheung Rumcheub	M	Swine	Director of Sankor Mean Chey agriculture cooperative	Veal village, Sankor commune, Kampong Svay district, Kampong Thom province	
14	Nam Longheng	M	Swine	Chief Audit committee, Sankor Mean Chey agriculture cooperative	Veal village, Sankor commune, Kampong Svay district, Kampong Thom province	
15	Chhou Tri	M	Swine	Accountant, Sankor Mean Chey agriculture cooperative	Veal village, Sankor commune, Kampong Svay district, Kampong Thom province	
16	Tang Mengchhort	M	Swine	Secretary, Sankor Mean Chey agriculture cooperative	Veal village, Sankor commune, Kampong Svay district, Kampong Thom province	
17	Tung Naran	F	Swine	Sankor Mean Chey agriculture cooperative	Veal village, Sankor commune, Kampong Svay district, Kampong Thom province	
18	Mao Sitha	F	Swine	Sankor Mean Chey agriculture cooperative	Veal village, Sankor commune, Kampong Svay district, Kampong Thom province	
19	Sao Phloy	M	Swine	Sankor Mean Chey agriculture cooperative	Veal village, Sankor commune, Kampong Svay district, Kampong Thom province	
20	Chea Ho	M	Aquaculture	Aquaculture producer and processor	Stoeung Sen village, Sangkat Kraboav, Stoeung Sen town, Kampong Thom province	
21	Ki Chhin	M	Aquaculture	Aquaculture producer, Head of village	Kampong Prah village, Tang Krang commune, Ba Theay district, Kampong Cham province	
22	Sok Sim	M	Aquaculture	Aquaculture producer	Kampong Prah village, Tang Krang commune, Ba	

No.	Name	Gender	Chain	Position	Address	Contact
					Theay district, Kampong Cham province	
23	Mao Theara	F	Aquaculture	Aquaculture producer	Knol Keng village, Kong Chheay commune, O Rang Ov district, Kampong Cham province	
24	Sour Sen	M	Aquaculture	Aquaculture producer	Knol Keng village, Kong Chheay commune, O Rang Ov district, Kampong Cham province	
25	Khoeum Khim	F	Aquaculture	Aquaculture producer (Mr. Sour's wife)	Knol Keng village, Kong Chheay commune, O Rang Ov district, Kampong Cham province	
26	Hong Kea Peng	M	Aquaculture	Aquaculture trader	Mean village, Mean commune, Prey Chhor district, Kampong Cham province	
27	Real Moly	F	Aquaculture	Aquaculture trader	Chrey Veanh village, Prey Tho Tuang commune, Prey Chhor district, Kampong Cham province	
28	Kong Putthearith	M	Government	Director of Provincial fishery office	Kampong Cham town, Kampong Cham province	
29	Sin Cham Roeun	M	Aquaculture	Aquaculture and fingerling producer, Head of community fish production group	Chea Klang village, Chea Klang commune, Svay Anthor district, Prey Veng province	
30	Thim Srey Pov	F	Aquaculture	Aquaculture and fingerling producer (Mr. Sin's wife)	Chea Klang village, Chea Klang commune, Svay Anthor district, Prey Veng province	
31	Mai Muot	M	Aquaculture	Aquaculture producer	Svay Athor village, Svay Anthor commune, Svay Anthor district, Prey Veng province	
32	Chum Chandara	M	Government	Director of Provincial animal health and production office	Prey Vieng town, Prey Veng province	

No.	Name	Gender	Chain	Position	Address	Contact
33	Oun Sinath	M	Government	Director of Provincial fishery office	Prey Vieng town, Prey Veng province	
34	Kan Bun Varun	M	Government	Head of Fisher production division	Prey Vieng town, Prey Veng province	
35	On Ta Moun	M	Latrine	Head of district rural development office	Ro Meas Hek district, Svay Rieng province	
36	Dum Sam Oun	M	Latrine	Chairman of commune	Ko Ki commune, Ro Meas Hek district, Svay Rieng province	
37	Doung Hom	M	Latrine	Latrine producer	Kro Nhung village, Muk Da commune, Ro Meas Hek district, Svay Rieng province	
38	Sin Sophon	F	Latrine	Latrine producer (Mr. Doung's wife)	Kro Nhung village, Muk Da commune, Ro Meas Hek district, Svay Rieng province	
39	Chum Kum	M	Latrine	Latrine user, Head of village	Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province	
40	Som Sarun	F	Latrine	Latrine user	Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province	
41	Preap Sam An	M	Latrine	Latrine user	Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province	
42	Doung Moun	M	Latrine	Latrine user	Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province	
43	Veung Lon	F	Latrine	Latrine user	Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province	

No.	Name	Gender	Chain	Position	Address	Contact
44	Veung Bo	F	Latrine	Latrine user	Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province	
45	Meas Roeung	F	Latrine	Latrine user	Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province	
46	Ton Tol	F	Latrine	Latrine user	Ko Ki village, Ko Ki commune, Ro Meas Hek district, Svay Rieng province	
47	Siv Hout	M	Water	Water service provider, Director general of Neak Loeung water treatment plant	Neak Leung district, Prey Veng province	
48	Cordell Jacks	M	Latrine	WASH program co-director of IDE	Street 19BT, Phnom Penh city	
49	Tamara Baker	F	Latrine	WASH program co-director of IDE	Street 19BT, Phnom Penh city	
50	Sam Sathya	M	Government	Deputy director of Administration and litigation division, National fishery administration office	Preah Norodom street, Phnom Penh city	
51	Heng Mom	F	Brick and Tile	Brick and Tile Producer	Thmey village, Kien Sangke commune, Sotnikum district, Siem Reap province	
52	Be Rithy	M	Brick and Tile	Brick and Tile Producer	Kampong Thom village, Kampong Rotes commune, Stoeung Sen district, Kampong Thom province	
53	Ly Kok Eng	M	Water	Water Service Provider	Boeung village, Prek Kork commune, Stoeung Trang district, Kampong Cham province	

No.	Name	Gender	Chain	Position	Address	Contact
54	Poung Ly	F	Water	Water User	Boeung village, Prek Kork commune, Stoeung Trang district, Kampong Cham province	
55	Suon Dy	M	Government	Director of Provincial Department of Industry, Mine and Energy	Kampong Cham province	
56	Chhay Eng	M	Brick and Tile	Producer	Pou Chrey village, Svay Antor commune, Svay Antor district, Prey Veng province	
57	Seng Heng	M	Latrine	Latrine Producer	Sras Vong village, Svay Rieng commune, Svay Rieng district, Svay Rieng province	
58	Ros Heng	F	Latrine	Latrine User	Tuol Trabek village, Prasout commune, Svay Tieb district, Svay Rieng province	
59	Ky Sarun	M	Latrine	Latrine User	Ro village, Nhor commune, Kampong Ro district, Svay Rieng province	
60	Puth Same	M	Latrine	Latrine User	Pou Vong village, Sout commune, Svay Tieb district, Svay Rieng province	
61	Tuon Sam Oeun	F	Latrine	Latrine User	Pou Vong village, Sout commune, Svay Tieb district, Svay Rieng province	
62	Sam Sarun Ok Path	M M	Government	Rural Development Office Commune Leader	Svay Tieb district Prasout commune	
63	Yem Phalla	F	Water	Water User	Oddam village, Prek Ksay Kor commune, Piem Ror district, Prey Veng province	

No.	Name	Gender	Chain	Position	Address	Contact
64	Kuon Key	F	Water	Water User	Oddam village, Prek Ksay Kor commune, Piem Ror district, Prey Veng province	

ANNEX 6: EVALUATION SCHEDULE

◄ Aug 2012 | ~ October ~ | Oct 2012 ►

Sun	Mon	Tue	Wed	Thu	Fri	Sat
26	27	28	29	30	31	
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16 Review Materials	17 Review Materials	18 Meetings & Interviews with Project Implementers Phnom Penh	19 Review Materials Evaluation Design, Work Plan & Timeline Preparation	20
21	22 Team Prepares Preliminary Approach and Work Plan Phnom Penh	23 In-Briefing with Mission Director Phnom Penh Travel to Kampong Cham	24 Meetings & Interviews with Stakeholders Kampong Cham	25 Meetings & Interviews with Stakeholders Team 1: Svay Rieng Team 2: Siem Reap	26 Meetings & Interviews with Stakeholders Team 1: Svay Rieng Team 2: Siem Reap Travel to Phnom Penh	27 Data Analysis

◄ Sept 2012	~ October-November ~					Nov 2012 ►
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
28	29 Data Analysis and Document Research Public Holiday in Cambodia	30 Data Analysis and Document Research Public Holiday in Cambodia	31 Data Analysis and Document Research	1 Data Analysis and Document Research	2 Data Analysis and Document Research	3
4	5 **Submit Inception Report**	6 Meetings & Interviews with Brick/Tile and Garments/Textile Stakeholders	7 Meetings & Interviews with Brick/Tile and Garments/Textile Stakeholders	8 Meetings & Interviews with Brick/Tile and Garments/Textile Stakeholders	9 Meetings & Interviews with Brick/Tile and Garments/Textile Stakeholders	10 Analysis of Data Collected in the Field
11	12 Meetings & Interviews for Honey, Resin, Ecotourism, and Water and Latrines	13 Meetings & Interviews for Honey, Resin, Ecotourism, and Water and Latrines	14 Meetings & Interviews for Honey, Resin, Ecotourism, and Water and Latrines	15 Meetings & Interviews for Honey, Resin, Ecotourism, and Water and Latrines	16 Meetings & Interviews for Honey, Resin, Ecotourism, and Water and Latrines	17 Analysis of Data Collected in the Field
18	19 Meetings & Interviews with Stakeholders Phnom Penh	20 Meetings & Interviews with Stakeholders Phnom Penh	21 Meetings & Interviews with Stakeholders Phnom Penh	22 Meetings & Interviews with Stakeholders Phnom Penh	23 Meetings & Interviews with Stakeholders Phnom Penh	24
25	26	27	28	29	30	1

◄ Oct 2012	~ December ~					Dec 2012 ►
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
2	**3**	**4**	**5**	**6** Prepare Draft Report	**7** Prepare Draft Report	**8** Prepare Draft Report
9 Prepare Draft Report	**10** **Submit Draft Evaluation Report to USAID**	**11**	**12**	**13**	**14**	**15**
16	**17**	**18**	**19**	**20** Integrating Comments	**21** Integrating Comments	**22**
23	**24** Integrating Comments	**25**	**26** **Submit Final Report to USAID**	**27**	**28**	**29**
30	**31**	1	2	3	4	5

ANNEX 7: EVALUATION SCOPE OF WORK

SECTION C – STATEMENT OF WORK

I. Evaluation purposes and use

USAID/Cambodia intends to conduct a final performance evaluation of its Cambodia Micro Small and Medium Enterprise 2 / Business Enabling Environment (MSME 2 / BEE) project. This evaluation is meant to help management answer the following questions: (1) how have the interventions improved Cambodia's business-enabling environment by improving business productivity in selected value chains; increasing the voice of business in policymaking and improving the RGC's ability to respond to the private sector in reforming the business environment; and (2) what lesson(s) can be identified for future programming?

The audience of the evaluation report will be the USAID/Cambodia Mission, especially the Food Security & Environment Office (FSE) and USAID/Cambodia Senior Management; USAID/E3; and DAI/Nathan Group. An executive summary, findings and recommendations will be provided to the Office of the Council of Ministers of the Cambodia government and development partners working in Cambodia. The evaluation report will inform future programming at USAID/Cambodia as well as potentially provide lessons learned for economic growth projects around the world.

II. Background

Although Cambodia has experienced strong growth since 1999, the economy is fragile and undiversified. Growth was fueled by garment exports, tourism and urban construction, leaving the economy vulnerable to external factors. In addition, the benefits of growth are concentrated in a few urban centers and not rural areas, where most of the population lives. The economy is largely based on micro, small and medium enterprises (MSME) in the informal sector that are hampered by a poor business-enabling environment, endemic smuggling, lack of transparent regulation and few business-development service providers. These MSMEs have difficulty competing for domestic market share with products from neighboring countries.

USAID's Cambodia Micro Small and Medium Enterprise 2 / Business Enabling Environment (MSME 2 / BEE) program is helping MSMEs in rural areas increase their productivity and enhance the business-enabling environment. The program's focus is on improving selected value chains; strengthening the voice of the private sector to better articulate its views on trade and investment; and improving the government's capacity to promulgate and implement policy reforms and address regulatory constraints on trade and investment. USAID works in 12 provinces and seven value chains: swine, aquaculture, brick and tile, wild honey, resin, water and sanitation, and eco-tourism.
Please see annex for a detailed program description.

III. References

- MSME 2/BEE Mid-term evaluation report
- Quarterly reports
- Cambodia MSME web site - http://www.cambodiamsme.org/

IV. EVALUATION QUESTIONS

The evaluation will address the following questions:

1. How have the project interventions increased business productivity, profits, volume and/or sales of the MSME clients?
2. In the case of experimental/innovative interventions (in water/sanitation and biodiversity – honey, resin, and eco-tourism), have profits or productivity or volume or sales of these targeted value chains improved?
3. How effective have the project's interventions been in strengthening public-private dialogue mechanisms at the national and provincial levels?
4. How effective was the project in equipping the different players (private sector as well as RGC officials) with the ability to improve Cambodia's business environment?
5. Though not required, to what extents have the interventions assisted women entrepreneurs (as sole owners or as co-owners with family) and the poor/very poor/extreme poor household livelihoods within project target areas? How far reaching were the gains made as a result of value chain improvements?
6. What considerations are in place for sustainability of the project's (interventions)?
7. What is the approximate dollar value benefit on Cambodia's private sector of key interventions?

V. EVALUATION PRODUCTS

The evaluation team will propose the evaluation design and methodology, data collection and data analysis methods that best answer the evaluation purpose and questions in section I and III.

A. DELIVERABLES

Inception Report: The evaluation team leader will prepare an inception report summarizing what is known from reviewing existing data mentioned in I(F) and literature reviews and submit to Evaluation Contracting Officer Representative(COR) at USAID/Cambodia for approval no later than five working days after the signing of the contract.

Evaluation Plan: The evaluation team leader will prepare a written evaluation plan that details proposed evaluation design and methodology, data collection, data analysis method and a detailed schedule and will submit a soft copy to the Evaluation COR at USAID/Cambodia for approval prior to departing for Cambodia.

In-briefing with USAID: The evaluation team will have courtesy calls with the USAID/Cambodia Mission Director and the management team of the Office of Food Security & Environment (FSE).

Preliminary Findings Report: The evaluation team will submit a soft copy of the report on the preliminary findings and conclusion to the Evaluation COR.

Debriefing with USAID: The evaluation team will present the major finding(s) of the evaluation to USAID/Cambodia staff through a PowerPoint presentation after submission of the draft report and before departing Cambodia (a soft copy of the PowerPoint will be presented to the Evaluation COR at USAID/Cambodia). The presentation will include findings, conclusions and recommendations.

Draft Evaluation Report: A soft copy of the draft report of the evaluation findings and recommendations shall be submitted to the evaluation COR of USAID/Cambodia prior to departing

Cambodia. The draft evaluation should clearly describe findings, conclusions and recommendations. USAID/Cambodia will have 10 working days to provide comments.

Final Evaluation Report: The evaluation team will submit a soft copy of the final report that incorporates comments from USAID/Cambodia no later than five working days after receiving comments from USAID/Cambodia.

B. REPORTING REQUIREMENTS

- The evaluation report should represent a thoughtful, well-researched and well organized effort to objectively evaluate what worked in the project, what did not and why.
- The evaluation report shall address all evaluation questions included in this scope of work.
- The evaluation report should include the scope of work as an annex. All modifications to the scope of work, whether in technical requirements, evaluation questions, evaluation team composition, methodology or timeline need to be agreed upon in writing by Evaluation COR.
- Evaluation methodology shall be explained in detail and all tools used in conducting the evaluation such as questionnaires, checklists and discussion guides will be included in an annex to the final report.
- Evaluation findings will assess outcomes and impact on males and females.
- Limitations to the evaluation shall be disclosed in the report, with particular attention to the limitations associated with the evaluation methodology (selection bias, recall bias, etc.)
- Evaluation findings should be presented as analyzed facts, evidence and data and not based on anecdotes, hearsay or the compilation of people opinions. Finding should be specific, concise and supported by strong quantitative or qualitative evidence.
- Sources of information need to be properly identified and listed in an annex.
- Recommendations need to be supported by a specific set of findings.
- Recommendations should be action-oriented, practical and specific, with defined responsibility for the action.

The evaluation report must not exceed 40 pages in length excluding annexes. The format of the evaluation report is as follow (USAID's Evaluation Policy, http://www.usaid.gov/evaluation/USAIDEvaluationPolicy.pdf, serves as guidance):

1. **Executive Summary –** Concisely state the most salient findings and recommendations (1-3 pages)
2. **Table of Contents** (1 page)
3. **Introduction –** Purpose, audience, and synopsis of task (1 page)
4. **Background –** Brief overview of the project (2 pages)
5. **Methodology –** Evaluation methodology, data collection, data analysis method, and constraints if any. (1 – 2 pages)
6. **Findings –** Qualitative and/or quantitative based findings
7. **Conclusion –** Conclusion based on findings
8. **Recommendation and Lessons Learned –** Supported by findings and conclusion
9. **Reference –** Including bibliographical documentation, meeting, interviews etc.
10. **Annexes –** Annexes that document the evaluation methods, data collection and data analysis methods, interview lists and tables – should be succinct, pertinent and readable

VI. TEAM COMPOSITION

The evaluation team will consist of a team leader, a technical expert, a local economist and a local logistician/interpreter. A representative from USAID/Cambodia and/or USAID/E3 may participate as well in site visits, meetings, and editing/reviewing of the deliverables.

1. ***Team Leader*** should be a senior evaluation specialist with appropriate education relevant to business, development, economics or a related subject. S/he should have at least five years senior level experience conducting qualitative and quantitative evaluations and strong knowledge. Excellent English oral and written skills are required. S/he should have proven experience leading evaluation teams and preparing high quality reports. S/he should have proven experience designing evaluation methodology.

2. ***Technical Expert*** should have extensive experience working with value chain projects in developing countries. Excellent English oral and written skills are required. S/he should have extensive knowledge of the business and economic situation in Cambodia.

3. ***Local Economist*** should have post-graduate degree in economics/business or related subject. S/he should have a strong knowledge of the Cambodian business environment. Experience conducting quantitative and qualitative research/evaluation is required.

4. ***Local logistician/interpreter, on part-time basis***. S/he should have excellent English-Khmer-English translation/interpretation skills.

VII. EVALUATION MANAGEMENT

A. LOGISTICS

USAID/Cambodia will:

- Provide overall direction to the evaluation team;
- Provide documents mentioned in section I(F);
- Organize In-briefing and debriefing;
- Assist in arranging meeting with contractor and sub-contractors of MSME project; ensure that USAID/Cambodia personnel will be made available to the evaluation team for consultations regarding sources and technical issues, before and during the evaluation process;

The evaluation team will:

- Arrange meetings necessary for the evaluation; meetings to take place during the first week in-country should be arranged and scheduled prior to arrival;
- Arrange vehicle rental and driver for site visits;
- Arrange working space and equipment necessary for the evaluation; and
- Arrange computers, internet access, printing, and photocopying.

B. SCHEDULING

The evaluation is to be carried out over a period of five working weeks. Evaluation in-country should begin on/around August 20, 2012.

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C. LEVEL OF EFFORT

Task	Week 1						Week 2						Week 3						Week 4						Week 5						Week 6						Week 7						Week 8					
	M	T	W	T	F	S	M	T	W	T	F	S	M	T	W	T	F	S	M	T	W	T	F	S	M	T	W	T	F	S	M	T	W	T	F	S	M	T	W	T	F	S	M	T	W	T	F	S
Prepare and submit Inception Report & Desk Review	**x**	x	x	x	**x**																																										
Prepare and submit Evaluation Plan	**x**	x	x	x	**x**																																											
Travel to Cambodia						x																																										
In-briefing with USAID/Cambodia							x																																									
Interview(s) in Phnom Penh& Field Works							x	x	x	x	x	X	x	x	x	x	x	x	x	x	x	x																										
Data Analysis										x	x	x	x	x	x	x	x	x	x	x	x																											
Submit mid-point findings																		x																													
Consolidate Findings																					x	x	x	x																							
Prepare Preliminary Findings																									x	x																					
Submit Preliminary to USAID/Cambodia																											x																				
Debriefing																												x																			
Prepare Draft Report																							x	x	x	x	x	x	x																	
Submit Draft Report																													x																		
Incorporate Comments																																														x	x	x	x	X	
Submit Final Report																																																**x**

ANNEX 8: MSME FINAL SURVEY

USAID
FROM THE AMERICAN PEOPLE

Cambodia MSME 2/BEE
Final Survey Evaluation Report

CONTRACT NO. EEM-I-00-07-00009-00/04

TASK ORDER NO. 04

This report was produced by Development Alternatives, Inc. for review by the United States Agency for International Development.

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Cambodia MSME 2/BEE
Final Survey Evaluation Report

Contract No. EEM-I-00-07-00009-00/04

Task Order No. 04

September 2012

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Acronyms and Abbreviations

AI	Artificial Insemination
BEE	Business Enabling Environment
BMA	Business Membership Association
BMO	Business Membership Organization
CTD	Crossroads to Development
CWG	Community Working Groups
DAI	Development Alternatives, Inc.
DTS	Development and Training Services, Inc.
EMC	Emerging Markets Consulting
FFI	Face-to-face interview
FGD	Focus Group Discussion
FT	Full-Time
IRL	Indochina Research, Ltd.
ISP	Input Service Provider
KII	Key informant interviews
M&E	Monitoring and Evaluation
MAFF	Ministry of Agriculture, Fisheries and Forestry
MOC	Ministry of Commerce
MSME	Micro, Small and Medium Enterprise
NGO	Non-Government Organizations
PAT	Poverty Assessment Tool
PMEP	Project Performance Monitoring and Evaluation Plan
PC	Percentage Change
PT	Part-time
RA	Research Assistant
MSME	Micro, Small and Medium-sized Enterprises
STD	Standard Deviation
TAMIS	Technical and Administrative Management System
ToR	Terms of Reference
USAID	United States Agency for International Development
USD	United States Dollar

Executive Summary

The USAID MSME Project is implemented by Development Alternatives, Inc. (DAI) and operates in 17 provinces of Cambodia. Its strategic approach is to improve firm productivity, to build relationships across value chains, and increase enterprise investments to improve competitiveness. The project assists enterprises to become and remain cost and quality competitive relative to other national and regional firms, while improving capabilities to provide a consistent supply of quality products to local and national markets. The project acts as a facilitator of business membership organizations (BMOs) among its clients, to develop service-based cooperatives, working groups, and associations that facilitate delivery of technical and business training and help lobby for improvements to the business enabling environment; making businesses more competitive and profitable.

The final evaluation of the MSME Project was completed in August 2012. DAI commissioned an evaluation survey to Crossroads to Development through a competitive bidding process to examine project performance for the swine, aquaculture and brick-and-tile value chains, as set forth in the Project Performance Monitoring and Evaluation Plan (PMEP). These primary performance indicators included: percentage change in value of sales; percentage change in income; percentage change in investments. The qualitative and quantitative impacts of project activities, from 2008 to 2012, were assessed. The evaluation also looked into how objectives were met for strengthening private sector voice and strengthening the public sector to improve the business environment.

The evaluation survey used quantitative and qualitative data-gathering methods to gather information on the performance of the three aforementioned value chains. An enterprise survey was conducted among 793 enterprise owners, along with focus group discussions (FGDs) with enterprises, and key informant interviews with government agencies business association members, and individual entrepreneurs, for case study purposes. For purposes of comparison, the design of the information-gathering methodology followed that of the baseline study, conducted for the project in 2009, and the mid-term review conducted in 2010.

Strengthening Value Chains

At the time of this study, there were 4,647 project-assisted enterprises in the swine value chain, comprising 84% of the total enterprises assisted by the MSME Project. During the baseline, the MSME Project assisted swine producers, traders and input suppliers; however, project-assisted value chain actors expanded to include processors, retailers, and wholesalers as well. The sample size for this final evaluation survey included 550 swine producers, 39 input suppliers, 26 veterinarians, 8 traders, and 2 processors; for a total of 625 respondents, corresponding to 13% of the total client base found within DAI's Technical and Administrative Management Information System (TAMIS).

Swine Value Chain Producers

General trends among swine producers showed that the cost of investments have gone down by 30% from the baseline, which may be indicative of prior investment in permanent and semi-permanent assets (Table 13). Investment items indicated that producers adopted learned technologies after receiving support from the MSME Project, mainly through embedded technical training. Significant investment included 9% of producers now using feed mills, 10%

using artificial insemination (AI), and 13% using biogas fuel and expanding the number of pigpens to accommodate additional stock. On the other hand, the reduced area, or size of pigpens, is indicative of more micro-producers joining the project after the baseline.

While investment detracted, the mean volume of annual pig production, per swine producer, increased by 60% from the baseline; more specifically, during the baseline, producers averaged only 30 heads per year, compared to 48 heads at end-line (Table 14).

Productivity, in terms of live-weight, also improved, with average weight at sale reaching 72 kg, compared to the previous baseline figure of 66 kg. Productivity, in terms of the required days to raise a feeder pig to 80-90 kg live-weight, also decreased by 10%: currently taking only 141 days, compared to 157 days measured at the baseline. Better breeding stock and improved feeding systems were also noted, apparently as a result of embedded technical training; current breeding stocks include the domestic hybrid *Hai Nam*, *Kandal* and *Kampot* breeds, with Yorkshire and Duroc stock imported from input suppliers working with the project. Interviews validated that breeding stock has improved and producers have, on average, cut down on the number of days to reach peak live-weight by learning modern techniques from the MSME Project. Many producers (43%) did not report stock mortality, although 57% experienced stock mortality due to Porcine Reproductive and Respiratory Syndrome (PRRS) outbreak (or, more commonly known as "*blue ear disease*"), from 2010 to 2011.

Naturally, along with higher volumes of sale, pig production costs also increased by 61% compared to baseline figures (i.e., nearly identical to the 60% increase in sales volume), with a mean enterprise cost of USD 2,855 (Table 15 15). New costs went hand-in-hand with the increased stock. Additional costs resulted from the increased use of commercial feed (95% of producers), materials for home-produced feed (66%), vaccines (87%), veterinary services (20%), and medicine (64%). While construed as increased costs, these line items are indicative of appropriate production methods learned from MSME Project-supported embedded technical training; in effect, illustrating the outcome that producers were able to go beyond training, and incorporate methods in business practices. There was also an increased usage of electricity, feed mill machinery and transport vehicles, which were said to be reinvestments of earned profits from the sale of stock.

The volume of sales grew from a reported 25 heads at baseline to 37 heads at end-line; or, a 49% rise in mean volume (Table 17). The price for all pig types increased by a mean of 30.5%, from USD 102 per head during the baseline to USD 133 per head at the end-line (Table 17). More specifically, the mean price of boars increased significantly, from USD 175 to USD 309; the mean price of sows jumped from USD 134 to USD 276; the mean price of fattening pigs improved from USD 133 to USD 194; and, the mean price of piglets moved from USD 34 to USD 48. This depicts an overall improvement across the spectrum of pig production for project-supported enterprises; consequently, due to better production and productivity, and resulting in improved sales.

This is also indicative of increased prices, but also of higher live-weight at sale. More methodically, income per producer less the cost of production equates to USD 2,098. This is 169% higher than the baseline figure of USD 780 (Table 19). In addition to other household income earning activities, the daily supplemental earnings of USD 5.75 per producer would place these households significantly above the poverty threshold. Moreover, as production is also

through family labor, activities accounted for a mean value of 1.2 family jobs created per enterprise.

