

# **FOOD SECURITY POLICY PROJECT**

**Associate Award No. AID-482-LA-14-00003  
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## **QUARTERLY REPORT: OCTOBER-DECEMBER 2014**

### **Submitted by**

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## **Project Overview**

The USAID Burma Food Security Policy Project (FSPP) was signed September 23 and began operations immediately. The project is implemented by Michigan State University (MSU). Implementing partners are Myanmar Development Resources Institute – Center for Economic and Social Development (MDRI-CESD) in Burma, the International Food Policy Research Institute (IFPRI), and WorldFish. The overall goal of the Project is to promote inclusive agricultural productivity growth, improved nutritional outcomes, and enhanced livelihood resilience for men and women through an improved policy enabling environment. Taking a broad view of agriculture, including the farm and off-farm parts of the food system, this goal will be achieved through increased capacity to generate policy-relevant evidence and gender-sensitive analysis that is used by stakeholders throughout the food system to improve policy formulation and implementation. This goal is to be achieved by two integrated objectives:

**Objective 1:** To address critical evidence gaps for informed policy debate and formulation. The Project will generate, synthesize, and disseminate new knowledge on targeted policy issues for which the current evidence base is insufficient, and thus facilitate and encourage reforms.

**Objective 2:** To foster credible, inclusive, transparent, and sustainable policy processes in Burma. The Project will strengthen the building blocks for Burmese national and state/region policy systems, promote inclusion of and dialogue among all stakeholders around critical policy issues, and disseminate globally sourced examples of successful innovation and best practice in policy system capacity building.

The project is comprised of an integrated set of four components that feed into these two objectives:

**Component 1:** Policy/strategy advising. This component is responsible for consulting with stakeholders and getting a sense of policy issues, doing outreach from research results to policy audiences, and conducting policy analysis.

**Component 2:** Agrifood value chains (AFVCs). This component is responsible learning about AFVCs and the specific issues faced by each one in terms of the field research and analysis, outreach of the study results, policy advising from the results, and capacity building for doing similar work.

**Component 3:** Household and communities livelihoods. This has the same set of responsibilities as the second component, but for its study area.

**Component 4:** Capacity and network building. This component funnels, cross-fertilizes, documents, and organizes the capacity building actions of the other three components. This is so other institutions interface with the project in a continuous way and builds to a body of imparted method and approach.

This report provides a summary of activities conducted by FSPP during its first quarter of operation from October-December 2014, including activity development and progress achieved during the period. This summary is organized with reference to the four project components.

### **Component 1: Policy/strategy advising.**

Project COP Thomas Reardon delivered a Keynote Speech 25 November, for the Livelihoods and Food Security (LIFT, [www.lift-fund.org](http://www.lift-fund.org)) Annual Forum 25/26 November 2014, Naypyitaw, on the "*The Emerging Quiet Revolution in Agrifood Value Chains and Livelihoods in Myanmar*". The speech compared agricultural development in Myanmar to that in other Asian countries, and identified many signs and indications of an emerging Quiet Revolution in the agrifood sector in Myanmar, rather than the stagnation and lack of transformation, as is popularly believed. A video of speech can be viewed here:

<https://www.youtube.com/watch?v=2wjc4q8OWsM> . The text of the speech is attached as Annex 1

### **Component 2: Agrifood value chains.**

#### **Fish Value Chain**

Value chain research during October-December focused on a rapid reconnaissance of the fish value chain in the Delta (Yangon, Ayeyarwaddy and Bago Regions). This was comprised of two sets of scoping activities: **Scoping 1** - A meso-level structural and geographic inventory of each segment in the value chain to assess the "lay of the land" and how this has changed over time. **Scoping 2** - Micro-level interviews with actors in the value chain in each of the key districts/clusters selected after the general lay of land work, focusing on the assets.

Google Earth was used to identify and catalogue all pond clusters in every township in the Delta. The research team initially visited the major clusters of ponds identified through this search, located in seven townships which account for an estimated 75% of Burma's pond area. Interviews were conducted with a broad range of farmed fish value chain actors operating at different scales to provide an initial picture of the structure of aquaculture sector in the Delta, and overview of changes taking place within it. Interviews with actors of each type and scale were held 'one on one' in the privacy of interviewees' farms, homes and businesses. Two types of interview were conducted:

- 1) A matrix for obtaining a meso-scale inventory of information on the number and size of value chain actors operating at the village, village tract and township level within each cluster-node. This information was collected for the present day, five years previously, and 10 years previously.

- 2) Semi-structured key informant interviews (conducted with each actor type in each cluster-node) on micro-level behavior. Just as with the inventory matrix, the research team sought out changes in actors' assets and behavior over five-year and ten-year periods.