Summary of Indicators for Swine Value Chain Producers

INDICATOR	Baseline		End-line		% Change	
	Mean	Total	Mean	Total	Mean	Total
PC in value of sales of enterprise (USD/%)	2,555	4,113,550	4,965	19,110,093	94.32	364.56
PC in Cost of Business (USD/%)	1,775	2,857,750	2,855	10,989,164	60.85	284.54
PC in Income (USD/%)	780	1,255,800	2,098	8,075,433	168.98	543.05
PC in Volume of Production (units/%)	30	48,300	48.1	185,137	60.33	283.31
PC in Number of Full-time Equivalent jobs created	2.5	4,025	1.2	4,619	-52.00	14.75
PC in Investments (USD/%)	4,712	7,586,320	3,254	12,525,454	-30.94	65.11
TOTAL ENTERPRISES ASSISTED BY MSME	1,610		3,849			

***Note: For PMEP Summary Indicators, mean figures were derived from the End-line Survey. Total is the product of the mean and the number of MSME clients per value chain actor.**

Swine Value Chain Traders and Input and Service Provider (ISP)

MSME project-supported traders increased from four to 28 during the project's span; with eight interviewed during the end-line survey. The number of swine traded, per enterprise, increased significantly from baseline to end-line, by a mean of 301% (464% median); or, a mean total volume of 2,069 heads (1,015 median). The mean value of sales per trader also increased by 1,639% (809% median), and may be attributed to the marked increase in the mean value per head for all pig types, as evidenced by pig producer figures, coupled by the increased volume of pigs traded. With increased activity, the cost of business per trader increased by 1,702% (601% median), valued at a mean of USD 320,212 (USD 131,147 median) for trade stock purchased (Table 28). Trader income is also considerably higher than the baseline: a 1,246% increase, for a mean income of USD 38,141. The primary investments for traders were transport vehicles, at a mean value of USD 1,054, which is 82% higher than the baseline.

The MSME Project worked with 443 veterinarians and 73 input suppliers, an increase from the original 298 during the baseline (Table 5 and Table 6). Input supplies include vaccines and vaccinations, treatment services and medicines, AI services and products/materials, feed and ingredients, pig pen construction and materials, and technical advisory services. In line with increases experienced by other value chain actors, higher volume of sales for ISPS were noted: feed sales increased by 433%, feed ingredients were included as a new sales item due to increased demand, AI sales soared to 7,361% and AI services grew by 2,735% (Table 30).

There was noticeable growth in the value of vaccination, feed, medicine and treatment services – proof of swine producers' usage of modern techniques learned from the MSME Project.

Veterinarian service volume of sales grew by 488% and other services (such as storage, transport and equipment) registered a 1,364% increase. The value of sales for veterinarians increased by 615% from the baseline, and the addition of feed ingredients as sales items increase ISP sales by 1,765% (Table 32). As expected, the large demand for these products and services translated to increased costs of business. However, the ISP income also showed a sizable increase. Their common investments increased in land, storage, equipment and transport assets, with mean value of USD 14,838, or a 39% increase in investments compared to the baseline (Table 33).

Summary of Indicators for Swine Value Chain Traders and ISP

INDICATOR	Actors	Baseline		End-line		% Change	
		Mean	Total	Mean	Total	Mean	Total
PC in value of sales of enterprise (USD/ %)	Trader	20,598	82,392	358,353	10,033,892	1,640	12,078
	Veterinarian	808	194,728	5,781	2,560,868	615	1,215
	Input Supplier	16,054	915,078	299,412	21,857,109	1,765	2,289
PC in Cost of Business (USD/ %)	Trader	17,764	71,056	320,212	8,965,943	1,702	12,518
	Veterinarian	483	116,403.00	1,565	693,273	224	496
	Input Supplier	14,817	844,569	278,478	20,328,883	1,779	2,307
PC in Income (USD/ %)	Trader	2,834	11,336	38,141	1,067,949	1,246	9,321
	Veterinarian	325	78,325.00	1,440	637,978	343	714.5
	Input Supplier	1,236	70,452	2,970	216,810	140	207.7
PC in Volume of Production (units/%)	Trader	516	2,064	2,069	57,943	301	2,707
	Veterinarian	1,242	299,322	7,300	3,233,900	487.76	980.41
	Input Supplier	37,879	2,159,103	554,488	40,477,653	1,363.8	1,774.74
PC in Investments (USD/ %)	Trader	580	2,320	1,054	29,520	81.77	1,172.39
	Veterinarian	1,388	334,508	826	365,785	-40.51	9.35
	Input Supplier	10,596	609,672	14,838	1,083,150	40.0	77.66

Fish Value Chain Producers

At the time of the end-line survey, the MSME Project was assisting 773 aquaculture clients, including 199 women; fish producers comprised 98% of the total, and 2% were fish traders. This was more than double that of the baseline, which reported 396 clients. The evaluation surveyed 153 actors: 150 producers and 3 traders; or, 20% of the total aquaculture clients listed in TAMIS.

For aquaculture producers, the mean value of investments decreased compared to the baseline, from a mean value of USD 12,028 to USD 5,644; mainly attributed to continued use of prior investments (Table 47). However, it was noted that working capital for stock procurement and production grew, as indicated by increased stock being produced, including the construction of new fish ponds, renting of land for fish pond excavation, new culture methods such as fish cages or *hapa* (among 25% of producers), and improved innovations such as water tanks, motorized granulators, and feed mixers (noted among 10% of producers), as well as the use of water pumps (among 59% of producers).

Fish producers generally raise one or more fish species: 81% raise *Pangasisus*, 53% raise Carp, and 40% raise Tilapia. The volume of *Pangasius* production increased by 467% from the baseline, while Carp production increased by 385% (Table 48). Production of these two species is due to high demand in the local market, as well as their fast maturation. Tilapia production decreased by 1.2%, as enterprises experienced slower growth, specific size requirements by traders and the species' susceptibility to "jumping disease" (Trichodina spp.). The volume of production for all species grew by 2,022%, or a mean volume of 91,140 heads; both attributable to increased volume of production.

The weight of matured Tilapia and *Pangasius*, before sale, actually decreased due to higher market demand for smaller fish, i.e. selling before peak maturity. However, this is not the case for Carp, where the price of fingerlings now costs more; therefore, producers aim for full maturity for the price to be higher. For all three species, production time increased by 0.5 months, up to 2.1 months from reported baseline figures. Moreover, fish farmers conduct partial harvesting or wait for higher prices, as well as selling fish prematurely when prices are high. This system moves stock from the pond to market, allowing more space for remaining fish to grow at a faster rate.

Fish mortality indicators are higher: 1% for *Pangasius*, 6% for Tilapia, and 9% for Carp, but rates are not significant enough to affect high stocking. This is attributed to a number of factors: unregulated water temperature; "jumping disease" for Tilapia; and, the increase of plankton and bacteria in water, particularly when water levels and quality are low and temperatures increase.

The value of sales for mature *Pangasius* rose to 603%, or a mean of USD 12,023, while mature Carp rose 294% to a mean value of USD 2,200; both consistent with increases in volume of production. With the removal of outliers, data would still validate an increase in the value of sales: 209% for *Pangasius* and 129% for Carp. Sales of fingerlings for *Pangasius* and Carp increased simultaneously, while the sale of Tilapia fingerlings decreased. Overall, the increase in value of sales equated to 1,066%, with a mean value of USD 22,703 against the baseline value of USD 1,947. This could be attributed to increases in the volume of products sold, as prices across all species have remained relatively stable since the baseline.

Efficient business management practices among producers were an outcome of the project's technical support, embedded technical training and shared practices between clients. Prior to project support, producers bought fingerlings based on the number of heads or by piece; whereas, now, project-assisted enterprises procure stock by weight. This is attributable to increased production, as it is easier to procure and manage larger stocks by weight rather than head, and practices have evolved to lessen fingerling mortality due to stress. The raising of stunted Carp has also been discouraged, with 1-3% of producers continuing this practice, as most have now shifted to raising fingerlings. Costs show increased use of fish feed with rice bran as the

prevalent feed choice; with 95% of producers choosing this option (Table 49). Approximately 83% of clients are also using manufactured fish feed, a 113% increase from baseline, as well as an increase of producers using trash fish. Some producers (34%) are now using medicine to prevent and treat fish diseases, while 66% use lime to balance water pH-levels and improve water nutrients. An additional cost is part-time and full-time labor, indicating the creation of jobs in rural areas, now prevalent among 20% of producers. To this effect, the mean cost of business was USD 7,221, an increase of 1,088% from the baseline.

For fish producer income, there was an increase of 1,056%; or, in absolute terms, a mean value of USD 15,482 (USD 1,792 median) compared to the baseline mean value of USD 1,339 (USD 221 median) (Table 50). This is attributed to increased volumes of production; lower input costs due to MSME embedded technical training, and improved fish survival. Higher prices for Carp and *Pangasius,* per unit (200 to 600% across species) also attributed to improved value of sales and income; although Tilapia prices decreased. However, with the removal of outliers, there is a 29% decrease in mean income, which applies more to micro- and smaller-scale enterprises, as factors such as disease, poor water quality, increasing water temperatures during the dry season, or flooding may have adverse effects.

Fish Value Chain Traders

Fish traders experienced a tripartite increase, in investment, volume of transactions, and sales. Transportation remained the primary investment, with one truck and one motorcycle per trader. However, there was also notable innovation, as traders now use storage tanks for fish storage, which was not observed in the baseline. Poor road infrastructure in rural areas is an issue among traders, thus, storage tanks provide an efficient method for transport and storage from pond to market. Mean investment increased 8,400%, with a mean value of USD 76,745 compared to the baseline of USD 902.

Volume of sales increased markedly for each of the different fish species traded: Carp by 5,000%, *Pangasius* by 2,000%, and Tilapia by 1,300% (Table 55). Total volume per head was 930,700, against a baseline 35,900, a trend that follows production increases for various fish species. Therefore, the percentage change in value of sales was also very high – an increase of 7,000%. In terms of value of sales, this equates to a mean value of USD 1.56 million. The cost of business for traders is also high in the purchase of stock, but there is now the added cost of hiring labor to conduct the purchasing and hauling of purchased stock. Overall, the cost of business is high, USD 1.48 million, from the baseline of USD 19,621. Larger-scale traders seem to be present within aquaculture trade, indicating that roaming hired traders serve to consolidate smaller purchases. Overall, the mean income for project-assisted fish traders is USD 77,544.

Summary of Indicators for Fish Value Chain Producers

Indicator	Baseline		End-line		% Change	
	Mean	Total	Mean	Total	Mean	Total
PC in value of sales of enterprise (USD/ %)	1,947	284,261	22,702.5	3,269,161	1,066	1,050
PC in Cost of Business (USD/ %)	608	88,810	7,220.7	1,039,777	1,088	1,071
PC in Income (USD/ %)	1,339	195,452	15,481.8	2,229,384	1,056	1,041
PC in Volume of Production (units/%)	4,294	626,916	91,140	13,124,156	2,022	1,993
PC in Investments (USD/ %)	12,028	1,756,092	5,645	807,157	-117	-118
Total Enterprises Served by MSME	390		759			

Summary of Indicators for Fish Value Chain Traders

Indicator	Baseline		End-line		% Change	
	Mean	Total	Mean	Total	Mean	Total
PC in value of sales of enterprise (USD/ %)	22,024	88,095	1,563,440	4,690,319	6,999	5,224
PC in Cost of Business (USD/ %)	19,621	78,483	1,485,895	4,457,686	7,473	5,580
PC in Income (USD/ %)	2,403	9,612	77,545	232,633	3,127	2,320
PC in Volume of Production (units/%)	35,910	143,640	930,700	2,792,100	2,492	1,844
PC in Investments (USD/ %)	902	3,610	76,745	230,235	8,408	6,278
Total Enterprises Served by MSME	6		14			

Brick and Tile Value Chain

There are 55 project-assisted enterprises within the brick-and-tile value chain. Many were in business for some time and had prior investments in permanent and semi-permanent structures. The final evaluation survey was limited to 15 enterprises, comprising 27% of total brick-and-tile enterprises supported by the MSME Project. Nearly all respondents were micro- or small-scale enterprises, as larger project-assisted enterprises were not available for interview. Thus, trends established from this data do not fully illustrate developments from these larger enterprises, which seem to have bucked the trend of production and sales slowdown during stagnation in the construction sector, partly due to established market outlets in the urban construction sector.

The end-line mean value of investments among small producers decreased by 64% from the baseline, standing at USD 60,289. A slight majority of clients (54%) invested in a series of technologies, including: more complicated kilns, which have higher production capacity; high-quality grinding machines that produce smoother tiles; hydraulic extruders to reduce moisture content; and, transport trucks. However, volume of production remained within 1.2 million products per year, a slight decrease from 1.4 million reported during the baseline. This low volume of production was attributed to truncated demand from the construction and real estate sectors, which suffered a 50% dip in growth since 2008. According to survey respondents, the economic downturn negatively affected 80% of brick-and-tile producers during 2009-2010, and 53% in 2010-2011. Losses were also amplified due to the effect of flooding in 2009 and 2011.

From comparative information from interviews, and stories of good business practices from the MSME Project, showed an increase in the volume of production among medium-scale enterprises, where innovation in machineries reduced manual production, enabling a volume of production of 0.6 million products every month; or, more than 6 million annually. Furthermore, medium-scale enterprises diversified production, producing new tile designs, and adopting glazed tile technologies and various colors, all of which are more marketable.

Prices decreased by 7%, both for brick and tile products. This translates to lower sales for small producers, or a 26% decrease from the baseline. Besides this slump, producers must contend with low-priced imported products from Vietnam, which often affect local prices. With low production, there was a 9% decrease in the cost of production. Moreover, income decreased by 51% from the baseline, from USD 23,854 to USD 11,657. Comparative information among medium-scale brick-and-tile producers affirmed that prices have gone down, but this is compensated by a lowered cost of production through the use of efficient machineries and a higher price scale for newly designed products.

Overall, the PMEP Indicators for the brick-and-tile sector did not fully capture differences in the volume and values of production, particularly for medium-scale enterprises, which were not available for interview. Therefore, the values from the survey were not computed against the 55 project-assisted enterprises, as these would only be representative of the micro- and small-scale enterprises interviewed.

Cost of Business and Income of Project Assisted Enterprises in Brick and Tiles

	Baseline		End-line survey		% Change	
	Mean	Median	Mean	Median	Mean	Median
Total value of investment	168,009	158,844	60,289	54,950	-64	-65
Total quantity of production	1,486,133	1,380,000	1268893	980000	-14.6	-29
Total Value of sales for Brick	37,108	25,850	28,986	29,700	-21.9	14.9
Total Value of sale for Tiles	36,610	22,020	31,044	30,000	-15	36.2
Total Value of sale both B&T	59,073	36,620	43,748	39,300	-25.9	7.3
Average of sale per '000 units	39.75	26.54	36.88	38.13	-7.22	43.6
Cost of business in value for Brick	26,596	17,011	32,072	34,785	20. 6	104
Cost of business in value in Tile	14,373	10,931	21,390	23,735	48.8	117
Income for Brick	10,152	8,839	-3,085	-4,702	-130	-153
Income for Tiles	22,237	11,089	15,377	7,765	-30.8	-30
Cost of business in value (B&T)	35,220	22,240	32,073	34,785	-8.93	56.4

Overall Project Impact

Figures were estimated on full-time equivalent jobs and compensation generated by project-assisted enterprises, as well as non-client exposure and adoption of project methods, for each value chain. In total, for the fiscal year represented within the end-line survey, project-assisted enterprises were able to generate 3,171 full-time equivalent jobs (swine: 476 jobs; aquaculture: 1,321 jobs; brick and tile: 1,374 jobs), providing USD 3,327,769 in compensation to employees (swine: USD 772,056; aquaculture: 1,546,984; brick and tile: USD 1,008,729).

Knowledge dissemination, on the other hand, creates the potential for lasting, and sustainable effects, after the MSME Project's closedown (i.e., project legacy). It was observed that project-assisted enterprises shared the knowledge gained from activities with 209,188 non-clients, with 137,610 of these non-client enterprises fully or partially adopting project-supported methods. Accounting for clients, this signifies that project activities were exposed to 215,016 enterprises, with 143,085 enterprises adopting project-supported methods.

As impacts would most likely be felt by the households of enterprises and laborers (which, on average, comprise 5.2 family members), in the form of social and economic gains, this would signify a potential project impact of 760,526 individuals benefiting just from the MSME Project's swine, aquaculture and tile value chain activities.

Strengthening Private Sector Voice and Improving the Business Environment

A number of strategies were crucial to strengthening private sector voice, including enhanced linkages with input suppliers and producers, and the establishment of agricultural cooperatives and associations. The first enabled producers' access to quality breeds, feed and veterinary services, as well as embedded training by input suppliers on efficient productive technologies concomitant to input supplies. Healthier products and more efficient production time were brought about by this cooperation. The second enabled some 32 pig-raiser associations and cooperatives to consolidate small producers and to concertedly advocate for a better business environment.

The MSME Project encouraged a collaborative process between producer associations and the government, through its support of international exposure missions; as these missions allowed producers and government officers to network, as well as see how business-government relations function in neighboring and international markets. The project also produced practical training videos, which broadened the reach of training on effective technologies.

Through project support, four major universities and several NGOs now use project-supported videos as part of training activities to their target communities; resulting in an estimated 3,000 project clients viewing these videos. Through collaboration and networking among small entrepreneurs, public officials and private agriculture companies, processing and manufacturing were improved through 29 rural trade fairs showcasing improved products and technologies. Public- private dialogue was also accomplished through workshops on various subjects, on topics related to regulation improvements to business forums on market opportunities.

Seeking to improve the business environment, the MSME Project encouraged private-public sector partnerships. Government and businesspeople jointly participated in business forums, provincial skills-sharing trips, and international governance-technology sharing exposure missions, which generated new perceptions and practices. Prior to the project, activities of this nature were nearly unprecedented, considering the distrust the business community generally felt of the public sector. Participants would later set up provincial-level public-private activities, organizing information dissemination, dialogue on taxation issues, and discussing and resolving issues brought forth by the business community.

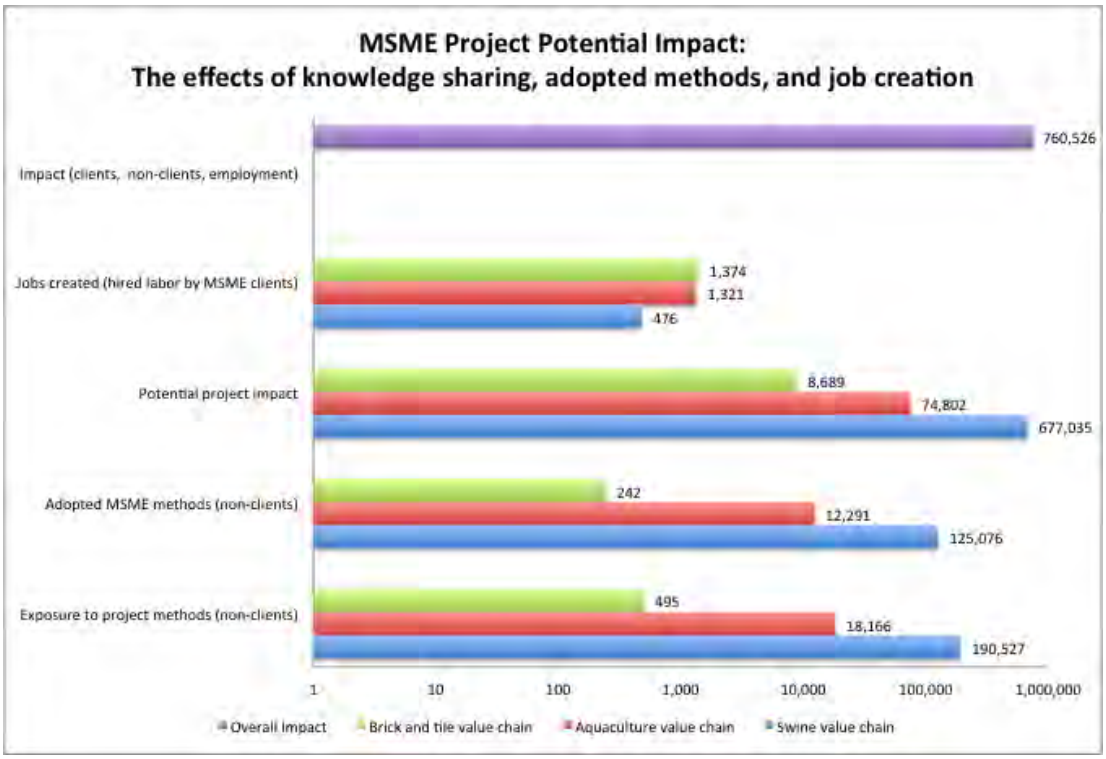
Overall, entrepreneurs cited more supportive policies and local action by government officials after such activities. On the policy level, the project assisted in the drafting of the Cambodian remedies law, addressing anti-dumping and import surges. It also worked with the government in recognizing and rewarding innovative entrepreneurships in animal husbandry, aquaculture practices, agro-processing and agriculture production, rice intensification, and agro-machinery. It also encouraged local community and government action to improve food safety and hygiene in retail markets.

There were a substantial number of good examples in good business management practices within the project. These were in line with improving income from more efficient adoption of technologies and innovations. However, there are still several challenges. In the swine value chain, local farming still faces higher production costs compared to neighboring countries; thus, forcing producers to sell products at higher prices, which is felt by consumers. Additionally, more efficient systems of production must be sought, meat quality must be improved, local breeds must be enhanced, local pork needs to be promoted and properly marketed, and methods should be considered to recognize and accredit local enterprises.

Within the aquaculture value chain, there is need to consolidate producers into aquaculture cooperatives, as a forum for sharing better business management practices and for communication or networking with other actors. Effective services for small-scale producers are needed, especially among extension services providers, as well as credit and insurance providers. Issues still arise with production planning, as market competition with the wild fish still exists, and flood risks are still cause for concern.

For the brick-and-tile sector, innovations have occurred through new machineries resulting in more efficient production capacity. However, it is now necessary to link production with the real estate and construction sectors, especially since stagnation in the construction market, resulting from the financial and economic crises, has ended. Addressing project dumping from Vietnam will also be necessary to address in the future.

Project Impact



Introduction

Pursuant to the requirements of the Cambodia Micro, Small and Medium Enterprise II/Business Enabling Environment (MSME 2/BEE) Contract No. EEM-I-00-07-00009-00/04, Task Order No. 4, Development Alternatives, Inc. (DAI) awarded through competitive bidding a contract in August 2012 for a final evaluation survey to a Cambodian firm, Crossroads to Development.

Background

The USAID Cambodia MSME 2/BEE Project, referred to throughout this document as MSME 2 or the MSME Project, is implemented by a consortium led by DAI. Consortium partners include Nathan Associates, Emerging Markets Consulting (EMC), Equal Access, Indochina Research Limited (IRL), and Development and Training Services, Inc. (DTS). The USAID Cambodia MSME Project is managed by Chief of Party, Mr. Curtis Hundley with a superstar team that included Deputy Chief of Party, Mr. Boreth Sun; Value Chain Advisor and Component Team Leader, Mr. Sophath Oeun; Private Sector Voice Component Team Leader, Mr. Kimhor Proum; and Public Sector Strengthening Component Leader, Mrs. Sopheap Ly, and Senior Advisor Mr. Sambon Kong. The core technical team was comprised of 27 Cambodian Value Chain Technical Coordinators, Business Enabling Environment Specialists, Communications Specialists, Natural Resource Management Specialists, Water and Sanitation Specialists, and Monitoring and Evaluation Specialists. In addition, the Phnom Penh office and four field offices in Prey Veng, Battambang, Kampong Cham and Kampong Thom were supported by 10 Operations, Administrative, Finance and IT staff.

Project Objectives

The MSME Project operates in 17 provinces of Cambodia: Battambang, Siem Reap, Kampong Thom, Kampong Cham, Kampong Speu, Kandal, Kratie, Prey Veng, Svay Rieng, Pursat, Takeo, Kampot, Oddar Meanchey, Koh Kong, Preah Vihear, Stung Treng, and Banteay Meanchey. The Project improves the performance of thousands of firms in several value chains, facilitates public-private dialogue and strengthens the capacity of the public sector through targeted technical assistance.

The success of the MSME Project is the result of an exceptional methodology combined with cultural, political and economic wisdom provided by the team, complemented by USAID/Cambodia's strong confidence and support for the MSME Value Chain Approach, methodology, and project management.

The MSME Value Chain Approach

The Cambodia MSME Project Team uses several approaches to help firms develop their businesses:

- Facilitate a common understanding of local business constraints. Identify leading firms and facilitate interest group meetings to better understand the specific issues that inhibit the growth of their sales and profits.
- Identify technical needs and facilitate technical assistance from persons or firms within the value chain. Provide information and technical training activities through input

suppliers, traders and other business partners to increase productivity and competitiveness.

- Improve awareness of the business environment and promote improvements. Facilitate public/private dialogue and business forums about business enabling environment issues, and then promote positive changes to make it easier to do business.
- Support Public-Private Dialogue. Assist the government and private sector to define their roles in rural economic development, and approach improvements to the business-enabling environment as a partnership.
- Use demonstration to increase investment. MSME promotes cross-provincial exposure visits to expose firms to new technologies, processes, suppliers and markets.
- Facilitate international governance and technology exposure visits. Facilitate visits by Cambodian firms and government representatives to Vietnam, Thailand, the Philippines, Singapore, Malaysia, and the United States to build relationships and expose firms to new technologies and production processes.
- Promote business training. Partner with local educational institutions to introduce new ideas to increase profits, identify new customers, develop new products, and make better investments.
- Promote local events. Through workshops, forums, trade fairs and other events, introduce new products and services to firms and introduce new suppliers of these services to businesses seeking quality products, services, and technical advice.
- Improve business-to-business dialogue. Arrange and facilitate business forums and rural trade fairs where leading firms across value chains can meet with consumers and buyers to understand product requirements, negotiate deals and build long-term relationships.
- Create communication channels. Promote communication to link entrepreneurs to essential business information, generate dialogue between the public and private sectors, and increase awareness of MSME Project activities and successes. Key components of the integrated communications strategy included a weekly nationwide business radio magazine, a series of local roundtable radio and television discussions involving the public and private sector, and media and communication skills training workshops for project partners.

The strategic approach of the MSME Project was to improve firm productivity, to build relationships across the value chains, and increase investments by enterprises to improve competitiveness. MSME assists enterprises to become and remain cost and quality competitive relative to other national and regional firms, while improving capabilities to provide a consistent supply of quality products to local and national markets.

The project facilitates business membership organizations (BMOs) among MSME clients to develop service-based cooperatives, working groups, and associations that facilitate delivery of technical and business training, and help lobby for improvements to the business enabling environment; making businesses more competitive and profitable.

Evaluation Survey Methodology

Data needs

The baseline survey was conducted in July 2009 with the report published in November 2009. The midterm evaluation was conducted in March 2011 and published in September. The End-line survey cover period was July 2010 to June 2011, According to the PMEP, primary indicators include:

- Percentage change in value of sales of project-assisted enterprises.
- Percentage change in income of project-assisted enterprises.
- Percentage change in investments by project-assisted enterprises.

Impacts from project activities, from project inception to end (October 2008 to September 2012), were considered in order to assess whether project activities had an effect on household living standards (i.e. were household enterprises able to translate business success to other social and economic gains, such as funding education for children or increasing household consumption).

Data Collection Methods

To accomplish the final evaluation objectives, mixes of quantitative and qualitative data-gathering methods were employed, in order to obtain information on the performance indicators of three project-assisted value chains: 1) swine, 2) aquaculture, and 3) brick and tile.

Three instruments were used in gathering data for the final evaluation:

- As the MSME Project's success is determined by the success of its project-assisted enterprises, in accordance with PMEP indicators, face-to-face interviews were conducted with project clients, mainly relating to changes in volume of production, value of sales, income, and investments of assisted enterprises.;
- To gather broader context of the outcomes and impacts of project activities in the target areas, Focus Group Discussion (FGD) were employed with project clients as well; and,
- To gather perspectives and opinions from partners and stakeholders—local government officials, business association members, and individual enterprise owners—key informant interviews (KII), or in-depth interviews, were utilized.

Face-to-face interviews with project clients were conducted using a structured questionnaire. Questionnaire design followed that of the baseline and mid-term surveys, so as to allow comparison during analysis. Additional questions to the questionnaires related mainly to external shocks, such as the consequences that flooding, disease outbreak, and the economic crisis had on enterprise activity; indirect impacts, such as other social and economic gains not considered within the primary PMEP indicators (e.g. childhood education, household consumption) were also included to assess whether had effects on overall household living standards.

Questions from the USAID Poverty Assessment Tool (PAT) were also included, specific to improvements in income, work opportunity, and gender inclusion. Questionnaires were directly administered by enumerators, who were trained on the use of the questionnaire, as well as techniques on interviewing and facilitating discussion.

Focus group discussions (FGD) were used to gather information on topics such as "crowding in" (i.e., non-clients employing project methods, and subsequently becoming project clients, after observing the techniques followed by other project clients). Thus, FGD participants included those who had attended project-supported training and then shared knowledge of improved technical and business practices with non-clients.

The information gathered during FGDs assisted in understanding the reasons non-clients "crowd in", and how the MSME Project's activities were useful to the success of these enterprises. The evaluation contractor, Crossroads to Development (CTD), developed the FGDs, while MSME Project staff had a role in introducing clients to be included within discussions. Information gathered from FGDs was then integrated in summary descriptions throughout this report.

The field survey was conducted with direct participation from MSME Project personnel, who facilitated the identification of respondents, based on the list of clients, per value chain, stored within the MSME Project's Technical and Administrative Management Information System (TAMIS). A joint monitoring exercise was done, with the contractor's study team leaders, so as to assist the performance of enumerators and fieldwork facilitators. The enumerators, research associates, and survey team leaders held a wrap-up session at the end of each day, to discuss survey issues and the difficulties encountered during interviews, in order to improve upon the previous day and find solutions where necessary.

The survey team leaders and research associates spot-checked all completed questionnaires at the end of each day. All outputs were then double-checked by the survey team leader and research associates for completeness and correctness of response logic, and logic of responses by the survey team leader and research associates before sending questionnaires to the contractor's office for data entry. Furthermore, as agreed between the contractor and the MSME Project evaluation team1, continuous field consultations occurred, in relation to respondent replacement and any other possible deployment issues in the field.

Sampling

Sampling employed a stratified method, based upon geographic area (by province) of current project clients, as well as roles within the value chain (e.g., producers, traders, service providers), as this was the method used during the baseline. The primary difference between baseline and end-line sampling was related to geographic stratification, as the proportions used during baseline sampling were not appropriate for end-line sampling. Particularly, as the MSME Project expanded throughout its tenure, the scale of activities in geographic areas changed; consequently, certain provinces were added, and others became more or less prominent to project activities.[2] End-line sampling observed this characteristic; thus, sampling was stratified based on current proportionality of project clients by geographic area, rather than the previously used proportions from the baseline.[3] This change was considered necessary, so as to maintain a current picture of

[1] The MSME Project evaluation team consisted of Component team leaders and senior advisors, value chain specialists, and the monitoring and evaluation team.

[2] Prominence, by province, in this case refers to the proportion of clients in each province to total project clients.

[3] It should be noted that sampling was based on the original 12 target provinces, and not of the current 17 provinces where MSME Project operations are conducted. This was done as the added target areas have a significant proportion of new enterprises (i.e. operational for less than one year); thus, analysis of these enterprises was not within the scope of the evaluation.

representation, by province, rather than maintaining a static view, which would have been the case if baseline stratification were employed. Moreover, it should be noted that this method was considered acceptable since stratification was mainly done for purposes of representation, as analysis by province was not conducted (i.e., only aggregate levels of analysis were conducted).

The survey sample areas were agreed with the MSME Project team. Wherever possible, target respondents were comprised of the same respondents included in the baseline survey. In cases where project-assisted enterprises ceased operations, those sampled during the mid-term review were used as replacements, all with consideration of value chain role, size of operations (micro, small, or medium), geographical area, and gender of enterprise owner. All respondents targeted for interview owned enterprises operational for more than one year, in order to assure sufficient data for analysis. The number of respondents, by province and project-assisted value chain, can be found below (Table 1). FGDs were conducted in Banon, Prey Chhor, Tuek Chhar, Chamcar Leu, Steung Sen, Sankor, Chhouk, Svay Antor, Pea Reing, Chic Kreng, and Chantrea.

Table 1 Sample Size

Province	Pig	Fish	B&T	Total
Battambang	49	4	0	53
Kampong Cham	83	43	7	133
Kampong Speu	33	8	0	41
Kampong Thom	63	9	4	76
Kampot	62	15	0	77
Kandal	30	1	0	31
Phnom Penh	0	5	0	5
Prey Veng	76	41	0	117
Pursat	57	0	0	57
Siem Reap	50	10	4	64
Svay Rieng	60	0	0	60
Takeo	60	10	0	70
Total	623	146	15	784

As agreed with the MSME Project evaluation team, survey respondents for face-to-face interviews were direct clients of the MSME Project, and were engaged in activities of the three aforementioned value chains. The agreed sample size consisted of 784 respondents. The identity of active respondents (name and location) was identified through the use of TAMIS. Especially

helpful in the location of project clients was the inclusion of the MSME Project's use of an 8-digit geographic coding system (two digits each for province, district, commune, and village) and its use of Global Positioning System (GPS) coordinates.

Data Analysis and Limitations

Structured interviews were designed on Excel, and quantitative data from FFIs were entered in data entry software, namely Statistical Package for the Social Sciences (SPSS). Data processing, specifically the preparation of tables and charts, were also built on the same software. Responses to open-ended questions from the FFIs were coded and grouped by similar answers, and subsequently quantified as appropriate. Information obtained from the key informant interviews and FGDs, on the other hand, were grouped according to themes, and served as a basis to strengthen observations from the FFIs.

Mean and median values were computed for valid samples (*n*) of each value chain role. For data marked as 'adjusted', data points exceeding ±2.5 standard deviations from the mean were excluded. Adjusted data was deemed applicable for swine producers, swine input and service providers (ISPs), and aquaculture producers, which included large sample sizes and outliers, were considered to skew results. Adjusted means were not calculated for other samples (e.g. swine and aquaculture traders, aquaculture ISPs, brick and tile producers), as adjustment was not considered necessary for these smaller samples.

The overall population for these MSME Project value chain actors was also quite small; thus, naturally, these smaller sample sizes resulted in wide confidence intervals and potential risk of error. Thus, although generalizations could be construed for these smaller samples, calculations for indicator percentage changes should be viewed with care.

Enterprise-level performance indicators, within the PMEP, were the product of mean values by the total number of MSME clients in each value chain. Within TAMIS, a total number of 5,506 clients were listed: aquaculture (804), swine (4,647) and brick and tile (55). Baseline and end-line results were observed and percentage changes were then calculated.

The cost of business was considered as the value of non-permanent stock, services, and inputs for production. To compute value of sales, the total volume of sales were multiplied with the price per unit. Incomes were computed as the difference in the total cost of business and the total value of sales.

For comparative purposes, the methodological design of the study followed that of the baseline survey. One limitation from the baseline methodology, which would have been helpful for analysis, was disaggregation by scale of operation (micro, small, or medium). As previously mentioned, adjusted means (i.e. removal of outliers) were calculated in consideration of larger sample sizes with high standard deviations, kurtosis, and skews. A separate column was included in summary tables, where necessary, removing data points ±2.5 standard deviations from the mean.

For certain measures in the aquaculture value chain, the unit of measurement was changed; for example, at the baseline, project-assisted clients often measured stock by the number of heads, while the current unit used by the fish producers and traders is kilograms. This is the result of improved business practices resultant of increased production and trade; thus, measurement by weight (kilogram) became a more efficient unit of measurement for clients due to the increased

scale of operations. Thus, it was necessary to convert values gathered from the baseline survey, with the unit of conversion provided by the MSME Project's fisheries experts.

Based on agreement with MSME Project team, target respondents for the end-line survey were to include those interviewed during the baseline, and if not available, would be replaced by those interviewed during the mid-term survey. During data gathering, approximately 23% of the original baseline and mid-term respondents were interviewed and 77% of the respondents were new clients of MSME Thus, replacements acted as proxy, as similar demographic characteristics were considered before selection (e.g., location, gender of enterprise owner, scale of operations). This reflects the significant increase in the number of clients on MSME 2/BEE (more than 7,000 clients) compared to the 1,800 clients of MSME 1, which represented about a 77% increase in total new clients.

Evaluation Survey Results for Project Assisted Value Chains

Swine Value Chain

The following section presents data on percentage changes, from baseline to end-line, experienced by the four project-assisted swine value chain actors, –namely: producers, traders, veterinarians, and input suppliers. As previously mentioned, the indicators presented below include percentage changes for: value of sales, cost of business, income, and volume of production, full-time equivalent jobs created, and investments.

Demographically, management by males is prevalent, as enterprise ownership by female comprised 11% (Table 2). Key informant interviews affirmed that pig farming is a family operation, where both male and female members are responsible.

Table 2 Gender Distribution of Swine Value Chain Actors

Type of Actor	Female		Male		Total	
	n	%	n	%	n	%
Producer	62	91.2	488	87.9	550	88.0
Input Supply/Service Provider	5	7.4	34	6.1	39	6.2
Veterinarian	1	1.5	25	4.5	26	4.2
Trader	0	0.0	8	1.4	8	1.3
Total	68	100.0	555	100.0	623	100.0

Project Assisted Swine Producers

Volume of Production of Project Assisted Swine Producers

For the end-line survey, 550 project-assisted swine producers were selected as respondents. From observation, enterprises are predominantly small, with an average production of approximately 48 pigs annually, an increase of 60.3% over the baseline mean (+50% of baseline median). For the 2010-2011 timeframe, pig producers with boars (9.3% of respondents) bred or acquired an average of 4.8 pigs (heads), while the majority (82%) had a mean of 6.8 sows. Approximately 9% of respondents owned fattening pigs, with a mean of 15 heads. Nearly all producers (98%) owned piglets, at the time of survey, with an average of 42 heads (Table 14).

Increased in the volume of production may be attributed to a number of project-supported activities, such as embedded technical training on raising techniques, information on mitigating disease, the facilitation of linkages between producers and traders, and exposure visits. Exposure visits aimed at providing valuable knowledge on pig production, treatment and care, and the majority of pig producer respondents (67%) stated this activity as the primary reason for success after joining the MSME Project (Table 37).

Accordingly, a high proportion of respondents noted the occurrence of knowledge transfer, between clients and non-clients. Nearly all clients affirmed they had shared the knowledge gained from project-supported activities and training to non-clients, and subsequently, these non-clients adopted newly acquired knowledge in full or in part (Table 35 35). Considering these figures, it is estimated that 190,880 non-clients were exposed to project-supported methods, after knowledge dissemination by MSME Project clients; and, of these, 125,076 (66%) fully or partially adopted these methods.

Cost of Business of Project Assisted Swine Producers

Regarding the costs of pig production, project-assisted pig producers saw an average increase of 61% (65% median) from the baseline (Table 3). Increased commercial feed and leftover food (used as pig feed), which were not noted during the baseline, as well as community and individually manufactured feed largely contributed to this increase (Table 15). Vaccines, veterinary services, and medicines also saw an increase in pig producer cost of business.

Essentially, from these increases, it can be observed that pig producers are now investing in improved production inputs and services, which may be attributed to the MSME Project's efforts to link producers with ISPs. These improvements may, in turn, continue to enhance the quality of outputs in the future, resulting in higher product prices and increased regional competitiveness.

Volume of Sales of Project Assisted Swine Producers

Producers experienced an average increase of 49% (28% adjusted mean) in the volume of sales compared to the baseline (Table 17). From key informants and FGD participants, information suggested that pig producers began adopting improved methods in raising piglets. Before the MSME Project, pig raisers seldom built pigpens, allowing swine to roam, only herding the animals before nightfall for security purposes. This method endangers the health of pigs, exposing the animal to undue risk, such as diseases that may result in sickness or death. At present, however, after MSME Project training, many pig producers have now adopted improved methods, such as constructing pigpens. Notably, even with the outbreak of swine diseases throughout the country, project-assisted swine producers still experienced an increase in the volume of production.

Apart from disease, an additional external shock to swine production was the economic downturn. Producers were asked to note whether the resultant economic slump from the financial and economic crises affected enterprise operations throughout the project's lifespan. While 41% of respondents noted a negative impact in 2009-2010, this proportion decreased gradually to 38% in 2010-2011, and 28% in 2011-2012. Based on the data gathered, project-assisted swine producers were resilient, with the significant majority of those affected (86% to 90% in variable years) repeating the production process (Table 41). Although negatively impacted, the resilience of swine producers illustrates that nearly all felt the benefits of repeating the newly adopted production methods outweighed the potential costs to be incurred.

Value of Sales of Project Assisted Swine Producers

Pig producers experienced marked increased in the mean price per head for each swine type (boar, sow, fattening pig, and sow). Mean price per head were as follows, with percentage

change over baseline noted in parentheses: boar, USD 309 (77%); sow, USD 276 (106%); fattening pig, USD 194 (46%); piglet, USD 48 (41%) (Table 17).

With regard to value of sales compared to the baseline, percentage changes, by pig type, were as follows: boars, 172%; sows, 193%; fattening pigs, 85%; and, piglets, 119% (Table 19). Value of sales increases may be the result of improved business practices, the resiliency of swine producers, as well as growing demand in the market; nonetheless, despite widespread swine disease, it seems that project-assisted enterprises were not unduly affected.

Income of Swine of Project Assisted Swine Producers

Swine enterprises income was computed as the differenced in the cost of business against the volume and value of sales. From this, it was calculated that pig producers had a mean income of USD 2,098 (USD 1,340 adjusted mean). This final survey result is 169% higher than the observed baseline figure of USD 780 (72% adjusted mean) (Table 19).

In a span of three years, the project-assisted enterprises now have an income of USD 5.75 per day from swine production alone, more than twice as high as the baseline figure of USD 2.14. When asked, 76% of respondents confirmed that income had increased. In terms of social gains, 21% affirmed that, due to increased income, at present, they can now send their children to school (Table 38).

A series of interesting points may be deduced based upon the fact project-assisted enterprises can now send their children to school. Consequently, incomes must be high enough: (i) to negate any costs associated with attendance, such as transportation, school uniforms, and stationary; (ii) so children do not necessarily need to partake in labor during the school period; (iii) showing that household consumption on essential goods can now be covered, thus, resulting in investments such as child education. This investment may then result in the avoidance of the commonly occurring inter-generational poverty cycle associated with a lack of education.

Value of Investments of Project Assisted Swine Producers

Land is a major investment for pig production, with land areas for pig production holding a mean value of USD 5,499; an increase of 89% compared with the baseline figure of USD 2,902. Investments in artificial insemination (AI) equipment were also made, with an increase of 458% (265% adjusted mean) over the baseline mean. Additionally, an increase of 83% (62.5% adjusted mean) was seen in the cost of pigpen construction. These investments may be due to improved understanding of good pig rearing practices, as project-assisted enterprises were able to gain knowledge during embedded technical training sessions and exposure missions. Other pig producer investments have been itemized in within the Annex (Table 13).

Although substantial increases were observed in a number of investments, there was an overall decrease of 31% in mean investments compared to the baseline. Generally, decreases in capital stock may refer to upcoming periods of slower productivity and growth; however, having observed increases in the incomes and productivity of project-assisted enterprises, it does not seem this was the case. In actuality, decreases in capital investment may be due to the methods used to measure this indicator, as new investments are only taken into account. The limitation in this indicator may be due to initial indicator design; it does not take into account depreciation of previously acquired investments, and even if so, there would difficulty for project-assisted enterprises to determine depreciation rates as balance sheets are not generally kept. As an

indicator of new investment, capital stock would most likely fall from the baseline, as capital stock may be higher when enterprises begin operations, rather than later.

In looking through the itemized lists of investments, overall, project-assisted enterprises increased capital stock in areas that would continue to improve productivity, and in turn, income; thus, in the case of pig producers, decreased investment may not generally lead to a lower return on assets in the future. Moreover, with the addition of 2,239 new pig producer clients, the total value of pig producers' investments grew by more than 65% over the baseline total (Table 3).

Table 3 Percentage Change in Pig Producers

	Baseline		End-line		% Change	
INDICATOR	Mean	Total	Mean	Total	Mean	Total
PC in value of sales of enterprise (USD/ %)	2,555	4,113,550	4,965	19,110,093	94.32	364.56
PC in Cost of Business (USD/ %)	1,775	2,857,750	2,855	10,989,164	60.85	284.54
PC in Income (USD/ %)	780	1,255,800	2,098	8,075,433	168.98	543.05
PC in Volume of Production (units/%)	30	48,300	48.1	185,137	60.33	283.31
PC in Number of Full-time Equivalent jobs created	2.5	4,025	1.2	4,619	-52.00	14.75
PC in Investments (USD/ %)	4,712	7,586,320	3,254	12,525,454	-30.94	65.11
Total enterprises assisted by MSME	1,610		3,849			

Other Productivity Indicators of Project Assisted Swine Producers

Feeder Pigs

Productivity indicators were examined by considering live-weight at sale, the number of days before reaching peak weight (80-90 kg), and pig mortality rates. There was a marked improvement for the first productivity indicator, as average live-weight at sale is now 72 kg, improving upon the baseline mean of 66 kg (Table 20).

Additionally, average period to reach 80-90 kg is now 141 days, compared to 157 days at the baseline (i.e., a 10% decrease in the number of days). With continued improvements, there is a possibility that the number of days could be further reduced to three months (120 days), as certain producers have already reached this mark of efficiency.

The findings indicate improved production practices from better breed stocks and feeding systems, which enterprises attributed to the methods suggested through training facilitated by the MSME Project. Through interviews with swine producers, several breeds were noted, including a hybrid between the domestic *Hai Nam*, *Kampot*, and *Kandal* breeds, and the imported Yorkshire and Duroc breeds, all of which are more resilient to disease. Key informant interviews validated that breed stocks and techniques have improved, leading to decreases in the number of days to reach peak live-weight.

Mortality Rate

Mortality among different types of stock was also gathered during the final survey. Of the 550 pig producer enterprises, 313 (57%) experienced loss of stock by death during production. After computation, average annual mortality rate per producer was observed at 8.6 heads, or, nearly three heads per production cycle (assuming four-month production cycles) (Table 22). Key informant interviews attributed this to persistent outbreaks of Porcine Reproductive and Respiratory Syndrome (PRRS), more commonly known as "*blue ear disease*".

Project Assisted Swine Traders

As previously mentioned, the small sample size of pig traders (8) was mainly due to the small population size of project-assisted traders. The following figures may not provide a clear picture of percentage changes; however, generalizations may still provide a better understanding of improved practices, as well as an overall picture of this value chain segment.

Volume of Sales of Project Assisted Swine Traders

The end-line survey showed a sizeable increase (301%) in the number of traded pigs, compared to the baseline (Table 5). For traders, the mean end-line volume reached 2,069 heads traded; on average, this included 50 sows, 1,905 fattening pigs, and 530 piglets (figures were traded boars were not available). This is compared to the overall baseline mean of 516 heads traded, comprised of an average 4.3 boars, 21 sows, 143 fattening pigs, and 844 piglets (Table 25).

Naturally, with higher production at the lowest level of the value chain (e.g. pig producers), pig traders have seen exceptional gains. However, it should be noted that such a sizeable increase per trader enterprise might denote difficulties for new entrants to this segment of the value chain, which should be seen as a potential challenge. This may be due to strict regulation/licensing of traders in Cambodia, and thus, lead to an oligopolistic market situation where a small group of traders employ restrictive practices such as collusive pricing. In the end, producers may not receive fair prices, while consumers bear the brunt of the lack of alternative prices.

Value of Sales of Project Assisted Swine Traders

Value of sales also saw a marked increase, in terms of price per head for each pig type (percentage change over baseline in parentheses): sows, USD 174.50 (+54%); fattening pigs, USD 173.67 (+103%); piglets, USD 37.50 (+87%) (Table 25). For the eight pig trader respondents, end-line survey data suggests an increase of 1,639% (809% median) in value of sales. As previously mentioned, pig traders may be experiencing unprecedented gains as new entrants to the pig producer segment of the value chain have not been matched by new entrants in the pig trader segment (i.e. pig traders, more than likely, now have more pig producer contacts).

Cost of Business and Income of Project Assisted Swine Traders

With improvements in pig producer volume of sales and productivity, the average cost of business per pig trader followed suit, with the mean cost of business valued at USD 320,212; or, 1,702% (601% median) higher than the baseline mean of USD 17,764 (Table 5). Accordingly, improved volume and productivity by pig producers resulted in stock purchases (sows, fattening pigs and piglets) becoming the primary cost of business. For these respondents, this included a

mean acquired volume of 54 sows, 1,921 fattening pigs, and 550 piglets for the fiscal year measured for this end-line survey. The mean annual acquisition costs equate to USD 8,405 for sows, USD 300,173 for fattening pigs, and USD 18,000 for piglets. Interestingly, mean acquisition costs divided by mean acquired volume results in price per head figures similar to the mean and median figures reported by pig producers, for each pig type; therefore, validating the price per head figures reported by producers and traders (although, figures reported by producers were slightly higher). Other business costs have been itemized in the Annex (Table 28).

Income of Project Assisted Swine Traders

The income of project-assisted pig traders was determined by computing the difference in the annual volume of sales and the annual costs of business. The mean baseline value against the end-line showed a 1,245% (2,473% median) increase. Income is considerably higher than the baseline; this may be attributed to previously reported trends in increased stock, improved live-weight, and shorter production periods; all resulting in traders being able to acquire more stock, at more frequent periods, from producers.

Investments of Project Assisted Swine Traders

Means of transport was deemed the primary investment for pig traders. The final survey showed that traders' motorcycles had a mean value of USD 101. This figure seems to be undervalued, as traders may have calculated for depreciation, as the price of new motorcycles in Cambodia range from USD 500-1,500 (Table 23). Calculations show transport trucks having a mean value of USD 637, which may include used vehicles. The baseline mean for investment was USD 580, while current mean investment was valued at USD 1,054; an 82% increase among traders.

Table 4 Percentage Change in Pig Traders

	Baseline		End-line		% Change	
INDICATOR	Mean	Total	Mean	Total	Mean	Total
PC in value of sales of enterprise (USD/ %)	20,598	82,392	358,353	10,033,892	1,639.75	12,078.24
PC in Cost of Business (USD/ %)	17,764	71,056	320,212	8,965,943	1,702.59	12,518.14
PC in Income (USD/ %)	2,834	11,336	38,141	1,067,949	1,246	9,320.86
PC in Volume of Production (units/%)	516	2,064	2,069	57,943	301.05	2,707.33
PC in No. of Full-time Equivalent jobs created	1.7	6.8	1.2	33.6	-29.41	394.12
PC in Investments (USD/ %)	580	2,320	1,054	29,520	81.77	1,172.39
Total enterprises assisted by MSME	4		28			

Project Assisted Swine Input and Service Provider (ISP)

Volume of Sales of Project Assisted ISPs

Input and service providers (ISP) are integral to the swine value chain, as they provide a range of goods and services, such as: vaccines and vaccinations, treatment services and medicines, AI services and products/materials, feed and feed ingredients, pigpen construction and materials, and technical advisory services Two ISP actors, veterinarians and input suppliers, were studied. .

For ISPs, feed sales constitute the highest volume of sale, increasing by a mean of 2,147% (433% adjusted mean) from the baseline. This is followed by the sale of feed ingredients, which were not noted during the baseline; thus, ISPs have noted a demand from swine producers, and have begun offering this product to those seeking to improve production inputs. AI sales increased significantly by 7,361% during the period of project assistance, and AI services grew by 2,735% (Table 30).

Additionally, the data showed an increase in the mean sales values for vaccinations, medicine, and treatment services. This is indicative of swine producers using modern techniques learned from embedded technical training facilitated by the MSME Project; further validating figures showing that 87% of producers have their stock vaccinated, and procure supplemental feed and treatment. Veterinary services have increased by 488%, with regard to volume of sales (Table 5). Input supplier also experienced a 1,364% increase in sales, reflecting additional investments by producers in the form of storage, transport, and equipment (Table 6).

Value of Sales of Project Assisted ISPs

Veterinarians experienced an average value of sale increase of 615% (335% adjusted mean) compared to that of the baseline. This is possibly due to an increase in the number of producers accessing services, as the MSME Project facilitated links between producers and ISPs during embedded technical training events, forums, and exposure missions (Table 5) and Table 32). For input suppliers, the diversification of feed options through the addition of feed ingredients contributed to sales increases of 1,765% (290% adjusted mean) (Table 6).

Cost of Business of Project Assisted ISPs

Business costs for project-assisted ISPs grew significantly, as the number of producers accessing services increased as well as the demand for additional goods and services (e.g. feed ingredients, AI sales and services). During the baseline, the mean cost of business for veterinarians was USD 483, while the observed end-line mean was USD 1,565; an increase of 224% (146% adjusted mean) (Table 5 and Table 33).

For input suppliers, the baseline cost of business was USD 14,817, while the end-line mean was USD 278,477.85; an increase of 1,779% (285% adjusted mean) over the baseline (Table 6). The increased cost of business for ISPs, as well as other indicator increases, may be seen as either the cause or effect of increased operations in other segments of the value chain (producers and traders); i.e., additional services offered by ISPs could be seen as value addition for producers or traders, resulting in improved income, or producers and traders could be fueling the growth of ISPs through intensive demand and the desire to grow.

Income of Project Assisted ISPs

The mean income of veterinarians garnered an increase of 1,197% (622% adjusted mean) (Table 5 and Annex Table 33), while input suppliers saw a 1,594% (133% adjusted mean) mean income increase since the baseline (Table 6).

As expected, improved volume and value of sales were translated into additional income; and, growth throughout the value chain, as well as local and regional demand for pork products, may lead to substantial growth for ISPs in the future.

Investment of Project Assisted ISPs

Investments common to ISPs include land, buildings, equipment, and transportation, with land and trucks being the most valuable investments (Table 30).

The mean value of investments for veterinarians was USD 826 for the end-line, compared to a baseline figure of USD 1,388; a 41% decrease in investments (Table 5). After observing data for individual enterprises, this decrease may be due to two factors: (i) established ISPs have made initial investments in fixed and permanent current assets, while the amount of fluctuating current assets may be low; or, (ii) newly established enterprises may not have the capital, or need (in terms of client base) to fund large capital investments..

For input suppliers, the end-line mean value of investments was USD 14,838 compared to the baseline value of USD 10,696; constituting a 40% increase in investment (Table 6). As previously mentioned, this indicator may not present an accurate picture of investment, as only newly acquired investments are taken into account, thus, barring the value of fixed assets with accumulated depreciation. Thus, after observing the itemized table of investments, it is evident that ISPs have fluctuating current assets, which would go hand-in-hand with the increased volume of sales and business costs noted in the previous indicators.