A total of 228 interviews were conducted with 25 different types of actor and up-, mid- and downstream value chain segments (Table 1)

Upstream		Midstream		Downstream		Other	
Nursery	22	Fish farm	81	Fish trader	32	Capture fisheries business	4
Feed trader	17	Mechanic services	5	Transport services	8	Local official	3
Hatchery	10	Transport services	3	Market manager/worker	5	Government official	1
Seed trader	6	Worker	3	Other ancillary services	2	-	
Ice manufacturer	5	Labour broker	2	Fish processor (small)	2	-	
Rice mill	4	Other ancillary services	1	-	-	-	
Ice trader	3	-	-	-	-	-	
Transport services	3	-	-	-	-	-	
Other ancillary services	3	-	-	-	-	-	
Feed mill	2	-	-	-	-	-	
Chemical supplier	1	-	-	-	-	-	
Total	76	Total	95	Total	49	Total	8

Rapid reconnaissance results were summarized in a short note, along with a tentative policy implications and recommendations and circulated for comment. The report indicates that, contrary to popular opinion, over the last decade, rapid and sustained growth of aquaculture enterprises has occurred, relatively unfettered by official restrictions on land use, in response to domestic market opportunities. Rapid technical change has occurred, resulting in widespread productivity increases, and large and growing numbers of small and medium producers have entered production, engaging in commercial enterprises, especially nurseries which supply larger operations with seed, as well as in subsistence-oriented extensive fish production in 'backyard ponds'. In almost all locations visited, these changes resulted in rapid value chain development, with small and medium enterprises providing an increasingly diverse range of supporting goods and services, and employing large numbers of workers. This note is attached as Annex 2

### **Pulses Value Chain**

A 42 page report on rapid reconnaissance of the pulses value chain (*Winds of Change: A Rapid Appraisal of Four Pulse Value Chains in Myanmar*), based on fieldwork conducted by MSU and MDRI researchers earlier in 2014 was completed and circulated. This report explores changes in Myanmar's pulse value chains since 1988, focusing on three key objectives. First, the paper examines factors driving the long first wave of growth in Myanmar's pulse production and exports. Second, it describes the current organizational structure, incentives and performance of

Myanmar's four most important pulses value chains – green gram, black gram, pigeon pea and chick pea. Finally, the paper summarizes stakeholder observations about prospects for future growth in pulse value chains – at the farm level, in value added processing and in domestic and export markets. The report concludes that Private sector initiatives by Myanmar's traders and farmers have grown the country's pulses into a billion dollar export industry over the past 25 years, with limited government interference or involvement, but that a second wave of pulse expansion will require more active public support, particularly in breeding and agronomic research. Moreover, diversification into high value new export markets requires encouragement of foreign direct investment into the processing sector, which in turn requires allowing foreign countries to purchase raw material domestically in local currency. A summary of the report's key findings is attached as Annex 3.

### **Component 3: Household and communities livelihoods.**

No specific research activities focused on household and community livelihoods were conducted during October-December 2014, although these issues did form a contextual part of many interviews conducted during fish value chain scoping. A more intensive focus on agricultural households and livelihoods is planned for work in Mon State during the next quarter.

### **Component 4: Capacity and network building.**

#### **In house capacity building training**

COP Thomas Reardon initiated series of weekly seminars at MDRI during November and December. Seminars were open to all MDRI staff, and ranged from 2 to 4 hours in length, covering a range of topics of importance to the research effort. A total of 7 seminars were held, on subjects including "How to write a research paper", economic geography, transformation in Asian agri-food value chains, and the supermarket revolution.

#### **External capacity building training**

As part of MDRI's engagement in external capacity building, Ben Belton (WorldFish) and Aung Hein (MDRI) delivered a total of 4 days training to 33 participants from Burmese civil society organizations in the Community Development & Civic Empowerment (CDCE) Program at Chiang Mai University, Thailand, on Nov 22 and December 15-17 respectively. These training sessions covered an introduction to value chain analysis and introduction to research methodology respectively. Course participants were able to put their classroom-based training into practice through research assignments conducted in Burma in December and January. Some recipients of this training will also participate in future livelihoods survey activities in Mon State.

## **Other Issues**

### **Management and personnel changes**

A major unanticipated change to project management occurred with the withdrawal of the COP, Thomas Reardon from the project on December 13. Duncan Boughton (MSU) is currently working in the capacity of acting COP.

### **Deliverables completed**

A draft workplan was circulated for discussion in early-December (Annex 4). However, following the COP's departure a revised workplan will be prepared in January 2015.

### **Budgeting**

The initial obligation of \$1.4 million is less than the submitted full year budget. In the next quarterly report we will provide an initial pipeline of expenditures for the remainder of the current FY.

### **Priorities for programming during the next reporting period**

Priorities during the next reporting period will include the preparation of a revised workplan, finalization of a sub-award contract and budget between MSU and MDRI, and preparation for the implementation of a household livelihoods survey in Mon State.

## **Annex 1**

### **The Emerging Quiet Revolution in Agrifood Value Chains and Livelihoods in Myanmar**

Thomas Reardon, Keynote Speech 25 November, for the Livelihoods and Food Security (LIFT, [www.lift-fund.org](http://www.lift-fund.org)) Annual Forum 25/26 November 2014, Naypyitaw<sup>1</sup>

<sup>1</sup> I thank LIFT and USAID for funding. I thank Andrew Kirkwood, Curtis Slover, Claudia Antonelli, Michiko Ito, Jim Goggin, Duncan Boughton, and Aung Hein for helpful comments on earlier versions.