Table 5 Percentage Change in Veterinarians

	Baseline		End-line		% Change	
INDICATOR	Mean	Total	Mean	Total	Mean	Total
PC in value of sales of enterprise (USD/ %)	808	194,728	5,781	2,560,868	615.44	1,215.10
PC in Cost of Business (USD/ %)	483	116,403	1,565	693,273	224.01	495.58
PC in Income (USD/ %)	325	78,325	1,440	637,978	343.12	714.53
PC in Volume of Production (units/%)	1,242	299,322	7,300	3,233,900	487.76	980.41
PC in Number of Full-time Equivalent jobs created	1.1	265	1.2	532	9.09	100.53
PC in Investments (USD/ %)	1,388	334,508	826	365,785	-40.51	9.35
Total enterprises assisted by MSME	241		443		83.82	

Table 6 Percentage Change in Input Suppliers

	Baseline		End-line		% Change	
INDICATOR	Mean	Total	Mean	Total	Mean	Total
PC in value of sales of enterprise (USD/ %)	16,054	915,078	299,413	21,857,109	1,765.0	2,288.6
PC in Cost of Business (USD/ %)	14,817	844,569	278,478	20,328,883	1,779.4	2,307.0
PC in Income (USD/ %)	1,236	70,452	2,970	216,810	140.3	207.7
PC in Volume of Production (units/%)	37,879	2,159,103	554,488	40,477,653	1,363.8	1,774.7
PC in Number of Full-time Equivalent jobs created	1.1	62.7	1.2	87.6	9.1	39.7
PC in Investments (USD/ %)	10,596	609,672	14,838	1,083,150	40.0	77.7
Total enterprises assisted by MSME	57		73			

Project Impact

While swine value chain enterprises are still mainly family owned and operated, it was observed that some enterprises (3%) now employ full- and part-time laborers. By using the proportion of enterprises employing labor, and applying this as a representative proportion to all project-assisted swine clients, estimates can be drawn. In terms of part-time labor, project-assisted swine enterprises generated an estimated 502 part-time jobs (251 full-time equivalent jobs), equating to 69,276 days worked and USD 415,656 in compensation. Accounting for both full- and part-time labor, swine enterprises generated an estimated total of 476 full-time equivalent jobs in the most recent fiscal year, compensating workers a total of USD 772,056 (for the most recent year).

Knowledge dissemination creates the potential for lasting, and sustainable, effects, after the MSME Project's closedown (i.e. project legacy). It was observed that project-assisted swine enterprises, on average, shared knowledge with an average of 41 non-clients, and of these enterprises, an average of 26.9 fully or partially adopted project-supported methods. This illustrates that 190,527 swine non-clients were exposed to project-supported methods (195,174 exposed to methods, including clients), with 125,076 of these non-clients partially or fully adopting methods (129,723 enterprises adopting methods, including clients).

As impacts would most likely be felt by the households of enterprises and laborers (which, on average, comprise 5.2 family members), in the form of social and economic gains, this would signify a potential project impact of 670,035 individuals benefiting from the MSME Project's swine value chain activities.

Fish Value Chain

Within the aquaculture (fish) value chain, the MSME Project assisted 773 clients, including 199 women; of these, 98% were fish producers and 2% were fish traders. Throughout the project's lifespan, the number of project-assisted aquaculture enterprises increased by 109% (91% for

male-owned enterprises; 108% for female-owned enterprises). A total of 153 respondents (including 13 women), comprised of 150 producers and 3 traders, were interviewed during the end-line survey (Table 44). Given the large sample among producers, data values were also adjusted in order to remove outliers, as was done for swine producers and swine ISPs; and, wherever necessary, adjusted means are noted in the summary descriptions.

Project Assisted Fish Producers

Value of Investments of Fish Producers

Despite the expansion of fishpond areas and an increase in fish production, most project-assisted clients did not seem to increase new capital investments. It seems major investments were acquired at, or immediately after, the baseline survey period; thus, long-term initial financing of permanent current assets was not necessarily captured at this point.

For fish producers, land is a basic fixed asset with a mean area of 1,530 m^2 and a mean baseline value of USD 8,763. The end-line survey excluded land values, as these are existing properties and calculating accumulated depreciation of fixed, or permanent current assets (especially considering that enterprises do not keep accounting records) was difficult. However, one respondent bought an existing fishpond with an area of 625 m^2, and valued this at USD 29,688, demonstrating one example of land valuation. Through interviews, it was observed that some farmers actually rented out land for fish production purposes, at a mean area of 15,000 m^2, valued at USD 5,120 per year. The discrepancy on land value was based on the production cycle and the availability of year-round water sources. There was also high variation in values across the sample; for example, when outliers were removed (i.e. ±2.5 standard deviations from the mean), the mean value for rented land was only USD 760 (USD 375 median) (Table 47).

From the itemized list of investments, observations led to not only understanding the quantity of investments in culture methods, but also of new innovations that fish producers felt were worth investment. One innovative investment not present during baseline observation was the use of *hapa*, an inverted cage either made of net/wood and bamboo, by 25% of producers. At a mean value of USD 8,048, this type of culture method reduces the risk of fish stock loss during flooding in the wet season, as cages can be moved or float atop water levels. Following the baseline, fishpond excavation is the largest investment for 78% of project-assisted fish producers. Mean values for this investment increased by USD 2,715, an 18.8% increase over the baseline mean value of USD 2,285; or, after adjusting for outliers, a 42% decrease to USD 1,235.

Observing the median data points, or adjusted mean, points to a decrease in this fixed-term investment; however, this is not due to a lack of investment altogether, and should not be seen as an indicator of poor long-term growth. From the information gathered during household and key informant interviews, it was noted that excavation charges have decreased as the number of contractors with excavating machines has increased, i.e. lower costs due to increased supply. Additionally, some pond owners mentioned that pond excavation was actually free, as excavated land can then be used as landfill for low-lying residential areas.

Nearly all (97%) fish producers invested in the establishment and maintenance of fishponds. Observations showed a significant decrease from mean values reported from baseline to end-line, from USD 5.0/ m^2 to USD 0.08/ m^2. This decrease may be attributed to lower costs for hired labor, as the application of learned practices from project-supported training has led producers to

undertake soil erosion control by planting trees and hedgerows/grass along fishpond banks; in turn, leading to lower maintenance costs. Investment in water reservoirs also decreased due to improvements in irrigation infrastructure in rural areas and in the flooded forest areas of the Tonle Sap region; moreover, the government has recently restricted the construction of water reservoirs.

Production increases were met by increased investment in feed production, and the use of new types of equipment, such as motorized granulators and shaking machines. Transport trucks, used to carry harvested fish, were considered another valuable investment, with a 162% increase in mean value: USD 2,889 from a baseline of USD 1,101. Further investments in feeding pans and water pumps decreased in value, as producers were able to find lower prices after gaining access to market suppliers and more information on variable prices across areas.

In this case, it seems the investment indicator has the limitation of not being able to account for enterprises finding lower prices by taking advantage of improved market information and access to market suppliers. A decrease in the value of individual investments may not necessarily be due to an unwillingness to procure assets; in the case of a developing economy, it may be more based on the emergence of a fairer market situation for those in lower segments of the value chain.

Volume of Production of Fish Producers

Project-supported fish producers generally raise one or more of three fish species: Tilapia, Carp and *Pangasius*. With improved practices, fish stunting has been completely eliminated, compared to the slight occurrence in the baseline (8% of respondents note stunted *Pangasius*, 9% noted stunted Carp, and 12% raised stunted Tilapia) (Table 48).

Throughout the project's lifespan, the production of *Pangasius* and Carp has experienced marked increases. *Pangasius* production increased by a mean volume of 4.67%; or, 11,649 heads (adjusted mean 5,284) compared to baseline mean production of 2,055 heads. Mean volume for Carp production increased by 385%, to 2,612 heads (1,282 adjusted mean) against the baseline of 538 heads. *Pangasius* fish producers comprise 81% of project-assisted enterprises; this is mainly due to high demand on the local market.

For Tilapia growers, on the other hand, there was a decrease of 1.2% in mean volume of production (-16% median), as well as a 16% decrease among producers engaged in Tilapia rearing. Decreases in Tilapia production may be due to the oversaturation of this product in the local market, as it was virtually nonexistent in recent years, and is now among the most prevalent fish species found in markets. Furthermore, Tilapia must reach trader-required sizes before being sold, and there have also been issues of stunted growth due to the species' susceptibility to "jumping disease" (Trichodina spp.). Lastly, the Tilapia species' characteristic of prolific propagation results in overstocking, leading to slower or stunted growth.

Overall, fish producers' volume of production rose by 2,022% (1,199% adjusted mean), to a mean volume of 91,140 heads (55,801 adjusted) against the baseline of 4,294 heads per producer. Producers attributed this rise in promotion of Farmer Interest Groups willing to engage in intensive fish production. Fish producers mentioned the power that exposure to new technologies has over income-earning potential. These gains were prefaced by learned technologies and techniques through: exposure missions (where leading fish farmers were showcased to other MSME Project clients); support was built among producers and input

suppliers; and the coordination and networking of project-assisted producers, leading to support and advice on growing practices.

Value of Sales of Fish Producers

After project-supported assistance to fish producers, significant increases were noted in the mean value of sales for mature *Pangasius* and Carp. The mean value for *Pangasius* increased by 603%, with a mean value of sales of USD 12,023 compared to a baseline of USD 1,710. The value of sales for mature Carp increased by 294%, with a mean sales value of USD 2,200 compared to the baseline of USD 559. These changes are consistent with increases in the volume of production for both species (Table 49).

Even as outliers are removed, *Pangasius* value of sales still experienced an increase of 209% over the baseline, to an adjusted mean value of USD 5,284. This trend also applies to Carp production, with the adjusted mean showing that fish producers still experienced a 129% increase over the previously reported baseline figure, reaching USD 1,282 in mean value of sales. As mentioned, increasing production for these two species is due to increasing demand in the local market, particularly for the *Pangasius* species. More fish producers have diverted to this species because of its fast growth and higher sale weight, compared to Carp and Tilapia.

Mean sales figures for mature Tilapia were fairly consistent with the lower volumes of production noted during the final survey. While a slight majority of fish producers sold mature Tilapia (56%) during the baseline, only 40% did so during end-line observation. Among these producers, there was a 31.3% increase over the baseline mean value of sales, USD 1,630 over USD 1,241. However, if using an adjusted mean, fish producers actually experienced a 19% decrease in value of sales: an adjusted mean value of USD 1,002 against the baseline of USD 1,241.

Thus, it seems larger-scale, or more established and experienced Tilapia producers have been able to produce resilient species and continue increasing value of sales, whereas the average Tilapia producer has experienced losses. With specific size requirements, and an average culture period of nine months, it seems some producers see fewer incentives in growing Tilapia to maturity; however, with continued market demand, there are still opportunities for growth for more experienced, productive, and innovative enterprises.

Value of sales for *Pangasius* and Carp fingerlings both increased, going hand-in-hand with increased volume of production. On the other hand, sales values for Tilapia fingerling decreased by 81% compared to the baseline value, from USD 927 to the current USD 175. Overall, project-assisted enterprises experienced a 1,066% increase (466% adjusted mean) in mean value of sales, reaching USD 22,703 (USD 11,030 adjusted mean) against the baseline of USD 1,947 (Table 49).

Cost of Business of Fish Producers

After project assistance, it seems business management practices among fish producers have become more efficient, as is indicated by change in technique and the higher business costs for preferred fish species (*Pangasius*, Carp).

Previously, producers bought fingerlings based on head count or piece; now, due to better practices, and higher production, it is much easier to procure stock based on weight measures, (kilograms). Additionally, for fingerling production, only 1-3% of producers (1% for Tilapia; 3%

for *Pangasius* and Carp) were still raising stunted fish. The cost of stunted fish is high, particularly for Carp, with a mean value of USD 2,856 (USD 83 median) against the baseline mean of USD 2 (USD 2 median) (Table 50); however, this is mainly due to an extreme outlier, and the lack of variation in the data, as one producer seems to be buying mass amounts of stunted stock. Producers stocking carp fingerlings experienced the highest cost increase among the three species, observed at an increase of 611% (371% adjusted mean) over the baseline. From in-depth interviews, it seems this increase in Carp fingerlings may be attributed to the introduction of a new species, the Silver Barb, and other fast-growing Carp species (Table 50).

While increased fish stock costs may refer to increased production, other input costs may be indicative of improved practices consistent with more effective production techniques. This is evident in the choice of feed, medicine, water treatment substances, and even hired labor. Consistent with increases in the volume of fish stock, there were significant increases in the cost of commercial feed or feed ingredients. More specifically, rice bran is the primary feed used by producers, with 95% of project-assisted enterprises confirming use; data shows a 1,973% increase in the mean volume of rice bran usage (12,938 kg vs. baseline of 1,169 kg.). Naturally, with increased demand, the mean cost per unit has also grown though, by 87% (USD 0.24/kg vs. baseline of USD 0.13/kg).

Approximately 83% of producers also used manufactured feed, an increase in mean volume of 112% (514 kg vs. baseline of 242 kg). More producers are also procuring and using trash fish as a feed source (30% vs. baseline of 17%), with the mean volume increasing by 1,177% (2,747 kg vs. baseline of 215 kg). Interestingly, a decrease was noted in the cost per unit of trash fish though; hence, some producers have come to prefer this feed type due to lower costs. The use of lime in aquaculture ponds, to raise soil pH and base saturation levels, has remained stable, with 66% of producers, at baseline and end-line, confirming its use; however, the cost of lime had grown significantly, with mean costs increasing by 79% (adjusted mean to USD 25 over the baseline cost of USD 14 (unadjusted mean, USD 499; +3,464%). Higher lime prices per unit may be indicative of growing demand in the aquaculture sector, or decreased supply. However, continued use of efficient water treatment will reduce fish mortality and ensure higher production in the future.

An additional cost of business to note in the development of this segment of the value chain is hired labor. While an increased cost to fish producers, this does not only illustrate business growth, but positive spillover effects to the local economy, in the form of job creation in the rural areas. After project implementation, there has been significant increase in the number of project-assisted firms employing labor, from 4% hiring workers (full- and part-time) during the baseline to 20% hiring labor (full- and part-time) during the final survey.

Overall, the aquaculture value chain has experienced positive and healthy development, as increased investments and business costs may be seen as beneficial to future growth, not only to individual enterprises (in the form of increased income for producers) but also, overall, for the rural economy (in the form of job creation, and income generation in other segments of the value chain).

Inclusive of all costs, the mean cost of business matured by USD 7,221 (USD 1,330 adjusted mean), and an increase of 1,088% (119% adjusted) compared to the baseline of USD 608. Aquaculture producers attributed increased cost of business to the improved methods learned from project-supported activities. In viewing significant percentage changes in both mean

(+1,088%) and adjusted mean (+119%) illustrates that both larger-scale enterprises, as well as smaller-scale enterprises adopted new methods proposed by project-supported activities.

Income of Fish Producers

Moving on to income, a significant increase of 1,056% (+711% median) was observed; mean income of USD 15,482 per enterprise (USD 1,792 median) against baseline mean income of USD 1,339 (USD 221 median). Interestingly, if taking the adjusted mean, there was actually a 22% decrease in income. This may illustrates that micro- or small-scale enterprises, of less experienced enterprises, have recently increased investments and business costs but have not yet experienced a return on assets; however, returns, especially if made quite recently, may not be experienced until the next fiscal year.

If lacking experience, newer enterprises may have experienced the negative effects of poor water quality, lack of continuous water flow, unregulated water temperatures and pH balances, and external shocks such as disease outbreak. With continued consumer demand though, and a growing domestic and regional population, there is still potential for benefits to outweigh costs if enterprises are able to exercise efficient and innovative practices in the future (Table 50).

As suggested from information gathered from suppliers and fisheries experts, for those experiencing growth, increased income may be attributed to resulting improvements in fish survival and yields. Growing demand has led to an increase in fish price, where the price of cultured fish per unit has increased from 200% to 600% (depending upon species). According to Cambodia's National Institute of Statistics, the value of sales negate domestic inflation surges (4.8%) (NIS, Cambodia 2012)

Productivity of Fish Producers

The mean weight of matured Tilapia and *Pangasius* decreased by 2% and 11%, respectively, compared with baseline data (Table 52).

This may indicate that producers are selling fish before peak maturity, or strong/changing market demand allowing smaller-sized fish to be sold. Interestingly, while the mean weight of *Pangasius* has fallen, the mean volume and value of sales have increased, as previously mentioned; possibly depicting higher quality, albeit a relatively smaller size.

Fish productivity indicators showed an increase in the number of months for fish culture: an increase of 0.5 months for *Pangasius* (9 months at baseline vs. 9.5 months at end-line), and 2.1 months for Tilapia and Carp (7.7 at baseline vs. 9 at end-line). From interviews, it seems there is a tendency to extend Carp production to peak maturity because of higher market prices per weight, compared to the lower-priced Tilapia species. Fish producers also practice partial harvesting in relation to market price information – i.e., producers wait to harvest until prices reach certain levels, and stock when prices are low. From data gathered on the average weight at sale, it seems producers, in the past year, opted to sell fish prematurely due to increased market demand and varying size specifications.

Indicators on fish mortality rates were highest for Carp, followed by Tilapia, and then *Pangasius*. From the previously reported figures, mortality does not seem significant enough to affect stocking and production. According to fish producers, mortality rates are due to increasing and unregulated water temperature during the dry season, "jumping disease" affecting Tilapia, and

the increase of plankton and bacteria in water. Fingerling mortality rates are due to stress during transport from hatcheries to rural production areas (Table 52).

Project Assisted Fish Traders

Traders purchase fish from producers and then transport and sell these products to other fish producers, processors, wholesalers, or retailers. According to the MSME Project's client database (TAMIS), at time of survey, there were a total of 14 (8 female) project-assisted traders in July 2012, showing an increase of 43% from the baseline. The end-line sampled only 3 traders, all of which were previously interviewed during the baseline; thus, the following results may be seen as a longitudinal study of this small sample size.

Value of Investment of Fish Traders

Fish traders have aggressively increased investments during the project's lifespan, responding to the production increases of fish producers as well as market demand. Transportation was observed as the main investment for traders, with a median value of USD 17,000 (USD 74,333 mean). Additionally, innovation was observed within this segment of the value chain, as traders were seen to invest in fish storage tanks, which was not observed during the baseline (Table 53). Larger trucks are needed in transporting higher volumes of fish to larger cities, where demand and prices are higher than those found in rural markets.

From interviews, it was observed that poor road infrastructure in rural areas was still considered a major constraint; and thus, traders must invest in higher-quality vehicles to ensure timely supply to markets. Significant investment growth was observed by traders, with an 8,000% increase in end-line mean (USD 76,745) versus baseline mean (USD 902). Changes in median were also pronounced, with a 2,334% increase at end-line median (USD 20,550) compared to baseline median (USD 844). As previously mentioned the same individuals interviewed at baseline were then interviewed at end-line; hence, portraying the significant investment gains made by these three fish traders.

Volume of Transaction and Value of Sales of Fish Traders

Fish traders were able to increase all transaction volumes for each type of fish species being traded. Carp transaction volumes increased by 5,295% over the baseline (median 5,029%), followed by *Pangasius* transaction volumes at 2,022% (median 3,622%). Logically, the volume of trade runs parallel to the production increases, for Carp and *Pangasius* species, experienced by fish producers. For Tilapia, although a decrease in production was noted, there was still an increase in the volume of sales; namely, an increase of 1,287%, or a mean volume of 70,750 heads versus the baseline of 5,100 (Table 55).

Although Tilapia production may have decreased slightly, the number of new entrants to the fish trader segment of the value chain was so few that these enterprises did not feel such a decrease. With disproportionate increases in the fish producer segment, fish traders will not be unduly affected in the near future. Overall, the transaction volumes have increased significantly over the baseline, by 2,490% (median 3,246%).

Consistent with increases in investment and transaction volume, traders experienced increases in the value of sales for all related fish species. For example, Carp sales increased by 10,341% (median 9,976%) over the baseline (Table 55). Interviews with traders affirmed that sales value

increases were in line with increased production to meet market demand. With decreasing and irregular wild fish capture, demand for farmed fish has improved, especially since increasing urban populations demand regular and increased supply. Overall, value of sales increased significantly by 6,999% (median 7,567%).

Cost of Business for Fish Traders Enterprise

For traders, the primary cost of business is purchase of stock, which increased by 7,473% over the baseline mean (+8,062% median), with a calculated mean value of USD 1,485,895 (USD 1,566,601 median) over the baseline of USD 19,621 (median USD 19,193). While larger transaction volumes accounts for increases, fish prices was also a factor, e.g., the price of mature Tilapia grew from USD 0.63 to USD 1.69 (Table 57).

In the aquaculture value chain, spillover effects to the local economy did not end with fish producers, as evidence suggests traders spent on part-time and full-time labor, which was not seen in the baseline. Labor costs for full-time workers averaged USD 6,233 (USD 4,750 median), with all three respondents hiring full-time employees. Miscellaneous expenses, such as fuel, increased by 13,917% (+16,302% median) over the baseline mean, costing an average of USD 33,920, which was consistent with increased transaction volumes and investments in additional transport vehicles.

Income of Fish Traders

Overall, income of fish traders increased by 3,127% over the baseline mean (+2,736% median); or, more specifically, from a baseline mean of USD 2,403 (USD 2,643 median) to USD 77,544 (USD 74,963 median) (Table 57). These income increases are, logically, the result of higher transaction volumes and increased demand, along with an improved and growing network of fish producers in which traders may seek products.

Adopted practices in the preservation and storage of fish, learned from project-supported activities, enabled traders to store live fish on trucks and transport these live fish, which are in high demand, to large markets in Phnom Penh and Siem Reap. According to interviews, traders are able to earn more from fresh/live products. Through interviews, traders mentioned that the MSME Project facilitated networking opportunities between producer-suppliers and small traders, allowing these actors to consolidate purchased stock and sell to larger-scale traders with links to urban markets.

Project Impact

As mentioned within the cost of business figures, it was observed that actors within the aquaculture value chain are now able to employ full- and part-time labor, as opposed to strictly operating as family enterprises. From interviews, it was found that aquaculture producers now employ, on average, 12 laborers (full- or part-time). By using the proportion of enterprises employing labor, and applying this as a representative proportion to all project-assisted aquaculture producers, estimates can be drawn for all clients.

In terms of part-time labor, aquaculture producers generated an estimated 1,002 part-time jobs (501 full-time equivalent jobs), equating to 170,340 days worked and USD 681,360 in compensation. For full-time labor, aquaculture producers generated an estimated total of 820 full-time jobs, which would account for USD 865,624 for full-time laborers. In total (part- and

full-time combined), this would equate to project-assisted aquaculture producers generating an estimated 1,321 full-time equivalent jobs, compensating workers a total of USD 1,546,984 (for the most recent year).

Knowledge dissemination is important in terms of the lasting effects of the project, after closedown (i.e. project legacy). It was observed that aquaculture clients, on average, shared knowledge with an average of 23.5 non-clients, and of these individuals, an average of 15.9 non-clients fully or partially adopted project-supported methods. This would denote that 18,166 aquaculture non-clients were exposed to project-supported methods (18,939 exposed to methods, including clients), with 12,291 of these non-clients partially or fully adopting methods (13,064 enterprises adopting methods, including clients).

Considering the impacts felt by enterprises would be translated to their households (which, on average, comprise 5.2 family members), in the form of improved household consumption of social gains such as education expenditure, this would signify a potential project impact of 63,912 individuals benefiting from the MSME Project's aquaculture activities.

Brick and Tile Value Chain

Brick and Tile Makers

At the time of end-line observation, the MSME Project as supporting 55 brick and tile enterprises or varying sizes, 15 of which were interviewed for this study. Observations were limited to smaller-scale enterprises, as owners of larger-scale enterprises were not available for interview. As can be noted in the figures below, without consideration of larger-scale enterprises, which were taken into account during the baseline, it may be difficult for comparisons to be made between the two observation periods.

Value of investments by Project Assisted Brick and Tile Makers

In terms of the space needed to conduct business and capital investment, project-assisted brick and tile makers are typically much larger than swine or aquaculture counterparts. Enterprises were situated on an average 30,175 m^2 of land, housing kilns and processing structures, product warehouses, sun-drying areas, and storage for soil, sand and raw materials. Many enterprises have been in business for quite some time; thus, permanent assets were built earlier, with investment occurring in the form of upkeep and maintenance.

From interviews, it was observed that the baseline value for mean investments per enterprise was USD 168,009; the End-line survey placed this at a mean value of USD 60,289 (a 64% decrease). Given the depreciation of permanent current assets, without investment in new capital, figures have fallen from baseline to end-line.

Mean land value, at baseline, equated to USD 112,116 but a mean of USD 55,500 was calculated at end-line (a 50% decrease). Kilns are currently valued at USD 21,000, with upkeep and maintenance requiring a mean cost of USD 5,525. Machinery held at baseline and end-line included assets such as water pumps, clay mixing machines, molding machines, handling machines, transport vehicles, and processing machines.

While some fixed assets, such as kilns, depreciated, 8% of respondents invested in new kilns, reporting a mean value at USD 47,500; 33% of respondents renovated existing kilns (Table 7). From field observations, new kilns are much more complicated with larger productive capacities,

although more expensive than previous kilns. Thus, it is evident that enterprises investing in such equipment feel the return on this asset will be justified by improved capacity, and in turn, higher income and profits. Although only 8% of respondents invested in new kilns, after observation and information provided by the MSME Project team, it was found that, of the current 55 project-assisted enterprises, approximately 30 (55%) have invested in new kilns, high-quality grinding machines that produce smooth tiles, hydraulic extruders that reduce moisture content, colored tiles and delivery services.[4] In this respect, it seems most end-line survey respondents were not within this group of enterprises seeking new fixed investments to spur future growth.

New investment, in the form of processing equipment and machinery not previously seen at baseline, were noted at end-line. Approximately 20% of enterprises acquired automatic clay-mixing and cutting machines valued at a mean of USD 20,467; 27% procured molding machines, at a value of USD 11,325; and, drying machines at USD 5,651. A significant majority (86%) procured soil excavators, a major investment valued at USD 50,000, which may illustrate potential growth for these enterprises. There was also a noted increase in the number of enterprises investing in transport machinery. The majority of respondents (66%) procured motorcycles, an increase over the 22% reporting so at baseline, while 47% reported the procurement of transport trucks, versus 60% at baseline.

Table 7 Investments for Brick and Tile Enterprises

Assets	Baseline (n=15)			End-line survey (n=15)			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Land	100	112,116	140,737	100	55,500	66,000	-50	-53
Buildings/Storage/Structures	100	18,909	19148	53	7,188	4,500	62	-76
Existing Kilns (un-renovated)	60	10,643	7659	40	21,000	15,250	97	99
Existing Kilns (renovated last year)	60	15,345	8617	33	5,525	1,000	-64	-88
New Kilns (constructed last year)	27	11,417	9574	8	47,500	47,500	316	396
Water Pump	100	310	239	66	265	200	-14.5	-16
Equipment-Clay Mix Preparation	80	4,057	4428	60	3,456	2,000	-15	-54.8
Equipment-Kiln	20	2,249	34	8	27,500	27,500	1122	80782
Equipment-Drying	20	5,744	6983	27	5,651	5,503	-1.6	-21
Equipment-B&T handling	80	1,127	1005	66	1,119	730	-0.7	-27
Equipment-B&T Handling (Machine)				13	600	600		

[4] MSME Project Newsletter, Issue 10, August 2011

Assets	Baseline (n=15)			End-line survey (n=15)			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Equipment-Automatic Machine for making brick and tile				20	20,467	20,000		
Equipment-Molding Machine for making brick and tile				27	11,325	8,400		
Equipment-Excavator				13	50,000	50,000		
B&T Transport-Motorcycle	27	910	862	66	730	11,185	-19.7	1197
B&T Transport-Truck	60	16754	7659	47	14,000	15,000	-16.4	96
Other Major Processing Assets	93	2138	706	47	1,956	2,000	-8.5	183
Total	100	168009	158844	100	60,289	54,950	-64	-65.4

Volume of Production of Project Assisted Brick and Tile Makers

Most enterprises (87%) typically produce brick products, although 60% produce both bricks and tiles. There are currently two types of bricks and two types of tiles commonly produced. The mean volume for brick production is 1,045,000 per year, while for enterprises produce a mean volume of 613,000 clay roof tiles per year. From baseline to end-line, this data suggests a mean volume of production decrease of 14%. For both brick and tile, the baseline mean volume of 1,486,133 decreased to 1,268,893 at end-line (Table 8).

Table 8 Volume of Production and Value of Sales of Project Assisted B&T Enterprises

Brick and Tiles	Baseline (n=15)			End-line (n=15)			% change	
	%n	Mean	Median	% n	Mean	Median	Mean	Median
Bricks-Quality 1	100	1,039,467	720,000	87	1,034,877	840,000	-0.44	16.6
Bricks Quality 2	13	370,000	370,000	7	100,000	10,000	-72.9	-72.9
Total Bricks		1088800	840000					
Roof tiles Quality 1	100	584,444	400,000	60	616,667	600,000	5.5	50
Roof tiles Quality 2	22	350,000	350,000	7	20,000	20,000	-94	-94
Total Tiles		662,222	477,778					
Total B&T		1,486,133	1,380,000	100	1,268,893	980,000	-14.6	-29

Lower volumes of production were attributed to lower demand from the construction sector. Since the global economic crisis, post-2008, the overall picture for the construction and real

estate sector in Cambodia has not been vibrant. Property prices in Phnom Penh and surrounding areas experienced decreased of 50%, from historic highs in 2008, while the number of construction projects approved in 2009 declined by 14 percent.[5] This had an adverse effect on brick and tile enterprises, as the volume of construction materials purchased decreased. Furthermore, there was a reduction in foreign direct investment, with many construction projects being scaled down or abandoned altogether, resulting in significant job losses. As real estate prices continued to slide, banks became concerned with over-exposure to real estate and property lending. As a result, the National Bank of Cambodia restricted bank lending to the property sector in 2010, so as to ensure liquidity, and called for a reduction in bank reserves from a 16% reserve ratio to 12%.

From interviews, it was observed that a significant majority of brick and tile enterprises (80%) were affected by the economic downturn during 2009-2010, and this persisted in 2010-2011 (53% reported negative effects). Losses were also quite high, from July 2009-June 2010; approximately 33% of respondents cited income losses of more than 20%; in 2010-2011, 75% cited losses of income beyond 10%. This stagnation ended during the 2011-2012 period; however, an additional negative impact on production was related to persistent flooding in 2009 and 2011. Due to the 2011 floods, 80% of respondents reported negative effects, with enterprises experiencing production stoppages, in effect, negatively impacting income (92% noted income losses due to flooding).

Value of Sales of Project Assisted Brick and Tile Makers

Brick products yield a mean sales value of USD 29,086, while tile products hold a mean sales value of USD 31,044 (combined, this constitutes a mean value of USD 43,748) (.

Overall, brick and tile respondents experienced a 26% decrease in sales value. If examining price per unit (in 1000 units), there was a slight decline for brick product-type 1 (from a baseline of USD 34 to USD 30) and brick product-type 2 (USD 34 to USD 29). For tile makers, the same downward trend in price per unit was observed, from USD 55 at baseline to USD 51 for tile product-type 1; and, a more significant decline for tile product-type 2, from USD 55 at baseline to USD 27 at end-line.

Understandably, stagnation in the construction sector led to decreased demand; in turn, causing lower sales values, as enterprises were not able to replace foregone customer demand. Total value of sales, for brick products, dropped from a baseline of USD 37,108 to USD 29,086; for tile products, value of sales decreased from the baseline of USD 36,610 to USD 31,044.

Additional to external shocks, such as flooding and the economic downturn, it was noted that brick and tile enterprises continue to compete with products from Vietnam, where innovations have reduced production costs and corresponding prices.

Cost of Business of Project Assisted Brick and Tile Makers

While the computation for cost and sales that follow are disaggregated by brick and tile enterprises, it should be noted that both products share common costs, such as raw materials,

[5] Asia Real Estate Cambodia 2012, see: <*www.globalpropertyguide.com › Asia › Cambodia*>

labor and machinery; thus, major costs such as these were accounted for in the brick sector computation.

Table 9.

Overall, brick and tile respondents experienced a 26% decrease in sales value. If examining price per unit (in 1000 units), there was a slight decline for brick product-type 1 (from a baseline of USD 34 to USD 30) and brick product-type 2 (USD 34 to USD 29). For tile makers, the same downward trend in price per unit was observed, from USD 55 at baseline to USD 51 for tile product-type 1; and, a more significant decline for tile product-type 2, from USD 55 at baseline to USD 27 at end-line.

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Additional to external shocks, such as flooding and the economic downturn, it was noted that brick and tile enterprises continue to compete with products from Vietnam, where innovations have reduced production costs and corresponding prices.

Cost of Business of Project Assisted Brick and Tile Makers

While the computation for cost and sales that follow are disaggregated by brick and tile enterprises, it should be noted that both products share common costs, such as raw materials, labor and machinery; thus, major costs such as these were accounted for in the brick sector computation.

Table 9 Value of Sales for Brick and Tile Enterprises

	BASELINE (n-bricks 15, n-tiles 9)			END-LINE (n-bricks 13, n-tiles 9)			% change		
	Mean (total units)	Mean value	Mean Price/ ’000 units	Mean (total units)	Mean value	Mean Price/ ’000 units	Mean (total units)	Mean value	Mean Price/’ 000 units
BRICKS									
Bricks-Quality 1	1,038,467	35,448	34.1	1,034,877	28,986	30.48	-0.34		-10.6
Bricks Quality 2	370,000	12,446	33.64	10,000	125	12.5	-97.2		-62.8
Total Brick	1,088,800	37,108	34.08		29,086			-21.6	
TILES									
Tiles-Quality 1	584,444	32,222	55.13	616,667	30,983	50.97	5.51		-7.54
Tiles Quality 2	350,000	19,746	56.42	20,000	550	27.5	-94.2		-51.2
Total Tile	662,222	36,610	55.28		31,044			-15.	

	BASELINE (n-bricks 15, n-tiles 9)			END-LINE (n-bricks 13, n-tiles 9)			% change		
	Mean (total units)	Mean value	Mean Price/ '000 units	Mean (total units)	Mean value	Mean Price/ '000 units	Mean (total units)	Mean value	Mean Price/' 000 units
Total B&T	1,486,133	59,073	39.75	1,268,893	43,748	36.875	-14.6	-25.9	-7.23

The mean cost of business per brick enterprise, at end-line, is USD 30,471, while for tiles, mean cost of business equates to USD 23,845 (Table 10). The primary costs include raw materials (clay, sand, water, and fuel wood) (approximately 40% of total costs), hired part-time and full time labor (approximately 45% of total costs), and the cost of operating equipment (electricity, fuel, repairs) (remaining total costs). When compared to the baseline, respondents experienced a slight decrease (9%) in business costs. Decreases in the costs of business coincided with lower demand, as enterprises, more than likely, adjusted production to match stagnation.

Table 10 Cost of Business of Project Assisted Brick and Tile Enterprises

	baseline n=15			End-line n=15			% Change	
Item	% n	Mean	Median	% n	Mean	Median	Mean	Median
Total Cost of business for Bricks	100	26,596	17,011	100	30,471	31,713	14.57	86.43
Total Cost of business for Tiles	100	35,220	22,240	7	24,034	24,034	-31.76	8.07
Total All (cost of business in value(Brick and Tile)	100	35,220	22,240	100	32,073	34,785	-8.93	56.4

Income of Project Assisted Brick and Tile Makers

Taking into account the difference in value of sales (USD 43,748) and costs of business (USD 32,073), mean enterprise income was computed as USD 11,675 (median USD 7,765); a 51% drop from the baseline mean of USD 23,854 (Table 12).

As previously mentioned, lower demand from the construction sector, due in part to the economic downturn, likely contributed to lower production capacities and value of sales. The reported income figures, and corresponding negative percentage change, relate to the fact that respondents were not able to curtail business costs as much as needed, most likely due to maintenance and upkeep, especially as production volumes and sales values declined significantly. Moreover, as previously mentioned, the sample was not necessarily representative of the population of project-supported enterprises, as larger-scale producers, which were interviewed at baseline, were not available for the end-line survey.

Overall Brick and Tile Value Chain PMEP Indicator Results

During the baseline, the brick and tile value chain comprised 21% of the MSME Project's client base; however, it has now decreased to 0.99% of the current client base. The number of brick and tile enterprises assisted by the MSME Project rose from 28 clients, at baseline, to 55 enterprises at the time of the end-line survey; four enterprises are owned or managed by female entrepreneurs. Overall enterprise-level performance indicators, in accordance with the PMEP, are summarized below.

Project Impact

Brick and tile enterprises assisted by the MSME Project are relatively medium-sized, with enterprises mainly hiring either full- or part-time labor, distinctive of project-supported enterprises in the swine and aquaculture value chains, which generally rely on family labor. From end-line estimations, it was observed that enterprises generally employ a mean of 19 part-time laborers (15 median), who will work, on average, 103 days per year and are paid a daily rate of USD 3.

If taking these estimates to generate totals for all project-supported enterprises, this would account for the generation of 909 part-time jobs (455 full-time equivalents), including 93,627 days worked by these individuals, and USD 280,881 paid to part-time laborers. On the other hand, the number of full-time laborers employed per enterprise has increased from 11.8 at baseline, to a mean of 16.7 persons at end-line (Table 72). This would then account for the generation of 919 full-time jobs and USD 727,848 paid to full-time workers, not including estimates for part-time labor.

Thus, in taking these estimates to generate totals for project-assisted enterprises, at end-line, brick and tile enterprises had generated 1,374 full-time equivalent jobs (for the most recent year), compensating employees USD 1,008,729 (for the most recent year).

In terms of social impacts, more than half of project-assisted enterprises attributed project-supported activities as the reason for improved relationships with other value chain actors and government authorities, in turn, resulting in the provision of spillover effects to local communities (as evidenced through job generation and compensation). Although results for the most recent year, at end-line, were not significant, more than 25% of owners cited improvements in production and services; the same proportion said they learned production techniques and new information, and shared what they learned with neighbors. More than 10% (13.3%) attributed success from the project to social impacts related to increased savings and mitigating unnecessary economic migration (Table 73).

Table 11 Cost of Business and Income of Project Assisted Brick and Tile Enterprises

	Baseline		End-line survey n=15			% Change	
	Mean	Median	%n	Mean	Median	Mean	Median
Total All (Total value of investment)	168,009	158,844	86.7	60,289	54,950	-64	-65
Total All (Total quantity of production)	1,486,133	1,380,000	100	1268893	980000	-14.6	-29
Total (Total Value of sales for Brick)	37,108	25,850	86.7	28,986	29,700	-21.9	14.9
Total (Total Value of sale for Tiles)	36,610	22,020	60	31,044	30,000	-15	36.2
Total All (Total Value of sale both Brick & Tile)	59,073	36,620	100	43,748	39,300	-25.9	7.3
Total All (Average of sale per '000 units)	39.75	26.54	100	36.88	38.13	-7.22	43.6
Total (Cost of business in value for brick)	26,596	17,011	86.7	32,071	34,785	20. 6	104
Total (Cost of business in value in Tile)	14,373	10,931	20	21,390	23,735	48.8	117
Income for brick	10,152	8,839	86.7	-3,085	-4,702	-130	-153
income for tiles	22,237	11,089	20	15,377	7,765	-30.8	-30
Total All (cost of business in value(Brick and Tile)	35,220	22,240	100	32,073	34,785	-8.93	56.4
income (both brick and tiles)	23,854	14,380	100	11,675	7,765	-51	-46

In terms of knowledge sharing, and the project's legacy in the brick and tile sector, it was observed that each enterprise shared knowledge with an average of 9.2 enterprises, and among these, 4.4 actually adopted project-supported methods in part or in full. In effect, this illustrates that 495 non-client brick and tile enterprises were exposed to project-supported methods (550 enterprises, including clients) and 242 non-clients adopted project-supported methods (297 brick and tile enterprises, including clients).

The households (generally, 5.2 family members) of those exposed to the MSME Project (enterprises and laborers) would most likely feel impacts as well, in the form of social and economic gains. In this sense, this would place potential project impact, from those benefiting from project-supported brick and tile activities, at 8,689 individuals.

Additionally, although income may have fallen in the most recent year, a significant majority of enterprises noted that project assistance contributed to increased income, if accounting for each year of participation by enterprises. More than one-fourth (27%) confirmed that improvements in

income enabled them to send their children to school, while 20% were able to procure transportation, such as motorcycles and cars (Table 74).

Good Practices and Challenges

Improving Processes and Productivity of the Swine Value Chain

The MSME project assisted enterprises grew in number. The replication of the techniques and production processes learned by direct clients and shared to other entrepreneurs is equally high—to as many as 41 people per enterprise with 27 people partly or fully adopting the technologies shared. The strategies adopted by the project, such as embedded training by input suppliers and wide-reaching information through the radio program and distribution of video and written production manuals, proved appropriate in reaching out to a wider public and eventually adoption by NGOs and universities of the modules.

Overall, these strategies brought in more actors into the value chain, notably increasing the numbers of traders, input suppliers, and veterinarians and feed producers, as well as increasing the number of local producers. Embedded trainings by these actors ensured that appropriate breed stock, enriched feed formulas and feeding practice, artificial insemination for breeding, vaccination and use of medicines and more hygienic production process were practiced.

Adoption of new technologies increased feeder weight at sale to 70-80 kilograms and reduced the number of days for feeder to reach 80-90 kilogram standard from 157 days to 141 days. This shortened the production cycle and, on the other hand, encouraged producers to invest in more stock—increasing annual stock of all types from 30 to 48 pigs per year. It also brought in guarantees for future healthier stock, since most input suppliers now ensure that stocks are only sold to producers who appropriately care for their stock, in line with concern about quality and "stock recognition."

MSME strategies also engendered the operation of producer cooperatives and associations, eventually enhancing cooperation among producers and stakeholders network for advocacy on pricing and regulations and better business environment with government actors. Some 32 pig-raiser associations and cooperatives are working with the MSME program, along with some 31 feed-making groups and 4 major input supply companies. The project has consolidated the support of all district veterinarians in the 16 provinces to provide technical training to reduce production costs, while Provincial Departments of the MAFF and Ministry of Commerce are now actively involved in improving the business environment that invite support from the bigger private sector companies.

Challenges in the Swine Value Chain

While the MSME has facilitated the participation of more swine producers and ISPs, there are still a limited number of swine farms in the country and there is still limited local pork supply in the country. Government figures put the current market demand at 2.4 million pigs per year and growing as the population expands. Phnom Penh City alone requires 2,000 pigs every day. Current annual production in 2011 was estimated by MAFF at 2,099,332. This suggest that the market demand is still high, that local production still needs to be encouraged and that replication and "crowding in" factors are not a threat, but should rather be encouraged, as the market demand is still sustainable. Previous MSME studies put the percentage share of local pork to

total market supply at 60% in 2008, decreasing to 40% in 2009%6. At current, MSME project assisted swine producers, numbering 3,849 producers with an annual 49 heads of swine stock, account for less than 200,000 heads or barely 8% of the national demand.

Given the strong demand, importation of live swine, as well as breed stock, is still prevalent and importers procure more than 1000 pigs per day from Thailand (2012). There has been significant effort to increase local supply by large companies, notably with a 30-hectare farm set up by the Mongo Reththy company, with a capacity for an initial 600-head stock in 2008, an expected yield of 18,000 heads by 2011, and targeting one million animals in 8 years' time, so as to meet 50% of domestic demand.

Despite a positive improvement in pig production technologies attributed to the MSME project, local farming is still faced with higher costs when compared to neighboring countries and thus sell at higher costs: local pork sells at 1.80 to 2 dollars per kilo, when it's only 1.3 dollar per kilo in Thailand. There is still a need for a more efficient system of production, for example to cut down on fat volume and enhance meat quality. There was also the challenge of improving on the breed stock, particularly since the reliance on imported breed stock was widely blamed for the spate of Porcine Reproductive & Respiratory Syndrome (PRRS) virus or "blue-ear disease" in 2010, which affected imported breed stock and which took some time to diffuse their serological positive status.

There are still a need to follow through on several programs, which will improve on packaging and branding of local products. MSME started with the Cambodian National Pig Raisers Association an upgrading program for retailers to support slaughter operations, including a micro-franchising and product branding scheme with retailers. There should be followed up as well among industry players to invest in a program to address consumer risk perceptions and undertake market promotion based on concrete unique selling propositions to the Cambodian consumer about the positive eating and safe attributes of local pork and to reflect these characteristics at the point of sale. "Buy Cambodia" campaigns can be promoted among restaurants, food caterers, major supermarkets and the general public in support of the recognition and accreditation of local enterprises.

Improving Processes and Productivity in Aquaculture Value Chain

The MSME project assisted enterprises in aquaculture has more than doubled from the baseline growing from 396 to 759 producer enterprises and to include 14 traders, 10 fingerling producers, 2 input suppliers, 7 processers and 11 retailers. The formation of interest groups composed of 10-20 producers or potential producers facilitated their involvement in the MSME project. Small forums among the interest groups identified key business and technical constraints and the MSME facilitates discussions of potential interventions and solutions. Interventions included embedded technical training, cross-provincial exposure visits, and participation in trade fairs, international technology and governance exposure visits or value chain specific business forums. The entrepreneurs then applied what they learned from these interventions in their enterprise.

[6] See MSME 2009 Study: Marian E. Boquiren (2009) Pork Sub-sector: Key Recommendations For Project Interventions at the Retail Level

The adoption of technologies has definitely resulted to innovations: the adoption of fish fingerling stock for some 10 species--*Tilapia, Carp and Pangasius*; new investments such as the use of *hapa*; increased number of ponds; and, the use of air, water reservoir, and feed mix machines among some 10% of producers. The link to input suppliers among local hatcheries facilitated embedded training and technical support to fishpond owners who bought fingerling stock from them.

Generally, the volume of production among producers more than doubled from the baseline to around 8,600 heads each year per enterprise. Some 83% of producers started using feeds and about 50% are using trash fish as feed, besides traditional rice bran or broken rice feeds, and at least one third of producers now use medicines as input. Anecdotal evidence from producers interviewed cited increased pond production from 4 kilograms per cubic meter in 16 to 18 months to 6-7 kilograms per cubic meter in 6 to 8 months and harvesting 7,000 tons from a 1,000 square meter fishpond. Producers seem to sell much earlier, thus weight at sale has gone down; however, the months to maturity had not shown much difference from the baseline. However, there is an apparent high level of mortality: 14.7% for Tilapia, 16% for Carp and 8% for *Pangasius*, due to stress during transport and after stocking.

Challenges for Aquaculture

While aquaculture producers are starting to innovate and improve their production, they tend to be still poorly organized. The interest groups set up among aquaculture producers have not developed into producer cooperatives or associations. They disadvantages in the marketplace due to lack of economies of scale, with issues such as the physical access to markets particularly for small volumes of product, thus, the low "farm gate" price as they sell individually to traders.

Without aquaculture cooperatives, there are limited mechanisms for communication or networking with others to exchange ideas or culture techniques, or to discuss solutions to problems. The study encountered only one aquaculture cooperative in Kampong Thom, who cited that there is still weak recognition from government, unlike agriculture cooperatives, because the Sub-decree for Aquaculture cooperatives is still under review.

There is also the lack of effective servicing of small-scale producers by extension services providers; specifically for Tilapia producers, there was the problem with *Trichodina spp*. or jumping disease where no effective technical extension advice was provided. This reflects the need to train aquaculture extension workers from the Fishery department or input service providers.

Similarly, there is need for credit, insurance and other services that can be provided but which require a cooperative or an association that can advocate for support. There is also need to improve further their capacity in production planning, such as resolving competition for market with the usually abundant wild fish which require that production cycles be timed for peak seasons when wild fish peak seasons ended. Cooperation ventures should also be encouraged for feed production, given that *Pangasius* relies heavily on small wild fish caught from the fishing lots and inputs to the system are relatively expensive.

There is still need to improve on the supply capacity of local hatcheries to produce fingerling stock and deliver them to aquaculture producers. Most of the fingerling stock for *Pangasius* is bought from Vietnam. The distance of travel usually account for high mortality rate during transport. Another issue would be the impact of floods and the lack of sustainable water for fish

ponds during the dry season and its contingent effect such as increasing algal bloom and low oxygen causing mortality or fish diseases.

Improving Processes and Productivity in the Brick and Tile Value Chain

Innovations in the brick and tile value chain were showcased by two key informant interviews conducted during the baseline survey. In one case, Mr. Be Rithy, an industry leader from Prey Veng, joined an MSME project mission to Vietnam, enlightening him on the potential for future business growth and showing him where, and how, he could improve production. After this initial trip, he then paid for several more trips to Vietnam, on his own, to learn more about improved production techniques; he also hired a Vietnamese expert to help him set up a new factory. He invested in a new kiln with a productive capacity of 600,000 bricks and tiles per month, which was equal to his previous quarterly output.

Similarly, Mr. Em Borith, a teacher and entrepreneur from Krakor village in Kratie province, has owned a brick and tile enterprise since 1993, operating one kiln producing approximately 30,000 bricks and tiles per month. He invested in three new kilns, and now produces 600,000 to 700,000 bricks and tiles per month, with his business now worth more than USD 300,000.

Challenges for Brick and Tile Enterprises

The brick and tile sector was beset with the slowdown of the real estate and construction sectors since 2009, which reduced the demand for its products. The MSME project made effort to revitalize the industry through business forums, while endeavoring to improve production through exposure of enterprise owners to new technologies. There are significant innovations adapted from this assistance to the enterprises, notably the new investments in machineries, which made for more efficient production. However, the low market demand and depressed prices were not an incentive to increase the volume of production. Therefore, volumes remained stable. However, newer products were developed, the still need energy to increase demand by buyers.

The cooperation within the brick-and-tile industry facilitated through MSME project support can be very useful in improving the efficiency of the enterprises involved. Networking and clustering small- and medium-sized manufacturers helped raise their competitiveness and successful innovation in the industry required joint action through collaboration of the involved entrepreneurs. This was a good step towards government-assistance towards firming up a brick manufacturers' working group in Cambodia. It enabled entrepreneurs to share information and technology and advocate the government to improve the conditions of the industry.

The challenge to the industry is daunting and awaits the revitalization of the construction sector, which is also contingent on real estate investments, and the loosening of bank lending policies to real estate developers. Unlike the swine and aquaculture value chains, the brick and tile sector products are non-perishable and stocks can be sold at future time. However, storage and stock maintenance costs tend to rise as stocks do not move. Another issue is that more entrepreneurs innovate, the cost of production goes down and prices per product decrease. Replication and “crowding in” factors precipitate this trend further. Another issue is that there is continued importation of brick and tile products from Vietnam, which are also low in cost and started much earlier than Cambodia.

Additional Project Results

MSME interventions in strengthening private sector voice and improving the business environment were articulated through previous studies, notably the 2009 study by Ulrich Ernst on Strengthening the Business Environment to enhance competitiveness in the Swine Value Chain in Cambodia. The previous sections of the report were the qualitative results based on the survey. The following section presents additional qualitative descriptions of the MSME Project's impact of Component 2, Improved Private Sector Voice, and Component 3, Improved Business Enabling Environment.

The study mentioned serious challenges to dynamic entrepreneurship; although centered on the swine and aquaculture value chains, it can apply, as well, to the brick-and-tile value chains. One major issue is no transparency, inconsistency, and poorly written government policies, laws and regulations and their application by the inadequate administrative and judicial systems. Along with this, there is the lack of a sound, quality infrastructure, including easy access to scheduled fees and payments, specific technical regulations and requirements, varying enforcement of quality standards, and inadequate protection of intellectual property rights. All of these, put domestic producers at a serious competitive disadvantage with larger scale and more established firms nearer to the markets of Phnom Penh, Siem Reap, Battambang, and Sihanoukville as well, and perhaps more importantly, regional markets in Vietnam, Thailand and Chins.

Notable issues for the swine value chain were incentives given to politically-connected persons to import new swine breeds and live animals for eventual slaughter from Thailand and Vietnam. These two nations in particular are much more competitive due to direct and indirect government subsidies in the form of infrastructure, subsidized fuel prices and free technical assistance through government extension services.

Imports of brick and tile products which are often smuggled using waterways where taxes and other charges can be collected. And more recently, fish imports have begun on a major basis from Vietnam through politically-connected persons. The government has so far taken little action to intervene in these uncompetitive practices by reforming the import systems, providing equal taxation and transportation charges as locally-produced products, or improving the licensing systems for Cambodia-based products to make them more competitive.

As a result of the MSME Project's work, these issues are now, at least, on the table to be discussed due to the advocacy initiatives of the private sector business persons who have not high level political connections and involved in these businesses at a more grass roots and rural level.

Several studies funding by the USAID MSME Project suggested an MSME approach to emphasize coordinated and sustained advocacy efforts so as to enable consistency and transparency in government policies, regulations, and enforcement, as well as providing standard fee schedules for public sector services that are not onerous or that disadvantage the private sector. The Cambodia MSME Project, through its Value Chain Approach assisted everyone to better understand and disseminate market information as well as price signals for products and services. This was accomplished by bring business persons together from across the supply chain for fun and interesting activities. These activities would include persons selling products retail in the physical markets, wholesalers, processors, producers, consolidators, traders and input suppliers. Once these business persons were introduced, all actors in the supply chains had improved access to improve information and services.

One of the most notable interventions involved introducing new traders to producers and processors in all value chains. Government offices often sell trader licenses, for high fees, telling the traders that they have geographic concessions. In fact, there are actually no geographic boundaries between traders. Traders with licenses at the district or commune level in one area are quite free to purchase swine or fish in other districts or communes. Traders with provincial or national level licenses are fairly free to purchase and sell livestock, fish or other products at any level. Therefore, one of the wisest interventions the Project promoted was to introduce the ever-expanding group of producers to many different traders.

As a result of these introductions and exchange of names and contact information, producers across the nation and consolidators in communities could access price information easily, and to negotiate better prices and better market delivery terms. This expansion of knowledge, led traders, especially at the district, commune and provincial levels to reduce their opportunities to control price information, which usually resulted in higher profits to the traders and lower profits to the producers.

The result of this new situation resulted in traders in several provinces to advocate for a reduction in license fees, improved government services, and elimination of unnecessary and uncompetitive practices required by local government officials selling the licenses. With increased knowledge and skills, the private sector actors across the entire value chain were able and willing to advocate for their interests.

In one particular case initiated in Svay Rieng province, the level of advocacy was so strong that the national government eliminated all fees and uncompetitive practices across the nation for, so far, an unlimited time. This example and dozens of other demonstrated the value of the Component 2's MSME approach to relationship building across the entire value chain.

Promoting public-private dialogue to strengthen private sector voice

During the evaluation survey, the MSME subcontractor, Crossroads to Development ran focus group discussions to obtain qualitative data about impacts of the Project and MSME Value Chain Approach. Most of this qualitative data relates to Project Components 2 and 3, mentioned before. The following sections highlight some of the findings of those focus group discussions.

Enhancing linkages between input suppliers and producers

Nearly all of the micro and small-scale rural Cambodian businesses traditionally lacked technical sophistication and marketing experience. This isn't difficult to understand when one considers that the nation was a monarchy and all land was owned by the King and his family. There was little incentive for business investment one the part of persons living in rural areas, because their investments could be confiscated at any time. There we also political incentives to keep rural families operating on a subsistence basis and remain peasants. Therefore, even in 2005, when MSME 1 began, only a relatively tiny percentage of rural families produced commercial excess and, therefore, part of a market economy.

After the MSME 1 Project, which was more or less a pilot to test new concepts of economic development in Cambodia by USAID and MSME's implementing company, DAI, in 2008, after expanding from 4 to 17 provinces, MSME was began assisting thousands (more than 7,000) family-owned micro-enterprises whose production was on at a subsistence level with nearly all production used for household consumption. An almost insignificant amount of excess

production that was sold, usually less than 10% of total production, primarily in local communities, oftentimes with the female family member purchasing a small space at the district or provincial physical market.

To address key constraints to expanding production above the subsistence level, MSME facilitated hundreds of technical and business trainings conducted free by Phnom Penh based, high-quality input suppliers, arranged local exposure missions so firms could observe how to expand production and engage in the markets, international exposure visits to the United States, Vietnam, Malaysia, Singapore, Thailand and the Philippines, and conducted participatory business forums and technical workshops, where firms and government could meet each other, gain a better understanding of technical and business issues that could be implemented to dramatically increase production, observe the roles of government in more economically advanced regional nations, and begin advocacy to improve the business environment.

One of the MSME project's most fundamental and important initiatives was to encourage input suppliers to provide free technical trainings to rural producers, veterinarians and input suppliers. The subsidy from the MSME Project for these trainings, initially, was to identify the business persons who were interested in receiving the training, but who also had a commitment to initiate actions to implement what they learned.

The Project also, initially, would either rent, for $25 or less, a facility for the training, usually the home of an entrepreneur of a local pagoda, as well as a renting a generator to provide power to an LCD projector, by which the trainers could make their presentations. Gradually, after recognizing the economic potential of these trainings through the sale of the products and requests for services, the Phnom Penh based firms began identifying communities and conducting trainings on their own, without any subsidy from the MSME Project. Those trainings continue to this day. Eventually, local input suppliers became knowledgeable and capable of providing these trainings as well, for free.

The Project encouraged input suppliers to offer these trainings to their customers to improve quality and increase production all along the swine and aquaculture value chains. For example, in the aquaculture value chain, the MSME Project facilitated the connection between Medivet, a medicine and animal feeds input supplier, and stakeholders along the value chains.

Before this, Medivet sold medicines through one distributor per province to individual producers, usually without any technical advice and often without instructions on how to use the products. With "embedded" technical trainings to groups of stakeholders, where the costs of the training are embedded in the costs of the products and services sold, lasting relationships were facilitated and the firms formed an industry base, improving communication and information sharing between suppliers, producers, and others, including consumers.

One example is Mr. Sok Sim, a local fish producer in Kampong Cham province, who increased pond production in one pond from 4 kilograms of fish per cubic meter in 16 to 18 months to 7 kilograms of fish per cubic meter in 6 to 8 months. This doubled production in one-third of the time. Therefore, with a 1,000 square meter fishpond, Mr. Sok harvested 7 tons of fish in 2008-2009 and tripled his previous yield with nearly the same level of labor. He then reinvested his substantial profits in a new pond for high-value *Pangasius* and expanded his market reach to Phnom Penh, where before he sold fish to his neighbors.

Focus group discussions with fishpond owners cited appreciation of the business relations established by the MSME project with fingerling producers in Takeo and in Kampot provinces. Improved business relationships were often facilitated through local study tours where 20 to 30 participants and government officers could observe a more systemic organization of fish pond structures, breed selection, and feeding and maintenance systems.

By 2011, MSME was working with 73 input suppliers for the swine value chain and some 443 veterinarian professionals and local veterinary assistants. More than 15 large input suppliers, including the CP Group, BKP Company and LDI Company Ltd., have now integrated embedded training as a normal part of selling products. Findings from the focus groups and the field survey indicated an increase in the use of vaccines by 87% of producers, establishment of local feed manufacturers among 10% of producers, increased access to veterinary services among 20% of producers and the use of medicines of swine diseases for more than 60% of producers. These results demonstrate that the embedded training model worked well and was sustainable.

Improving business by assisting entrepreneurs to establish cooperatives and associations

The MSME Project initiative to encourage business cooperation among independent micro and small producers was previously accomplished through the establishment of Community Working Groups (CWG). This process aimed to consolidate individual commitment and eventually evolved in Business Membership Organizations (BMOs). MSME assistance was in the form of assistance for the CWGs/BMOs to develop their internal policies, through dialogue with the Provincial Department of Agriculture and Animal Health to discuss changes to licensing and other business fee issues, through technical support for improved production and improved access to markets.

Meanwhile, government actively promoted the formation of agricultural cooperatives, as per Royal Decree NS/RKT/0701/234. The process of forming Cooperatives now require less assistance as some groups rely more on their own volunteerism and enthusiasm to set up a Cooperative. This success brought about some 32 pig-raiser associations and cooperatives now working with the MSME project and 13 aquaculture cooperatives and working groups.

Another catalyst activity to enhance working together in cooperatives and associations were the international exposure missions co-funded by the participants and the MSME Project. More than 20 international governance and technology exposure missions have been conducted in Malaysia, Thailand, Vietnam, Philippines, Indonesia and the United States. Mission participants included leading entrepreneurs and leading government officers who observed the value that members gained from cooperation, how cooperatives are formed, and how they functioned in more economically-developed nations.

Private sector participants observed how cooperatives provide services to their members in exchange for regular membership dues, while public officers observed how civil servants supported the creation of a better business environment for the private sector.

One good example was the province of Svay Rieng where there are now 16 active cooperatives that consolidating hundreds of producers who raise 10 to 1,000 pigs each. The Svay Rieng Swine Cooperative is a leading proponent of the Cooperative's efforts in the province. It has grown from a mere CWG in 2006 to its current 150 members. Ms. Prach Sokuntheavy, a leading member of the Cooperative, said the cooperative has assisted the improvement of her livelihood. "Now, I have more support in terms of obtaining financing, getting technical skills and accessing

more profitable markets. More than that, we regularly share information on technical issues and markets", she added. In early 2011, due to the cooperative's willingness to discuss business issues with officials, the government eliminated fees for cross-provincial transport of swine nationwide.

Another example[7] of self-initiated formation of a cooperative is that of Prey Chor Mean Chey Agriculture Cooperative. The members are independent pig producers who chanced to listen to MSME radio broadcast which were inviting participants to attend a business forum in 2010 and decided to attend. They were introduced to MSME services and tapped the Provincial Department of Agriculture to assist in their setting their cooperative. There are currently 42 members and they set up their regulations with their own Constitution and By-laws, a group fund through a 5,000 Riel member, a share-system with per share costing 50,000 Riels and a member savings scheme with each member saving 20,000 Riels per month for the past 3 years.

The cooperative set up a local feed manufacture to supply their members. They have seriously implemented better production through good breed stock, vaccination and access to veterinary services and are doing artificial insemination for sows from DAI supported training. Other business included the buy-and-sell of pigs and small credit to members. With the adverse effect of the blue-ear disease, the cooperative shifted to producing piglets for sale after some 150 days of production, thus, they proved themselves resilient. Their future plan is to wait out the low pork prices and renew sow production from their current piglet rearing.

Improving management systems through practical training videos

The USAID Cambodia MSME Project produced a range of practical training videos to improve pig husbandry. These videos were a success with client swine producers and now having a broader impact on agricultural development at the national level as these videos were integrated into the agriculture university curricula and community level training packages by NGOs.

A very good example is the video on Artificial Insemination, produced in 2008, with the aim of changing producers' breeding practices to improve sow and piglet quality and to boost production volumes. The video explains the advantages of the new technique, provides practical instruction about how to do artificial insemination, and describes materials and equipment needed for the process. The video includes interviews with successful farmers who have applied the new technique to grow their businesses.

The project partnered with four major universities in Cambodia to broaden the reach of practical training. These schools that now use the video as part of their curricula are the Royal University of Agriculture, Meanchey University, Kampong Cham University and Prek Leap National School of Agriculture. Lecturers make full use of the video 4 to 5 times per month, as it is more practical than just teaching the theory. The project has distributed more than 1,000 copies of the video throughout 12 target provinces to swine raisers, Departments of Animal Health and Production, input supply companies, universities, NGOs and the wider community. It was estimated that at least 3,000 project clients have viewed the video, excluding the audience of hundreds of agricultural students and participants in NGO community agricultural training across the country.

[7] Interview with the Director and members of Prey Chor Mean Chey Agriculture Cooperative

Bringing opportunities to rural businesses and networking through rural trade fairs

Beginning in 2007, the Cambodia MSME Project, in partnership with provincial governments, facilitated 29 rural products trade fairs. The objective was to demonstrate the organization process to local authorities and the benefits to local businesspersons, and then compel a momentum where these events would continue without USAID MSME.

In 2011, trade fairs were held in Svay Rieng, Kampot, Battambang, Pursat and Prey Veng. More than 25,000 persons viewed more than 100 booths at each local products and services trade fairs each day of the two-day events. The trade fairs were organized in cooperation with provincial government officials and private sector businesses in agriculture, processing and manufacturing value chains. The local trade fairs helped firms receive direct customer feedback on their product and service quality and enabled them to incorporate this feedback into upgrading their businesses.

Each trade fair is an enjoyable event with an evening show that attracted local residents to see famous Cambodian singers, musicians and comedians. Activities include interactive and educational games, sampling of products, dining on local foods and drinks, and engaging in discussions with exhibitors who are presenting their products and services. Anecdotal responses during the study cited direct economic benefits to entrepreneurs who displayed their products at the MSME-facilitated trade fairs. Some firms have reported a sustained a 50 percent increase in production and sales following participation in just one event.

“Sales were very good in the Pursat trade fair. I made USD 2,500 during the first two days of the trade fair. More than 1,000 visitors came to try my meatballs. I realized now that a trade fair like this is really the best way to get customers to test and buy my meat balls”, commented Ms. Tan Triya, manager of a fish and beef meat ball business. “The trade fairs were an effective way to engage the provincial government in business promotion activities. In the future, we can promote these fairs ourselves,” said Mr. Som Sothearom, an officer from Svay Rieng Provincial Department of Agriculture.

Such statements affirmed that the skills and relationships developed during the organizing effort stayed in the communities and encouraged future collaboration for other locally planned events.

Enhancing slaughterhouse regulations through public-private dialogue

The MSME Project, in partnership with the Department of Animal Health and Production, facilitated awareness and dialogue between actors at all levels of the livestock supply chain through workshops that improved participant’s understanding of industry laws and regulations. Among some workshops were on the Promotion and Enhancement of Slaughter house Management, Animal Sanitation, and Carcass Control in 4 provinces of Takeo, Kampong Thom, Battambang and Svay Rieng. There were over 100 participants per workshop including slaughterhouse owners, swine traders and producers, local authorities, district governors, and law enforcement officials.

The workshop benefited both public and private sector participants by facilitating mutual understanding of the regulatory environment and implementation process. Since the adoption of the new regulations, stakeholders noted improvements in reporting systems and communication along the supply chain and between departments. However, there is need to continue to address

issues in animal and meat transportation; slaughterhouse building standards and animal production, management and control.

Collaborating to renew industry growth and seize market opportunities through business forums

The global economic downturn slowed construction growth and product demand in the B&T sector, while imported bricks and tiles continue to compete with domestic producers and which resulted in decreased production in response to the difficult business environment. The USAID MSME Project organized a business forum in May 2010 for B&T industry stakeholders in Kampong Cham province. Participants included the Department of Industry, Mines and Energy, construction companies, banks/MFIs, and brick and tile manufacturers from Kampong Cham, Kampong Thom, Kratie, Prey Veng, and Battambang provinces.

The forums provided an opportunity for participants to share information and improve linkages between brick and tile value chain actors and public officials. Participants also learned how to gain access to credit and market opportunities, and shared ideas on how to develop the sector as a whole. During the forums, representatives from brick and tile factories gave presentations on industry progress, while government departments and banks presented strategies for supporting sector growth. The forums successfully established relationships between a range of value chain actors, including kiln producers, mold and equipment workshops, wood and rice husk suppliers, construction materials suppliers, and construction companies.

Strengthening the Public Sector to Improve the Business Environment

Public-private sector partnership improves provincial business environment

Public-private sector partnership is exemplified in Svay Rieng province with the partnership between the private sector, as represented by the Svay Rieng Agriculture-Swine Raising Cooperative and the public sector agencies of the Provincial Department of Agriculture and the Office of Animal Health and Production. This partnership is promoting improvements in the province's business environment that make the swine value chain more competitive.

The MSME Project assisted in the formation and development of the cooperative, supported the training of the public and private sector, and facilitated private-public dialogue through business forums, provincial skills-sharing trips, and international governance-technology sharing exposure missions. These jointly participated activities generated new perceptions and practices. Government officers began to understand and perform their roles as service providers rather than as controllers.

Business people felt more confident to discuss their problems with government and to suggest changes that will improve their competitiveness. Several private-public sector partnerships had been organized in provinces where the MSME project operates. The partnerships organized information dissemination forums and a dialogue forum on taxation issues that led an end of unofficial tax collections from producers and traders when they transported swine.

A case in point from interviews: the Svay Rieng cooperative appreciated the opportunity to attend forums, workshops, dialogues and study visits where they shared information, raised issues and proposed suggestions to government officials about their business needs. Some issues and concerns were addressed and resolved from the good communications and networking.

Similarly the Provincial Department of Agriculture in the province cited the good collaboration that developed through their efforts to encourage formation of the cooperatives and improving the business environment through technical assistance and dissemination of information. The Department tried to improve production quality and expand markets for local pork through technical assistance by public veterinarians. It planned for the setting up of a slaughterhouse for the cooperative and to organize agriculture trade fairs to support and expand business.

Business forums that promoted technical skills and good business relations

The Cambodia MSME Project assisted more than 800 aquaculture businesses in 12 provinces. The project facilitated business forums as a venue for discussion of issues in line with a common agenda for promoting and improving aquaculture production to ensure food security for Cambodia's people. The business forum for the aquaculture value chain was co-sponsored by the private sector, the Fisheries Administration Cantonment of Kampong Cham and the MSME Project.

The May 2011 aquaculture business forum was attended by more than 300 private sector businesspersons and government officers, including a leading medicine and feed input supplier from Vietnam, local feed suppliers, fingerling suppliers, aquaculture farmers, fish trader's and sellers, and donor-funded development partners from Kampong Cham and Svay Rieng.

Focus group discussions with aquaculture producers cited the importance of the business forums:

> *"These business forums were useful because we can bring together such a broad group of people in the aquaculture business to share information and discuss technical problems. These forums were helpful for government officers because they can observe our businesses first-hand and we can speak with them and voice our business concerns face-to-face8," Mr. Ket Kheng said. "The business forums provide a platform for leading business persons and government officers to meet each other, share technical information, and discuss business issues that inhibit growth."*

Advocacy on laws to protect Cambodian businesses against unfair trade practice

The MSME project continued work with the inter-ministerial drafting team, coordinated by the Ministry of Commerce (MOC), to draft a Khmer-language trade remedies law addressing anti-dumping and imports surges. The draft law is 90 percent complete in English. This effort attempted to protect Cambodian consumers and businesses against the adverse effects of importers selling products in Cambodia below the cost of the same products in the exporting country and exporting products into Cambodia in volumes that destroy Cambodian industry. It is necessary for the Cambodian government to first develop a law establishing trade remedies and then build a skilled team to enforce the law.

The USAID MSME effort was in response to a request from the Ministry of Commerce and the concerns expressed by hundreds of persons involved in the swine and fish business, USAID is assisting to the government to develop WTO-compliant trade remedy legislation and skills. The drafting team has sent the draft to the Office of Council of Ministries and is due for consideration.

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[8]Focus group discussion with 8 aquaculture producers, Chhouk District, Kampot, May 7, 2012

Promoting entrepreneurship awards through National Agricultural Competition

The MSME Project recognizes that innovation and the entrepreneurial spirit should be promoted, as this serves to showcase successful models, which other business-oriented people can emulate or replicate. The project has encouraged and supported the Ministry of Agriculture, Forestry and Fishery (MAFF) when it organized a National Agricultural Competition for farm enterprises. The competition identified five national Champions for each of five categories: Animal Husbandry, Aquaculture, Agro-processing and Agriculture Production, Rice Intensification and Agro-machinery.

The 24 provincial Departments of Agriculture invited 247 community and private enterprises that qualified as semi-finalists and, from an assessment of each enterprise, 149 finalists were selected. The 5 national champions were selected by judges from the MAFF and received their awards from the Prime Minister at a ceremony at the Royal University of Agriculture on the 6 April 2010.The awards included hand tractor-trailers and water pumps.

Three clients of the USAID Cambodia MSME Project were among the 25 national Champions who received awards from Prime Minister Hun Sen.

- Mr. Bou Kokhor from Siem Reap was awarded 1st Champion in Animal Husbandry for his achievement in raising high quality piglets and for his enterprise's role in establishing a pig artificial insemination service to improve breed quality. He has worked with the MSME Project since early 2009 participating in facilitated technical and business training, including pig breeding and nutrition, and artificial insemination training.
- Mr. Seung Virak was awarded 1st Champion in the Agro-processing and Agriculture Production, on behalf of the community Pig Feed Making Group in Takeo. This group has formed and worked together to produce high quality pig feed locally, providing considerable cost savings in pig production, making pig enterprises more competitive and generating local employment and income for group members. The group has worked with the MSME Project since early 2009 on group formation and addressing technical and business issues to develop this successful community enterprise.
- Mr. Keo Heng from Kampong Speu was awarded 5th Champion in Aquaculture for his enterprise's high quality fish farming, for its role in improving fish fingerling availability and quality in his province. He established his aquaculture enterprise in 2000 and has worked with the MSME Project since early 2008, participating in technical and business training, business forums, and local and international exposure visits to the Philippines and Vietnam. He has become a renowned trainer in his area, providing aquaculture knowledge, skills and experience to several hundred of his neighbors.

Improved food safety, quality and service in Cambodia's rural retail markets

Retail markets are important because the number of sellers and customers are higher than wholesale markets and they are the areas where more people congregate to buy products. It is therefore paramount that retail markets should exemplify cleanliness and hygiene, as this promotes safe and health surety of the products they sell. To drumbeat safe product and hygienic retail market environment, the MSME Project organized an international exposure mission in August 2011 to Manila and Davao, Philippines. Seventeen Cambodians from Siem Reap,

Kampong Cham, and Svay Rieng participated, including 4 market owners, 2 deputy district governors, 6 fish traders and 5 pork vendors.

During the one-week mission, they observed retail markets that exemplify how gradual market upgrading can be accomplished and met with management teams from several markets and government officers from several agencies to discuss market organization structures and management practices. They learned new, simple methods for improving food safety and hygiene, including new methods for recycling biodegradable waste into organic fertilizers and non-biodegradable waste into different types of construction materials that can be profitably sold.

After returning from the Philippines, the market vendors applied what they learned by upgrading their market stalls with new tiles, better drainage, and regular cleaning. Alarmed with the risk of losing sales, other vendors also upgraded their stalls. Since September 2011, more than 35 fish and pork vendors in Oraing Ov market upgraded their stalls and jointly improved trash collection, thus reducing flies and other pests; this led to a better relationship between the district governor's office, market committee and market owners and vendors.

Annexes

Annex 1 Swine Value Chain Summary Tables

Table 12 Gender distribution of Value Chain Actors

Type of Actor	Female		Male		Total	
	n	%	n	%	n	%
Producer	62	91.2	488	87.6	550	88.0
Input Supply/Service Provider	5	7.4	34	6.1	39	6.2
Veterinarian	1	1.5	25	4.5	26	4.2
Trader	0	0.0	8	1.4	8	1.3
Processor	0	0.0	2	0.4	2	0.3
Total	68	100.0	557	100.0	625	100.0

Table 13 Pig Producers Investment

	Baseline n=555			End-line n=550			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Land for Pig Production (m^2)	100.0	2,902.00	239.00	99.6	10,919.63	2,400.00	276.28	904.18	5,499.02	2,245.00	89.49	839.33
No. of Pig pen (no cement floor)	5.0	174.00	47.90	1.7	318.09	112.50	82.81	134.86	282.78	100.00	62.52	108.77
No. of Pig pen	95.0	471.60	143.60	100.0	527.35	215.00	11.82	49.72	365.40	200.00	-22.52	39.28

	Baseline n=555			End-line n=550			% Change		Adjusted		Adjusted % Change	
(cement floor)												
No. of Troughs	97.0	51.60	12.00	59.1	40.77	20.00	-20.99	66.67	29.71	17.75	-42.42	47.92
No. of Feed Making Machine	5.0	279.00	191.50	2.5	265.38	120.00	-4.88	-37.34	265.38	120.00	-4.88	-37.34
No. of Feed Mill	-	-	-	8.7	329.46	232.50			303.44	215.00		
No. of Cooking Pan &Cooker	70.0	47.20	14.40	39.9	37.81	11.25	-19.89	-21.88	27.36	10.00	-42.04	-30.56
No. of AI Equipment	2.0	15.10	9.60	9.7	84.26	20.00	458.01	108.33	55.05	20.00	264.58	108.33
No. of Water Pump	52.0	165.80	119.70	75.1	114.87	62.25	-30.72	-47.99	97.97	60.00	-40.91	-49.87
No. of Biogas	3.0	510.00	383.00	12.7	439.99	450.00	-13.73	17.49	393.21	450.00	-22.90	17.49
No. of Pig Transport-Motorcycle	81.0	618.50	574.40	72.1	526.79	400.00	-14.83	-30.36	482.71	400.00	-21.95	-30.36
No. of Pig Transport-Truck	2.0	4,070.40	3,829.60	0.8	5,025.00	5,400.00	23.45	41.01	5,025.00	5,400.00	23.45	41.01
Other major assets	86.0	34.40	9.60	25.3	106.50	16.88	209.59	75.83	45.49	15.00	32.25	56.25
Breeding Stock												
Breeding boars	8	604.00	478.70		-	-			-	-		
Breeding sows	71	669.70	311.20		-	-			-	-		
Total	100	4,712.00	1,514.00	100	3,254.21	853.75	-30.94	-43.61	974.99	703.75	-79.31	-53.52

Table 14 Total Pig Producers Volume of Production

Particulars	Baseline n=555			End-line n=550			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Boars	3	1.90	1.00	9.3	4.80	4.00	152.63	300.00	4.31	4.00	127.04	300.00
Sows	21	2.60	2.00	82.0	6.80	4.00	161.54	100.00	5.74	4.00	120.72	100.00
Fattening Pigs	24	19.10	9.00	8.7	15.30	10.00	-19.90	11.11	12.36	10.00	-35.28	11.11
Piglets	97	25.50	17.00	97.5	41.80	25.00	63.92	47.06	35.85	24.00	40.60	41.18
Total	100	30.00	20.00	100.0	48.10	30.00	60.33	50.00	40.63	28.00	35.44	40.00

Table 15 Pig Producer Cost of Business

	Baseline n=555			End-line n=550			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Bought Stock												
Boars	1	294	287	3.6	1,109.00	1,000.00	277.21	248.43	1,109.00	1,000.00	277.21	248.43
Sows	10	173	169	16.2	876.69	500.00	406.76	195.86	700.88	500.00	305.13	195.86
Fattening Pigs	15	1,026	287	7.1	951.03	517.50	-7.31	80.31	664.70	508.75	-35.21	77.26
Piglets	50	484	287	28.5	743.08	450.00	53.53	56.79	661.64	450.00	36.70	56.79
Goods and Services Inputs												
Feed-Manufactured	95	809	377	94.7	1,261.82	562.63	55.97	49.24	990.45	555.00	22.43	47.21
Feed-Home Made/Left	96	455	239	66.4	852.48	405.00	87.36	69.46	685.62	400.00	50.68	67.36

	Baseline n=555			End-line n=550			% Change		Adjusted		Adjusted % Change	
over												
Feed Manufactured (community)		-	-	9.1	796.54	286.50			654.90	250.00		
Feed Manufactured (individual)		-	-	3.6	1,795.79	765.55			1,795.79	765.55		
Vaccines	81	47	17	87.3	75.67	32.95	61.00	93.82	20.78	12.50	-55.80	-26.47
Veterinary Service Fees	21	21	12	20.4	24.61	12.50	17.19	4.17	59.15	32.50	181.66	170.83
Other Medicine	76	32	12	64.2	48.73	25.00	52.28	108.33	40.25	25.00	25.77	108.33
Water Supply	7	41	20	10.9	70.11	42.50	71.00	112.50	59.81	37.50	45.89	87.50
Machinery Fuel, Oil, Maintenance	54	53	24	58.0	93.81	51.88	77.00	116.17	73.59	50.78	38.84	111.59
Electricity/Battery	50	14	5	61.3	27.49	12.75	96.36	155.00	22.46	12.50	60.42	150.00
Hired Labor Part-Time	1	63	62	1.5	46.31	37.50	-26.49	-39.52	46.31	37.50	-26.49	-39.52
Hired Labor Full-Time	3	239	144	2.2	798.17	675.00	233.96	368.75	704.82	600.00	194.90	316.67
Other Technical Services	1	18	8	4.0	21.19	13.75	17.72	71.88	14.46	12.50	-19.64	56.25
Hired Transport Costs	20	21	7	8.7	32.24	13.79	53.52	97.00	26.96	13.75	28.40	96.43
Own Transport Fuel, Oil, Maintenance	83	36	19	66.5	55.13	25.00	53.14	31.58	42.18	25.00	17.18	31.58
License and Fees	2	35	23	4.5	26.13	12.50	-25.34	-45.65	26.13	12.50	-25.34	-45.65
Other Major Costs	40	14	8	45.1	562.74	135.00	3,919.57	1,587.50	456.86	134.80	3,163.29	1,585.00
Total	100	1,775	1,020	100.0	2,855.07	1,678.75	60.85	64.58	1,888.05	1,501.50	6.37	47.21

Table 16 Pig Producers' Volume of Sales

Particulars	Baseline n=555			End-line n=550			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Boars	1	1.60	1.00	2.2	2.40	2.00	50.00	100.00	2.42	2.00	51.04	100.00
Sows	9	2.20	1.00	14.3	3.10	2.00	40.91	100.00	2.79	2.00	26.79	100.00
Fattening Pigs	87	19.60	12.00	84.6	24.80	17.00	26.53	41.67	21.50	16.00	9.69	33.33
Piglets	32	23.60	14.00	43.3	36.60	20.00	55.08	42.86	31.27	20.00	32.51	42.86
Total	100	25.00	15.00	100	37.30	22.00	49.20	46.67	32.04	22.00	28.15	46.67

Table 17 Pig Producer Price/Head

	Baseline n=555			End-line n=547			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Boars	1	175	144	2	309.2	293.8	76.7	104.0
Head-Sows	9	134	239	14	275.7	300.0	105.7	25.5
Head-Fattening Pigs	87	133	120	85	194.0	162.0	45.9	35.0
Head-Piglets	32	34	29	43	48.1	50.0	41.4	72.4
Total	100	102	92	100	133.1	128.4	30.5	39.5

Table 18 Pig Producers' Value of Sales

Particulars	Baseline n=555			End-line n=550			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Boars	1	275.00	144.00	2.2	747.33	587.50	171.76	307.99	747.33	587.50	171.76	307.99
Sows	9	292.00	239.00	14.3	855.24	600.00	192.89	151.05	696.83	588.75	138.64	146.34
Fattening Pigs	87	2,596.00	1,436.00	84.6	4,802.41	2,754.00	84.99	91.78	4,123.76	2,694.56	58.85	87.64
Piglets	32	802.00	402.00	43.3	1,757.96	1,000.00	119.20	148.76	1,486.19	952.50	85.31	136.94
Total	100	2,555.00	1,382.00	100	4,964.95	2,824.15	94.32	104.35	3,307.48	2,500.63	29.45	80.94

Table 19 Pig Producer Income

	Baseline n=555			End-line n=550			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Total Value of Sales	100	2,555.00	1,382.00	100	4,964.95	2,824.15	94.32	104.35	3,307.48	2,500.63	29.45	80.94
Total Cost of Business	100	1,775.00	1,020.00	100	2,855.07	1,678.75	60.85	64.58	1,888.05	1,501.50	6.37	47.21
Net Income	100	780.00	312.00	100	2,098.06	892.50	168.98	186.06	1,339.90	847.31	71.78	171.57

Table 20 Feeder (Fattening) Pigs

	Baseline n=555			End-line n=550			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Avg. Feeder kg at Sale	100	66.10	73.30	100	72.00	80.00	8.93	9.14
Avg. Days Feeder to 80-90 kg	100	156.90	150.00	100	141.40	140.00	-9.88	-6.67

Table 21 Mortality Rate of Pigs (Baseline)

Baseline			Units	
	Number	% Total	Mean	Median
Piglets	0	0	0	0
Boars	8	1	76	100
Sows	35	6	28	17
Fattening Pigs	255	46	21	15
Total	555	100		

Table 22 Mortality Rate of Pigs (End-line)

			Count		% Count	
End-line	n	%	Mean	Median	Mean	Median
Piglets	5	1.60	1.2	1.0	25.00	25.00
Boars	29	9.27	3.1	2.0	45.59	50.00
Sows	58	18.53	5.3	3.0	34.64	30.00
Fattening Pigs	270	86.26	8.4	4.5	20.10	18.00
Total	313	100.00	8.6	5.0	17.88	16.67

Table 23 Pig Trader Investment

	Baseline n=7			End-line n=8			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Pig Transport-Motorcycle	100	547.0	479.0	75	101.3	84.0	(81.5)	(82.5)
Pig Transport-Truck		-		75	637.2	620.0		
Other Major Trading Assets	100	32.0	17.0	75	112.5	50.0	251.6	194.1
Total investment for trader	100	580.0	503.0	100	1,054.3	1,265.0	81.8	151.5

Table 24 Pig Trader Volume of Sales

	Baseline n=7			End-line n=8			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Boars	43	4.3	5.0		-	-		
Sows	43	21.0	10.0	62.5	50.4	34.0	140.0	240.0
Fattening Pigs	100	143.0	70.0	100	1,905.4	940.0	1,232.4	1,242.9
Piglets	57	844.0	1,000.0	25	530.0	530.0	(37.2)	(47.0)
Total quantity sold	100	516.0	180.0	100	2,069.4	1,015.0	301.0	463.9

Table 25 Pig Trader Price/Head

	Baseline n=7			End-line n=8			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Boars	43	93.0	36.0	-	-	-		
Sale /Head-Sows	43	113.0	31.0	62.5	174.5	160.0	54.4	416.1
Sale /Head-Fattening Pigs	100	85.0	156.0	100	173.7	178.8	104.3	14.6
Sale /Head-Piglets	57	20.0	17.0	25	37.5	37.5	87.5	120.6

Table 26 Pig Trader Value of Sales

	Baseline n=7			End-line n=8			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Boars	43	404.0	180.0		-	-		
Sows	43	2,382.0	311.0	62.5	10,123.0	3,825.0	325.0	1,129.9
Fattening Pigs	100	12,119.0	10,890.0	100	347,338.9	162,400.0	2,766.1	1,391.3
Piglets	57	16,999.0	16,754.0	25	18,750.0	18,750.0	10.3	11.9
Total value of sales	100	20,598.0	19,092.0	100	358,353.3	173,650.0	1,639.7	809.5

Table 27 Pig Trader Cost of Business

	Baseline n=7			End-line n=8			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Bought Trading Stock (no.)								
Boars	42.9	4.3	5	-	-	-		
Sows	42.9	21	10	62.5	53.8	40	156.2	300.0
Fattening Pigs	100.0	143	70	100.0	1,921.10	980	1,243.4	1,300.0
Piglets	42.9	844	1000	25.0	550	550	(34.8)	(45.0)
Goods and Services Inputs (USD)								
Boars	42.9	535.0	653.0		-	-		
Sows	42.9	442.0	431.0	62.5	8,405.0	3,200.0	1,801.6	642.5
Fattening Pigs	100.0	10,523.0	7,539.0	100.0	300,172.5	116,800.0	2,752.5	1,449.3
Piglets	42.9	14,656.0	15,558.0	25.0	18,000.0	18,000.0	22.8	15.7
Hired Labor Part-Time	14.3	191.0	191.0	50.0	3,888.1	2,897.5	1,935.7	1,417.0
Hired Labor Full-Time		-	-	37.5	2,092.0	2,700.0		
Own Transport Fuel, Oil, Maintenance	100.0	265.0	151.0	87.5	3,596.4	1,000.0	1,257.1	562.3
Hired Transport Costs	28.6	539.0	539.0	12.5	300.0	300.0	(44.3)	(44.3)
Licenses and Fees	57.1	138.0	132.0	62.5	169.0	100.0	22.5	(24.2)
Other Major Costs	57.1	28.0	30.0	87.5	4,811.4	1,200.0	17,083.7	3,900.0
Total cost of business	100.0	17,764.0	18,702.0	100.0	320,212.3	131,147.5	1,702.6	601.2

Table 28 Pig Trader Income

	Baseline n=7			End-line n=8			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Total Volume of sales	100	20,598.0	19,092.0	100	358,353.3	173,650.0	1,639.7	809.5
Total cost of business	100	17,764.0	18,702.0	100	320,212.3	131,147.5	1,702.6	601.2
Total income	100	2,834.0	828.0	100	38,141.0	21,302.5	1,245.8	2,472.8

Table 29 ISP Investments

Baseline	End-line			% Change			Adjusted			Adjusted	% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Veterinarian Investments	n =37			n=26								
Land-Shop/Office	8	861	957	16.7	1,000.00	1,000.00	16.1	4.5	1,000.00	1,000.00	16.14	4.49
Buildings-Shop/Office	8	4,468	4,787		-	-						
Buildings-Storage	5	6,750	6,750	11.1	525.00	525.00	-92.2	-92.2	525.00	525.00	-92.22	-92.22
Equipment-Storage/Refrigeration	38	36	26	38.9	67.36	30.00	87.1	15.4	67.36	30.00	87.11	15.38
Equipment-Veterinarian	95	93	29	94.3	93.78	50.00	0.8	72.4	93.78	50.00	0.84	72.41
Equipment-Feed Storage	3	48	48		-	-			-	-		
Equipment-Pen/Trough Building	3	24	24		-	-			-	-		
Transport-Motorcycle	89	536	479	77.8	747.14	700.00	39.4	46.1	747.14	700.00	39.39	46.14
Transport-Truck/Car		-			-	-						
Other Major Input/Service Assets	32	28	10	11.1	193.00	100.00	589.3	900.0	193.00	100.00	589.29	900.00
Total for Veterinarian ISP	100	1,388	617	100	825.70	840.00	-40.5	36.1	825.70	840.00	-40.51	36.14
Input Supplier Investments	n=24			n=39								
Land-Shop/Office	88	2,364	957	84.8	40,540.97	9,600	1,614.9	903.1	14,595.07	8,896.00	517.39	829.57
Buildings-Shop/Office	88	4,862	1,436	23.9	1989.9	2,000	-59.1	39.3	1,989.90	2,000.00	-59.07	39.28
Buildings-Storage	38	8,901	2,393	28.3	1,092.86	860	-87.7	-64.1	1,092.86	860.00	-87.72	-64.06

Baseline	End-line			% Change			Adjusted			Adjusted	% Change	
Equipment-Storage/Refrigeration	42	204	66	47.8	279.53	240	37.0	263.6	241.61	230.00	18.43	248.48
Equipment-Veterinarian	33	195	69	56.5	1,043.45	538	435.1	679.7	667.80	519.00	242.46	652.17
Equipment-Feed Storage	54	101	72	23.9	187.08	43.75	85.2	-39.2	67.73	37.50	-32.94	-47.92
Equipment-Pen/Trough Building	21	411	96	10.9	374.5	160	-8.9	66.7	374.50	160.00	-8.88	66.67
Transport-Motorcycle	50	718	371	73.9	661.14	500	-7.9	34.8	554.04	487.50	-22.84	31.40
Transport-Truck/Car	13	2,011	1,915	10.9	8000	7,000	297.8	265.5	8,000.00	7,000.00	297.81	265.54
Other Major Input/Service Assets	33	103	22	30.4	303.75	87.5	194.9	297.7	217.73	75.00	111.39	240.91

Table 30 ISPs Volume of Sales

	Baseline		End-line		% Change		Adjusted		Adjusted % Change	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Veterinarian n=37										
Vaccination Service Fee (no.)	177	36	1,083.10	190	511.9	427.8	658.48	180.00	272.02	400.00
Vaccines (no.)	452	160	1,233.50	350	172.9	118.8	607.73	295.00	34.45	84.38
Treatment Service Fee (no.)	202	107	2,182.70	400	980.5	273.8	1,334.24	400.00	560.51	273.83
Treatment Medicines (no.)	225	100	2,445.90	300	987.1	200.0	1,648.00	275.00	632.44	175.00
A.I/Nature Service Fee (no.)	3.3	3	93.6	90	2736.4	2900.0	93.57	90.00	2,735.50	2,900.00
A.I Semen (no.)	3.5	3.5	261.2	83.5	7362.9	2285.7	261.17	83.50	7,361.90	2,285.71
Input Supplier n=24										
Feed Sales (kg)	19,848	8,000	445,942.56	48,000.00	2146.8	500.0	105,858.38	48,000.00	433.35	500.00
Ingredient Sales – Corn (kg)	-		24,406.67	720			24,406.67	720.00		
Ingredient Sales – Bran (kg)	-		36,616.67	10,000.00			22,089.29	8,000.00		
Ingredient Sales – Soy Bean (kg)	-		54,000.00	54,000.00			54,000.00	54,000.00		
Ingredient Sales – Fish Miller (kg)	-		100	100			100.00	100.00		
Vaccination Sales (Bottle)	470	100	1,783.35	600	279.4	500.0	933.63	570.00	98.64	470.00
Medicine Sales (Bottle)	1,756	300	2,566.56	1,080.00	46.2	260.0	1,972.96	1,080.00	12.36	260.00
Other Services										
Pig Trough Construction/Sales (no.)	1	1	96	60	9500.0	5900.0	96.00	60.00	9,500.00	5,900.00

Table 31 ISPs Value of Sales

	Baseline			End-line			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Veterinarian Services	n =37			n=26								
Vaccination Service Fee	78.4	71	29	84.6	265.34	112.5	273.7	287.9	158.92	93.75	123.8	223.28
Vaccines	94.6	320	101	88.5	970.42	300	203.3	197.0	673.62	296.25	110.5	193.32
Treatment Service Fee	86.5	277	97	84.6	515.82	425	86.2	338.1	421.33	400.00	52.1	312.37
Treatment Medicines	83.8	248	108	88.5	3,599.40	1,200.00	1351.4	1011.1	1,561.25	1,125.00	529.5	941.67
A.I/Nature Service Fee	8.1	22	10	26.9	503.11	225	2186.9	2150.0	503.11	225.00	2,186.8	2,150.00
A.I Semen	5.4	11	11	23.1	1,253.54	260.63	11295.8	2269.4	1,253.54	260.63	11,295.8	2,269.32
Total	100	808	350	100	5,780.74	2,825.00	615.4	707.1	3,511.97	2,575.00	334.65	635.71
Input Supplier Services	n=24			n=39								
Feed Sales	100	13,474	4,524	100	281,404.70	38,400.00	1988.5	748.8	87,494.14	32,400.00	549.4	616.18
Ingredient Sales – Corn		-		7.7	12,292.00	576			12,292.00	576.00		
Ingredient Sales – Bran		-		38.5	8,005.17	2,400.00			5,362.68	2,340.00		
Ingredient Sales – Soy Bean		-		2.6	27,000.00	27,000.00			27,000.00	27,000.00		
Ingredient Sales – Fish Meal		-		2.6	75	75			75.00	75.00		
Vaccination Sales	45.8	717	215	69.2	6,899.37	2,100.00	862.3	876.7	2,915.65	1,616.25	306.6	651.74

	Baseline			End-line			% Change		Adjusted		Adjusted % Change	
Medicine Sales	54.2	3,464	574	71.8	10,993.08	1,642.50	217.4	186.1	4,492.81	1,631.25	29.7	184.19
Pig Production Equipment Sales	25	258	138	13.8	3,791.39	1,250.00	1369.5	805.8	1,265.31	1,250.00	390.4	805.80
Veterinarian Equipment Sales	42	741	26	18.5	229.125	150	-69.1	476.9	229.13	150.00	-69.1	476.92
Other Services					0	0						
Pig Trough Construction/Sales	4.2	8	8	4.6	1,160.00	600	14400.0	7400.0	1,160.00	600.00	14,400	7,400.00
Other Major Input/Service Sales	8.3	10	10	3.1	25	25	150.0	150.0	25.00	25.00	150.0	150.00
Total for both ISP	100	16,054	7,986	100	299,412.45	52,950.00	1,765.0	563.0	62,575.96	42,312.50	289.8	429.83

Table 32 ISPs Cost of Business

	Baseline			End-line			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Veterinarian Services Cost	n =37			n=26								
Vaccines Stock	95	221	71	23.1	1,017.0	200.0	360.2	181.7	732.5	175.0	231.4	146.5
Medicines Stock	81	189	132	40.0	684.0	243.8	261.9	84.7	519.3	237.5	174.8	79.9
Veterinary Consumables Stock	78	18	14	30.8	50.7	25.0	181.7	78.6	50.7	25.0	181.7	78.6
Machinery Fuel, Oil, Maintenance	14	100	96	4.6	173.4	195.0	73.4	103.1	173.4	195.0	73.4	103.1
Electricity/battery	41	11	4	4.6	168.2	20.0	1,428.8	400.0	168.2	20.0	1,428.8	400.0
Hired Labor Part-Time	3	5	5		-	-			-	-		
Hired Labor Full-Time		-		1.5	17.5	17.5			17.5	17.5		
Own Transport Fuel, Oil, Maintenance	84	101	50	33.8	231.5	181.3	129.2	262.5	231.5	181.3	129.2	262.5
Hired Transport Costs	3	48	48	4.6	9.7	6.6	-79.8	-86.2	9.7	6.6	-79.8	-86.2
Licenses and Fees	3	36	36		-	-						
Other Major Costs	16	7	6	6.2	117.8	98.1	1,583.0	1,535.4	117.8	98.1	1,583.0	1,535.4
Total	100	483	238	100	1,565.0	635.5	224.0	167.0	1,188.0	635.5	146.0	167.0
Input Supplier Services Costs	n=24			n=39								
Feeds	100	12,200	4,260	60.0	268,859.8	36,000.0	2,103.8	745.1	83,375.8	36,000.0	583.4	745.1

	Baseline			End-line			% Change		Adjusted		Adjusted % Change	
Vaccinations	46	622	191	40.0	2,971.0	2,025.0	377.7	960.2	2,971.0	2,025.0	377.7	960.2
Medicines	54	3,143	503	43.1	4,535.8	1,075.0	44.3	113.7	3,130.8	984.4	-0.4	95.7
Pig Production Equipment Sales	17	254	144	10.8	4,230.5	1,800.0	1,565.6	1,150.0	4,230.5	1,800.0	1,565.6	1,150.0
Veterinarian Equipment Sales	38	441	144	16.9	226.3	120.0	-48.7	-16.7	128.9	105.0	-70.8	-27.1
Machinery Fuel, Oil, Maintenance	4	5	5	6.2	261.1	246.9	5,121.3	4,837.5	261.1	246.9	5,121.3	4,837.5
Electricity/battery	46	36	15	38.5	201.1	108.0	458.6	620.0	159.5	106.5	342.9	610.0
Hired Labor Part-Time	4	345	345	6.2	2,808.5	1,050.0	714.1	204.3	2,808.5	1,050.0	714.1	204.3
Hired Labor Full-Time	13	239	287	16.9	1,751.0	780.0	632.6	171.8	1,751.0	780.0	632.6	171.8
Own Transport Fuel, Oil, Maintenance	58	97	54	30.8	540.2	281.3	456.9	420.8	318.6	187.5	228.5	247.2
Hired Transport Costs	50	524	109	23.1	873.7	600.0	66.7	450.5	873.7	600.0	66.7	450.5
Licenses and Fees	46	69	18	40.0	48.8	12.5	-29.3	-30.6	40.8	12.5	-40.9	-30.6
Other Major Costs	21	22	14	26.2	4,514.3	136.9	20,419.6	877.7	2,358.9	85.9	10,622.5	513.8
Other Services Costs					-	-						
Pig Trough Materials	4	7	7	4.6	78.6	57.0	1,022.9	714.3	78.6	57.0	1,022.9	714.3
Transport Fuel, Oil, Maintenance	8	20	20	1.5	30.0	30.0	50.0	50.0	30.0	30.0	50.0	50.0
Total for Input Supplier	100	14,817.2	6,662	100	278,477.9	52,082.5	1,779.4	681.8	56,988.9	32,565.0	284.6	388.8

Table 33 Income of ISPs

	Baseline		End-line		% Change		Adjusted		Adjusted % Change	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Income of Veterinarians										
Value of sales	808.0	350.0	5,780.7	2,825.0	615.4	707.1	3,512.0	2,575.0	334.6	635.7
Cost of business	483.0	238.0	1,565.0	635.5	224.0	167.0	1,188.0	635.5	146.0	167.0
Income	325.0	87.0	4,215.8	1,440.1	1,197.2	1,555.3	2,345.5	1,382.5	621.7	1,489.1
Income of Input Suppliers										
Value of sales	16,054.0	7,986.0	299,412.4	52,950.0	1,765.0	563.0	62,576.0	42,312.5	289.8	429.8
Cost of business	14,817.0	6,662.0	278,477.9	52,082.5	1,779.4	681.8	56,988.9	32,565.0	284.6	388.8
Income	1,236.0	464.0	20,934.6	2,970.0	1,593.7	540.1	2,881.1	2,613.0	133.1	463.1

Table 34 Pig Project Ranking

Ranking of the impact of working with the MSME Project	Actor							
	Producer		Trader		ISP/Veterinarian		Total	
	n	%	n	%	n	%	n	%
Very negative impact	1	0.2	-	-	-	-	1	0.2
Negative impact	5	0.9	-	-	-	-	5	0.8
No impacts	30	5.5	-	-	1	1.6	31	5.0
Positive impact	450	82.1	7	87.5	45	70.3	502	81.0
Very positive impacts on my business	62	11.3	1	12.5	18	28.1	81	13.1
Total	548	100.0	8	100.0	64	100.0	620	100.0

Table 35 Transfer of Knowledge

	n	%	Mean	Median
Number of people the clients have shared the knowledge that they gained from the MSME project	622	99.5	40.9	5.0
Number of clients who partly or fully adopted the new technologies or business practices that was shared	623	99.7	26.8	4.0

Table 36 Social Impact

SOCIAL IMPACT	% of respondents
Knowledge on production/Treatment/Care	66.8
Sharing experience and knowledge from training to villagers	22.3
Knowledge on Animal hygiene and good maintenance of pens	20.2
Improved revenues	15.7
Improved relations with other Swine Value Chain Actors and government authorities	14.1
Knowledge in making pig feeds	7.1
Increased work opportunities for others/ more producers	6.9
Reduce migration	5.9
Extended working hours/ Own work	5.3
Expand number of produce/ pigs	4.3
Adequate pork for community demand	3.7
Reduced diseases and self treatment	3.2
Do not know	2.2

Table 37 Economic Impact

ECONOMIC IMPACT	% of respondents
Better than before/Revenue increased	76.1
Can afford to send children to school	20.7
Knowledge on producing/Treatment/Care	13.6
Extend occupation/Own work	12.0
Extend producing pigs	10.9
Have money for bike/Motor/Car/Other materials	8.7
Have money for new house/Repair house	6.7
Do not know	5.6
Have money for land/paddy land	5.1
Decreased income /revenue	4.8
More work opportunities in Village/more producers	3.5
Problem with pig disease /Affect business	3.4
Knowledge on Animal Hygiene/pens repaired	2.9
Increase use of Pig feed increased/unstable price/income decreased	2.1
Pig price decreased	1.9
Reduce poverty/Better for villagers	1.6
Money for health care	1.4
Money for rice crops	1.1

Table 38 Swine Value Chain Hired Part time Labor

Item	End line (n=625)				
	%n	Mean	Median	Total	Estimated Total (all clients)
Number of Person Working	4	2.7	2.0	67.5	502
Number of Days Working	4	138	78	3,450	69,276
Daily Rate (US$)	4	73	6	150	415,656*

***Rate for all clients is the estimated amount (US$) paid to part-time laborers, by all enterprises, in one fiscal year, considering median daily rate.**

Figure 1 Effects of Flooding in 2011

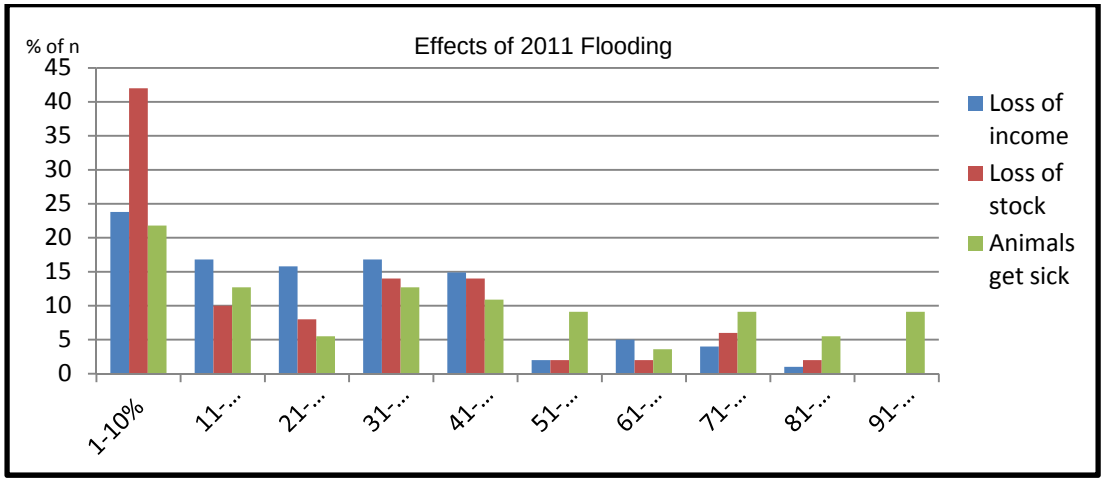

Figure 2 Increased Production or Income Due to Floods

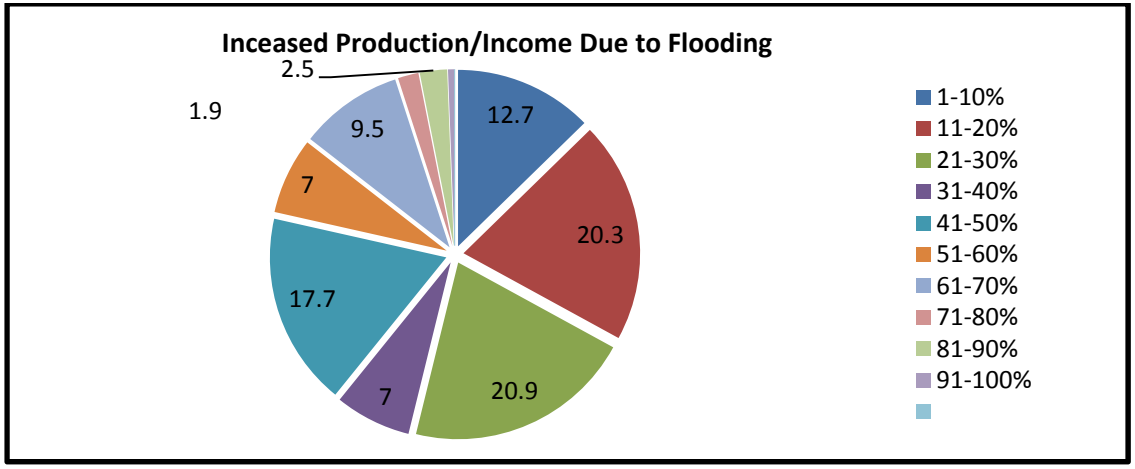

Table 39 Producers affected by diseases and stoppage of operation effect

	2009-2010		2010-2011		2011-2012	
	n	%	n	%	n	%
Affected by outbreak of swine diseases						
Yes	280	44.9	214	34.3	96	15.4
No	343	55.1	409	65.7	527	84.6
Total	623	100.0	623	100.0	623	100.0
Stoppage of Operations						
1-4 weeks	5	3.9	1	1.0	1	1.7
1-2 months	2	1.6	1	1.0	1	1.7
2-3 months	23	18.1	12	11.7	2	3.3
Repeat	97	76.4	83	80.6	53	88.3
Dropout	-	-	6	5.8	3	5.0
Total	127	100.0	103	100.0	60	100.0

Figure 3 Loss/decrease of income from July 2009- June 2012

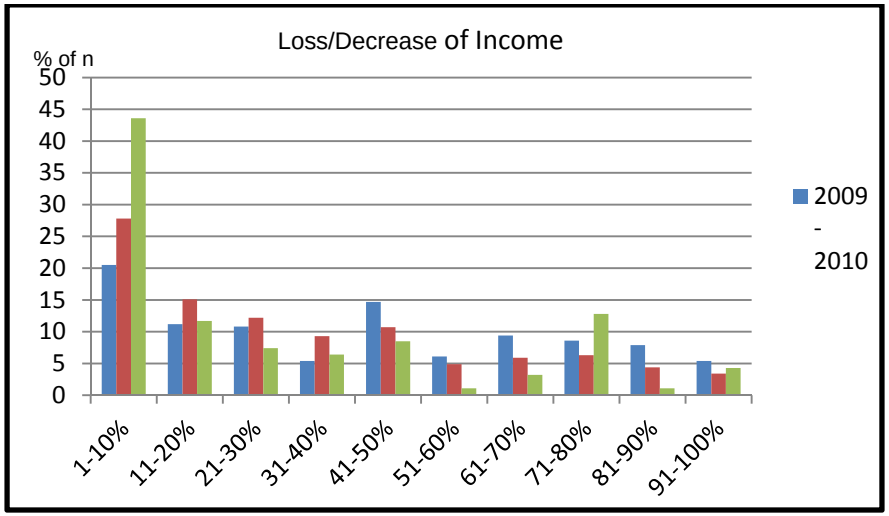

Figure 4 Loss/shortage of stock from July 2009- June 2012

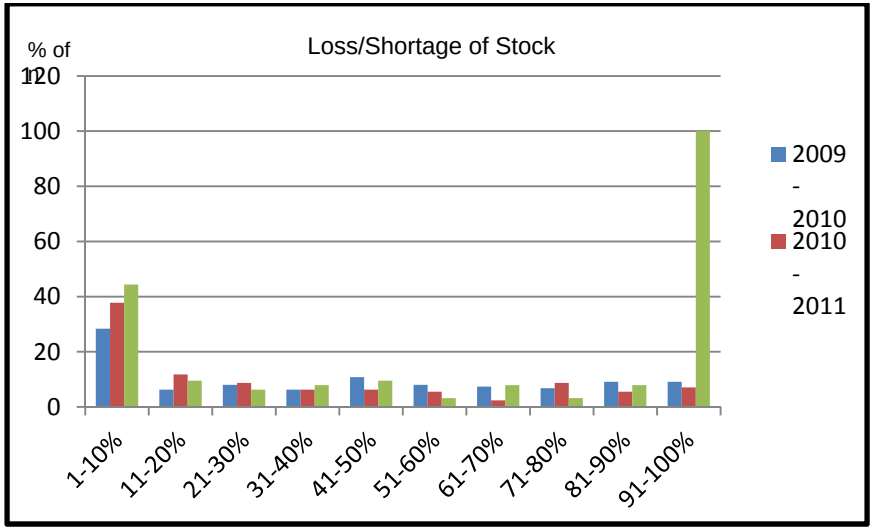

Table 40 Producers That Have Increased Production/Income Due To Outbreak of Diseases

	2009-2010		2010-2011		2011-2012	
	n	%	n	%	n	%
Increased	76	22.2	117	28.6	165	31.3
No change	267	77.8	292	71.4	362	68.7
Total	343	100.0	409	100.0	527	100.0

Table 41 Affected by the Economic Downturn or Inflation, July 2009- June 2012

	2009-2010 (%)	2010-2011 (%)	2011-2012 (%)
Affected by the economic downturn or inflation	40.9	38	29.7
Not affected	59.1	62	70.3
Loss/ Decrease of Income:1-10%	31.9	27.4	28.6
Loss/ Decrease of Income:11-20%	16.1	25.6	25.8
Loss/ Decrease of Income:21-30%	18.5	18.8	19.2
Loss/ Decrease of Income:31-40%	10.2	6.8	6.6
Loss/ Decrease of Income:41-50%	9.8	8.5	9.3
Loss/ Decrease of Income:51 and above	13.4	12.8	10.3
Stoppage of Operations, 1-4 weeks		1.2	1.9
Stoppage of Operations, 1-2 months	4.2	1.2	1
Stoppage of Operations, 2-3 months	4.2	2.4	3.8
Repeat	89.8	89.2	86.5
Dropout	1.7	6	6.7

Table 42 Producers That Have Increased Production/Income Due To the Economic Downturn

	2009-2010	2010-2011	2011-2012
	%	%	%
Increased Income	16.8	21.2	27.2
No Change	83.2	78.8	72.8
Increase by 1-10%	38.7	26.8	22.7
Increase by 11-20%	16.1	22	22.7
Increase by 21-30%	21	20.7	21
Increase by 31-40%	8.1	18.3	10.9
Increase by 41-50%	8.1	6.1	10.1
Increase by 51%&above	8	6	12.5

Annex 2 Fish Value Chain Summary Tables

Table 43 TAMIS Fish Value Chain Actors Percentage Change

Actors	Baseline		End-line		% Change	
	Male	Female	Male	Female	Male	Female
Fish Producers	298	92	568	191	91	108
Trader/wholesalers	3	3	6	8	100	167
Total	396	95	574	199	45	109

Table 44 Gender Distribution of Fish Value Chain Actors

Type of Actor	Female		Male		Total	
	n	%	n	%	n	%
Producer	13	9	137	91	150	98
Trader	0	0	3	100	3	2
Total	13	8	140	92	153	100

Table 45 Household Head Age and Characteristics

Type of Actor	n	HH Size	Age of HH Head	HH Members 18 yrs and over
		Mean	Mean	Mean (count)
Producer	150	5.19	48.73	2.38
Trader	3	5.33	50.00	4.00
Total	153	5.2	48.75	2.40

Table 46 Fish Producers Investments

Item	Baseline (n=146)			End-line (n=143)			% Change		Adjusted		Adjusted	% Change
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Land for fish production	100	8,763	1,976	94								
Additional buying land for Fish Production m2				1	29,688	29,688			29,688	29,688		
Rented land for fish production				6	5,120	500			760	375		
Hapa (Fish Cage)				25	8,048	26			49	25		
Fish Pond Excavation	100	2,285	1,000	78	2,715	375	18.8	-62.5	1,325	375	-42.0	-62.5
Drain off/repair fish pond				58	186	28			116	25		
Fish Pond Area m2	100	5,028	1,209	97								
Fish/ Water Supply Tank no. (Reservoir)	9	2,835	1,675	5	173	50	-93.9	-97.0	173	50	-93.9	-97.0
Motorize granulator/Shaking machine				10	903	390			588	280		
Feed Mixing Machine	5	322	383	70	319	300	-0.9	-21.7	273	300	-15.2	-21.7
Feeding pan	67	15	7	38	33	15	120.0	114.3	21	15	40.0	114.3
Stove	56	12	4	78	21	13	75.0	225.0	16	11	33.3	175.0

Item	Baseline (n=146)			End-line (n=143)			% Change		Adjusted		Adjusted	% Change
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Water Pump	58	204	144	59	182	100	-10.8	-30.6	153	100	-25.0	-30.6
Motorcycle	63	585	479	6	494	500	-15.6	4.4	439	500	-25.0	4.4
Truck	1	1,101	1,101	30	2,889	3,000	162.4	172.5	2,889	3,000	162.4	172.5
Other Major Assets	83	99	12	8	130	25	31.3	108.3	81	24	-18.2	100.0
Plastic Materials					156	50			82	41		
Total	100	12,028	3,980	100	5,644	1,136	-53.1	-71.5	1,298	900	-89.2	-77.4

Table 47 Fish Producers Volume of Production

Item	Baseline (Head) (n=146)			End-line (Head) (n=144)			% Change		Adjusted (Head)		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Mature Fish-Tilapia	56	1,989	405	40	1,966	340	-1.2	-16	1,002	300	(49.6)	(25.9)
Mature Fish-Carp	49	538	300	53	2,612	600	385.5	100	1,282	550	138.3	83.3
Mature Fish-Pangasius	46	2,055	900	81	11,649	1,163	466.9	29.2	5,284	1,144	157.1	27.1
Stunted Fish-Tilapia	12	228	50		3,915	3,915	1,617.10	7,730.00	3,915	3,915	1,617.1	7,730.0
Stunted Fish-Carp	9	127	50		684,180	17,955	538,624.40	35,810.00	684,180	17,955	538,624.4	35,810.0
Stunted Fish-Pangasius	8	3,357	150		69,120	17,010	1,959.00	11,240.00	69,120	17,010	1,959.0	11,240.0
Fingerling-Tilapia	11	10,067	5,500	1	40,844	1,499	305.7	-72.7	14,316	1,499	42.2	(72.7)
Fingerling-Carp	4	13,107	2,125	1	26,834	2,250	104.7	5.9	10,950	2,250	(16.5)	5.9
Fingerling-Pangasius	1	2,600	2,600	2	48,970	7,425	1,783.50	185.6	28,778	6,975	1,006.8	168.3
Total	100	4,294	800	100	91,140	9,000	2,022.50	1,025.00	55,801	9,000	1,199.5	1,025.0

Table 48 Fish Producers Value of Sales

Item	Baseline			End-line			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Mature Fish-Tilapia	56	1,241	348	40	1,630	298	31.3	-14.4	1,002	300	-19.3	-13.8
Mature Fish-Carp	49	559	243	53	2,200	548	293.6	125.5	1,282	550	129.3	126.3
Mature Fish-Pangasius	46	1,710	503	81	12,023	1,046	603.1	108.0	5,284	1,144	209.0	127.4
Stunted Fish-Tilapia	12	44	10		-	-						
Stunted Fish-Carp	9	27	12		-	-						
Stunted Fish-Pangasius	8	712	36		-	-						
Fingerling-Tilapia	11	927	414	1	175	175	-81.1	-57.7	7,875	7,875	749.5	1802.2
Fingerling-Carp	4	599	112	1	3,332	3,332	456.3	2875.0	267,750	267,750	44599.5	238962.5
Fingerling-Pangasius	1	182	182	2	2,779	825	1426.9	353.3	172,901	49,500	94900.5	27097.8
Total	100	1,947	657	100	22,703	2,793	1066.1	325.1	11,030	1,631	466.5	148.2

Table 49 Fish Producers Cost of Business

Item	Baseline (n=146)			End-line (n=144)			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
BOUGHT STOCK												
Stunted Fish-Tilapia	4	49	21	1	21	21	(57.1)	-	21	21	(57.1)	-
Stunted Fish-Carp	1	2	2	3	2,856	83	142,700	4,050.0	2,856	83	142,700.0	
Stunted Fish-Pangasius	2	12	2	3	309	60	2,475.0	2,900.0	309	60	2,475.0	2,900.0
Fingerling-Tilapia	49	40	10	39	182	20	355.0	100.0	81	19	102.5	90.0
Fingerling-Carp	54	35	12	53	249	37	611.4	208.3	165	36	371.4	200.0
Fingerling-Pangasius	52	169	48	81	498	93	194.7	93.8	329	90	94.7	87.5
GOODS & SERVICES												
Feed-Manufactured/Pellets	54	242	65	83	514	223	112.4	243.1	377	215	55.8	230.8
Rice bran	89	152	49	92	3,151	184	1,973.0	275.5	1,044	180	586.8	267.3
Trash fish	17	215	60	47	2,747	150	1,177.7	150.0	512	150	138.1	150.0
Soy bean	4	202	48	1	3,375	3,375	1,570.8	6,931.3	3,375	3,375	1,570.8	6,931.3
Broken rice	65	65	32	40	1,823	35	2,704.6	9.4	87	34	33.8	6.3
Medicine-bottle	12	20	18	34	120	27	500.0	50.0	70	26	250.0	44.4
Medicine-tablet	10	77	22	9	231	25	200.0	13.6	63	19	(18.2)	(13.6)
Lime	66	14	3	66	499	6	3,464.3	100.0	25	6	78.6	100.0
Firewood or other items used for cooking fish food				40	116	26			65	25		

Item	Baseline (n=146)			End-line (n=144)			% Change		Adjusted		Adjusted	% Change
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Expense on pumping water	8	17	14	42	73	48	329.4	242.9	57	44	235.3	214.3
Fuel, Oil, machine repair	60	43	19	58	415	29	865.1	52.6	109	28	153.5	47.4
Electricity/battery	52	20	12	34	315	14	1,475.0	16.7	36	13	80.0	8.3
Hired Labor Part-Time	1	84	84	9	262	50	211.9	(40.5)	75	50	(10.7)	(40.5)
Hired Labor Full-Time	3	412	287	11	1,444	475	250.5	65.5	1,060	450	157.3	56.8
Other Technical Services	2	12	7	6	22	25	83.3	257.1	22	25	83.3	257.1
Fuel, Oil, owner transportation repair	70	45	14	47	117	25	160.0	78.6	68	25	51.1	78.6
Transport Rental Costs	27	20	7	9	101	50	405.0	614.3	101	50	405.0	614.3
Licenses and Fees	5	60	24	1	250	250	316.7	941.7	250	250	316.7	941.7
Other Major Costs	79	17	7	45	302	14	1,676.5	100.0	59	13	247.1	85.7
Total	100	608	266	100	7,221	749	1,087.7	181.6	1,330	666	118.8	150.4

Table 50 Fish Producer Income

Fish Producers Income	Baseline (n=146)			End-line (n=144)			% Change		Adjusted		Adjusted % Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Total Value of Sales	100	1,947	657	100	22,703	2,793	1,066.1	325.1	2,448	1,250	25.7	90.3
Total Cost of Business	100	608	266	100	7,221	749	1,087.7	181.6	1,330	666	118.8	150.4
Net Income	100	1,339	221	100	15,482	1,792	1,056.2	710.9	1,039	566	(22.4)	156.1

Table 51 Fish Producer Productivity Indicators

Item	Baseline (n=146)			End-line (n=144)			% Change		% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median	Mean	Median
Avg. Mature Carp Kg at Sale	64	1	0.8	53	1	0.8	-	-	-	-
Avg. Mature Tilapia Kg at Sale	64	0.9	0.6	40	0.8	0.6	(11.1)	-	(11.1)	-
Avg. Mature Pangasius Kg at Sale	51	0.9	0.7	81	0.88	0.88	(2.2)	25.7	(2.2)	25.7
AVG months to mature sold Kg Carp	64	7.7	7	53	8.7	9	13.0	28.6	13.0	28.6
AVG months to mature sold Kg Tilapia	64	7.7	7	40	9.1	9	18.2	28.6	18.2	28.6
AVG months to mature sold Kg Pangasius	51	9	9	81	9.5	10	5.6	11.1	5.6	11.1

Table 52 Fish Producers Mortality Indicators

Fish Species	Baseline (n=146)			End-line (n=144)		
	%n	Mean	Median	%n	Mean	Median
Mature Tilapia mortality rate	34	8.80	4.80	26	14.70	12.50
Mature Carp mortality rate	21	7.40	6.50	39	16.40	10.00
Mature Pangasius mortality rate	25	7.40	4.00	53	8.20	4.70

Table 53 Fish Trader Investment

Item	Baseline (n=4)			End-line (n=3)			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Motorcycle	100	273.0	225.0	67	650.0	650.0	138	188
Truck	50	1,101.0	1,101.0	100	74,333.3	17,000.0	6,651	1,444
Tank storing fish				100	1,853.3	1,920.0		
Other Major Trading Assets	100	79.0	45.0	33	375.0	375.0	374	733
Total	100	902.0	844.0	100	76,745.0	20,550.0	8,408	2,334

Table 54 Fish Traders Volume of Sales

Item	Baseline (n=4)			End-line (n=3)			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Mature Fish-Tilapia	50	5,100.0	5,100.0	67	70,750.0	70,750.0	1,287	1,287
Mature Fish-Carp	50	9,300.0	9,300.0	100	501,700.0	477,000.0	5,295	5,029
Mature Fish-Pangasius	75	17,833.0	9,000.0	100	378,500.0	335,000.0	2,022	3,622
Stunted Fish-Pangasius				33	10,000.0	10,000.0		
Fingerling-Pangasius	25	62,200.0	62,200.0					
Total	100	35,910.0	31,475.0	100	930,700.0	1,053,100.0	2,492	3,246

Table 55 Fish Trader Value of Sales

Item	Baseline (n=4)			End-line (n=3)			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Mature Fish-Tilapia	50	5,070.00	5,070.00	67	130,283.13	130,283.13	2,469.7	2,469.7
Mature Fish-Carp	50	9,270.00	9,270.00	100	967,943.56	934,065.67	10,341.7	9,976.2
Mature Fish-Pangasius	75	17,820.00	9,000.00	100	504,332.50	417,837.50	2,730.1	4,542.6
Stunted Fish-Pangasius		-	-		12,925.00	12,925.00		
Fingerling-Pangasius	25	552	552	33	-	-		
Total		22,024.00	21,837.00	100	1,563,439.81	1,674,425.00	6,998.8	7,567.8

Table 56 Fish Trader Cost of Business

Item	Baseline (n=4)			End-line (n=3)			% Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Mature Fish-Tilapia	50	3,684.0	3,684.0	67	121,718.8	121,718.8	3,204	3,204
Mature Fish-Carp	50	7,360.0	7,360.0	100	898,979.2	894,375.0	12,114	12,052
Mature Fish-Pangasius	75	16,941.0	8,640.0	100	459,166.7	376,875.0	2,610	4,262
Stunted Fish-Pangasius		-	-	33	12,500.0	12,500.0		
Fingerling-Pangasius	25	1,045.0	1,045.0		-	-		
Hired Labor Part-Time				33	360.0	360.0		
Hired Labor Full-Time				100	6,233.3	4,750.0		
Fuel, Oil, owner transport machine	100	242.0	214.0	100	33,920.8	35,100.0	13,917	16,302
Transport Rental Costs	25	96.0	96.0	67	200.0	200.0	108	108
Licenses and Fees	75	72.0	72.0		-	-		
Other Major Costs	100	107.0	72.0	100	2,029.5	1,226.0	1,797	1,603
Total	100	19,621.0	19,193.0	100	1,485,895.3	1,566,601.0	7,473	8,062

Table 57 Fish Traders Income

Item	Baseline (n=4)			End-line (n=3)			% of Change	
	%n	Mean	Median	%n	Mean	Median	Mean	Median
Total Value of Sales	100	22,024.00	21,837.00	100	1,563,439.81	1,674,425.00	6999	7568
Total Cost of Business	100	19,621.00	19,193.00	100	1,485,895.33	1,566,601.00	7473	8062
Total Income	100	2,403.00	2,643.00	100	77,544.47	74,963.17	3127	2736

Table 58 MSME Enterprise Growth and Development Ranking of Impact

Ranking of Impact of MSME to Enterprise Growth and Development	Fish Producer		Fish Trader		Total	
	n	%	n	%	n	%
Very negative impacts	-	-	-	-	-	-
Negative impacts	-	-	-	-	-	-
No impacts	10	6.7	-	-	10	6.5
Positive impacts	126	84	3	100	129	84.3
Very positive impacts on my business	14	9.3	-	-	14	9.2
Total	150	100	3	100	153	100

Table 59 Number of People Received Knowledge from Clients

	n = (153)	%	Mean	Median
Number of people that clients have shared the knowledge they gained from the MSME project	137	89.5	23.5	6
Number people who partly or fully adopted the new technologies or business practices that were shared	121	79.1	15.9	4

Table 60 Fish Value Chain Part Time Labor

Item	End line (n=153)				
	%n	Mean	Median	Total	Estimated Total (all clients)*
Number of Person Working	11	12	3	202	1,002
Number of Days Working	11	170	60	2,861	170,340
Daily Rate (US$)	11	14	4	235	681,360**

*** Figures only account for job generation by fish producers**

****Rate for all clients is the estimated total (US$) paid to part-time laborers, by all enterprises, in one fiscal year, considering median daily rate.**

Table 61 Respondents Shared Social Impact

Social Impact	n= (153)	%
Knowledge of fish producing (Use drug/feed/fish care/Hygiene	93	60.8
Good relation with neighbors/Other fish producers	34	22.2
Sharing experience and knowledge	31	20.3
Increased Revenue in family	29	19.0
People have work to do	18	11.8
Supply Fish in market/Provide good producing fish for neighbors	16	10.5
Reduce expense in family	15	9.8
Afford children at school	9	5.9
Extend additional occupation/Extend producing	8	5.2
Visited in local and abroad	3	2.0
Help keep natural fish	3	2.0
Money for bike/Motor/Car/Clothes/Other materials	2	1.3
Received high output	2	1.3
Reduce poverty	2	1.3
Do not know/No Idea	2	1.3

Table 62 Respondents Shared Impact

Economic Impact	n	%
Increased Revenue of the family	120	78.4
Afford children at school	35	22.9
Reduce expense in family	34	22.2
Extend additional occupation/Extend producing	23	15.0
Knowledge of fish producing (Use drug/feed/fish care/Hygiene	23	15.0
Money for bike/Motor/Car/Clothes/Other materials	8	5.2
Reduce poverty	6	3.9
People have work to do	4	2.6
Money for health care	4	2.6
Money for paddy land	4	2.6
Supply Fish in market/Provide good producing fish for neighbors	3	2.0
Received high output	2	1.3
Money for new house/Repaired house	2	1.3
Money for rice crops	2	1.3

Economic Impact	n	%
Lack of water resources	1	0.7
Reduce migration	1	0.7
Main Occupation in family	1	0.7
Total	153	100.0

Table 63 Flood Impact to Fish Value Chain Enterprise

	Fish Producer		Fish Trader		Total	
	n	%	n	%	n	%
Affected	36	24	2	66.7	38	24.8
Not Affected	114	76	1	33.3	115	75.2
Total	150	100	3	100	153	100
Loss/decrease income	36	24	2	66.7		
Loss of Stock	32	21				
Stoppage of Operation	6	4				
Fish Get Sick	23	15				

Figure 5 2011 Flood Affected Fish Value Chain Respondents

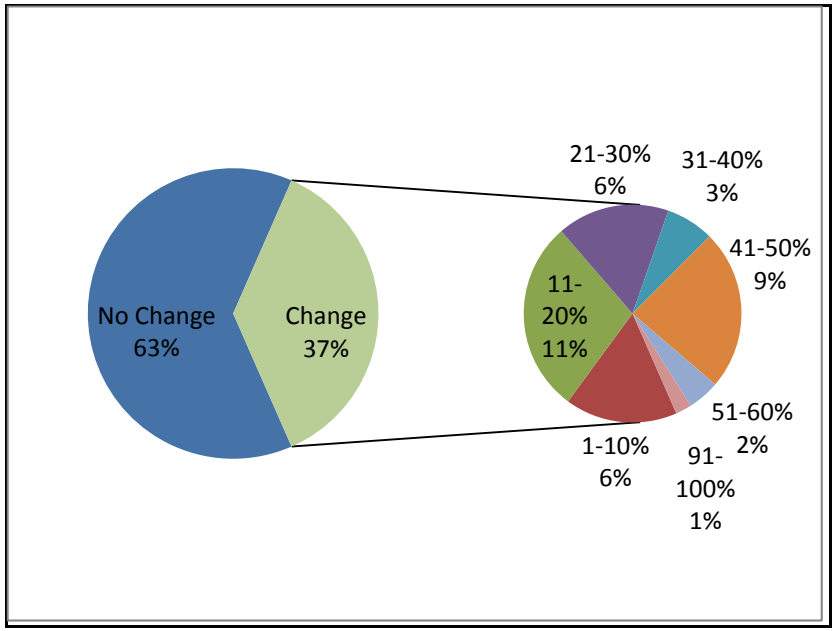

Table 64 Inflation Impact

Change	2009 - 2010		2010 - 2011		2011 - 2012	
	n	%	n	%	n	%
Yes	34	22.2	39	25.5	35	22.9
No	119	77.8	114	74.5	118	77.1
Total	153	100	153	100	153	100
Stoppage of Operation						
2-3 months	1	9.1	1	10	-	-
Repeat	10	90.9	9	90	7	77.8
Dropout	-	-	-	-	2	22.2
Total	11	100	10	100	9	100

Table 65 Loss/Decrease of Income

Rate of Decrease	2009-2010		2010-2011		2011-2012	
	n	%	n		n	%
1-10%	11	34.4	12	1-10%	11	34.4
11-20%	7	21.9	11	11-20%	7	21.9
21-30%	8	25	6	21-30%	8	25
31-40%	3	9.4	3	31-40%	3	9.4
41-50%	3	9.4	5	41-50%	3	9.4
51-60%	-	-	1	51-60%	-	-
61-70%	-	-	-	61-70%	-	-
71-80%	-	-	1	71-80%	-	-
81-90%	-	-	-	81-90%	-	-
91-100%	-	-	-	91-100%	-	-
Total	32	100	39	Total	32	100

Table 66 Not Affected Respondents

With Increase of Income	2009 - 2010		2010 - 2011		2011 - 2012	
	n	%	n	%	n	%
No	87	73.1	81	71.1	89	75.4
Yes	32	26.9	33	28.9	29	24.6
Total	119	100	114	100	118	100

Table 67 Rate of Change

Rate of Increase	2009 - 2010		2010 - 2011		2011 - 2012	
	n	%	n	%	n	%
1-10%	15	46.9	9	27.3	5	17.2
11-20%	6	18.8	14	42.4	11	37.9
21-30%	5	15.6	4	12.1	6	20.7
31-40%	1	3.1	1	3	3	10.3
41-50%	3	9.4	4	12.1	1	3.4
51-60%	1	3.1	1	3	2	6.9
61-70%	-	-	-	-	-	-
71-80%	1	3.1	-	-	1	3.4
Total	32	100	33	100	29	100

Table 68 Cancellation of Fishing Lot Concession Affected Respondents

	Fish Producer		Fish Trader		Total	
	n	%	n	%	n	%
Yes	28	18.7	2	66.7	30	19.6
No	122	81.3	1	33.3	123	80.4
Total	150	100	3	100	153	100

Table 69 Rate of Changes on Income of Affected Respondents

	Loss Decrease of Income				Stoppage of Operation			
	2010 - 2011		2011 - 2012		2010 - 2011		2011 - 2012	
	n	%	n	%	n	%	n	%
1-10%	6	26.1	7	26.9	-	-	-	-
11-20%	5	21.7	9	34.6	1	100	1	50
21-30%	2	8.7	1	3.8	-	-	1	50
31-40%	5	21.7	3	11.5	-	-	-	-
41-50%	4	17.4	2	7.7	-	-	-	-
51-60%	-	-	2	7.7	-	-	-	-
71-80%	1	4.3	2	7.7	-	-	-	-
Total	23	100	26	100	1	100	2	100

Table 70 Change of Income of Not Affected Respondents

	2010-2011		2011-2012	
	n	%	n	%
No change	98	90.7	79	73.1
Change	10	9.3	29	26.9
Total	108	100	108	100

Table 71 Rate of Change of Income of Not Affected Respondents

	2010-2011		2011-2012	
	n	%	n	%
1-10%	1	10	8	27.6
11-20%	2	20	7	24.1
21-30%	1	10	4	13.8
31-40%	2	20	3	10.3
41-50%	2	20	3	10.3
51-60%	1	10	2	6.9
71-80%	1	10	1	3.4
81-90%	-	-	1	3.4
Total	10	100	29	100

Annex 3 Brick and Tile Summary Tables

Table 72 Bricks and Tiles Value Chain Hired Part Time Job

Hired Part time Labor	Endline (n=15)				
	%n	Mean	Median	Total	Estimated Total (all clients)
Number of Person Working	87	19	15	248	909
Number of Days Working	87	103	100	1,344	93,627
Daily Rate (US$)	87	3	2.5	39	280,881*

***Rate for all clients is the estimated amount (US$) paid to part-time laborers, by all enterprises, in one fiscal year, considering median daily rate.**

Table 73 Bricks and Tiles Social Impact

Brick and Tile Social Impact	
Social Outcome/ Impact (brick and tiles)	%
Good relation with other enterprise actors and government authority	53.3
Provide more work for workers/migrants/Villagers	53.3
Sharing experience and knowledge from training to villagers/neighbors	26.7
Supply production and Services	26.7
Knowledge to make brick and tile	20.0
Afford children at school	13.3
Money for saving/Lent/Donate to parentless children	13.3
Reduce migration	13.3
Increased Revenue in family	6.7
Do not know	6.7

Table 74 Bricks and Tiles Sharing

Sharing/Replication of Technologies and Business Practices Shared	Mean	Median
From the time you started with MSME project, please give your best estimate of the number of people you have shared the knowledge that you shared with them?	9.2	5.5
Among these people, whom you shared the knowledge with, how many of them partly or fully adopted the new technologies or business practices that you shared with them?	4.4	2.0

Table 75 Brick and Tiles Economic Outcome

Economic Outcome/ Impact (brick and tiles)	
Increased Revenue in family	86.7
Afford children at school	26.7
Money for bike/Motor/Car/Other materials	20.0
Improve the production supply and Services	13.3
Provide more work for workers/migrants/Villagers	6.7
Enable to give what my children want	6.7
Money for new house/Repair house	6.7
Money for saving/Lent/Donate to parentless children	6.7
Knowledge to make brick and tile	6.7
Do not know	6.7

Table 76 Brick & Tile Project Impact by flood

		n	%
Were you and your family business affected by the 2011 flooding?	1 yes	12	80.0
	2 no	3	20.0
	Total	15	100.0
Loss/ Decrease of Income-July 2011 - June 2012	0 None	1	8.3
	1 1-10%	5	41.7
	2 11-20%	5	41.7
	4 31-40%	1	8.3
	Total	12	100.0
Loss of Stock-July 2011 - June 2012	0 None	1	8.3
	1 1-10%	6	50.0
	2 11-20%	4	33.3
	4 31-40%	1	8.3
Stoppage of Operations-July 2009- June 2010	0 None	6	50.0
	1 1-4 wks.	1	8.3
	2 1-2 months	1	8.3
	3 2-3 months	4	33.3

Table 77 Brick and Tiles Project Impact by inflation (n=15)

		n	%
Affected by the economic downturn or inflation in the country in? July 2009- June 2010	1 yes	12	80.0
	2 no	3	20.0
Affected by the economic downturn or inflation in the country in? July 2010- June 2011	1 yes	8	53.3
	2 no	7	46.7
Loss/ Decrease of Income-July 2009- June 2010	0 None	1	8.3
	1 1-10%	3	25.0
	2 11-20%	2	16.7
	3 21-30%	1	8.3
	4 31-40%	1	8.3
	5 41-50%	1	8.3
	8 71-80%	1	8.3
	10 91-100%	2	16.7
Loss/ Decrease of Income-July 2010- June 2011	0 None	2	25.0
	1 1-10%	2	25.0
	2 11-20%	1	12.5
	3 21-30%	1	12.5

		n	%
	7 61-70%	1	12.5
	9 81-90%	1	12.5
	Total	8	100.0
No Change in July 2009 - June 2010	1 No change	2	66.7
No Change in July 2010 - June 2011	1 No change	7	100.0
No Change in July 2011 - June 2012	1 No change	10	66.7
Change in July 2011 - June 2012	1 1-10%	3	60.0
	2 11-20%	1	20.0
	5 41-50%	1	20.0