#### **1. Introduction**

I am grateful to be invited to give a keynote speech at the LIFT conference two years in a row. Last November I spoke from my experience living and working in other Asian countries for the past 12 years; today I will compare that experience with what I have observed in Myanmar over the past 12 months, and present a message of excitement, hope, and challenge.

Before turning to Myanmar I review from my observations from Bangladesh, China, India, Indonesia, the Philippines, and Vietnam, from field interviews with 10,000 persons in all the segments of food value chains, from input suppliers to farmers to wholesalers and logistic firms to processors and to retailers and exporters. This is what we found:

The rapid transformation of the Asian agricultural and food economy has been based on a “food security success triangle” with three corners.

The first corner of the triangle has been a profound and rapid transformation of rural-urban supply chains, which we call a “Quiet Revolution in value chains.” This transformation has been led mainly by a huge surge in “grass-roots investments” - by 100’s of 1000’s of small and medium enterprises (SMEs) all along the value chains - from upstream in the value chains in equipment and machine rental, seed and fertilizer and chemical supply, irrigation installation, and fish pond excavation, - to midstream in the supply chain in trucking, processing, cold storage, warehousing, and wholesaling. Multinational corporations have played only a minor role, and government marketing agencies have played nearly no direct role, in this revolution in value chains. The transformation has been driven by policies of market liberalization in all the countries, of road and electricity investments by governments, and by the fast increasing demand from urban market growth. Trade has mainly played a minor role so far: imports and exports are only 5% of the overall food economy of Asia.

The second corner of the triangle is the modernization of Asia’s small-scale farms – with rapid intensification of technology and commercialization; the farmers themselves have converted their traditional farms into small-scale businesses. Around the region hundreds of millions of small-scale farmers have

invested in irrigation, farm machinery purchase or rental, and use of fertilizer, improved seeds, and chemicals. The result has been leaps and bounds in productivity and farm incomes.

The third corner of the triangle has been the diversification of rural livelihoods.

□ Millions of small farmers have diversified their livelihoods by moving beyond just rice production into vegetables, oilseeds, fruit, dairy, livestock, fish, pulses/beans, and corn. This choice of what farmers are doing with their land, labor, and money, is driven by several facts. The first fact is that the non-rice products earn the farmers in Asia 2-5 times higher gross margins compared to rice. The second fact is the trend of long-term stagnation and decline in rice consumption per capita in Asia, pointed out by Peter Timmer of Harvard. This implies that rice prices will plateau or decline over time in absolute terms, and decline in relative terms compared to non-rice food products. The third fact is the trend of Asian consumers' increasing very fast their consumption of the non-rice foods just mentioned. Our detailed analysis of Asian consumers just showed that urban consumers (who are now two-thirds of the Asian food market) spend TWICE as much of their food budget on fish, chicken, vegetables and fruit as they do on rice; in rural areas they are EQUAL shares.

□ Millions of rural households have sent members into the migration labor markets – adding enormously to rural incomes, enabling households to make investments in job-creating businesses in rural areas and invest in modernizing their small farm operations.

□ Millions of rural households have entered rural nonfarm employment in their villages or in rural towns and secondary cities where they commute to and from. This also has added enormously to rural incomes.

□ All three of these livelihood diversifications have been immensely important to rural people across Asia – and they have voted with their feet - and their yuan and rupees and bhat to invest in this diversification.

## **2. Can and is the food system transformation emerging in Myanmar?**

When I gave my talk on the Asian food economy transformation a year ago at this forum, and I noted how important that transformation has been to fulfilling Asia's needs for food and for broad-based inclusive rural income growth - I asked myself and others, has this transformation started in Myanmar? Can such a transformation occur in a country where half the population is under the poverty line, half the rural people are landless, and half a century just passed in which the country had very low economic growth rates? Many people told me the answer is no, that it has not started and will not occur here, that the rural areas are stagnant, that local people are not investing in the supply chains, that farmers are not moving away from traditional practices, or into high-value products, that they have been too poor too long and lost their drive to succeed. During the past year I have become firmly convinced that those that told me "no it cannot happen" are wrong. With our partner team of talented Myanmar researchers at Myanmar Development Resources Institute, Center for Economic



and Social Development (MDRI-CESD), we have traveled to the south, the north, the east, and the west of Myanmar. Rather than finding stagnation, lack of drive, lack of any transformation, instead we have found many signs and indications of an emerging Quiet Revolution in the agrifood sector. We now have an image of a country filled with many rural entrepreneurs, on farms and off-farms, eager to succeed, to respond to the new market incentives, to vote with their feet and their kyat.

I will dwell for some minutes on several examples of what we have observed in the past year in Myanmar in terms of the emergence of the three corners of the triangle, transformation in value chains, modernization of small-farm technologies, and diversification of livelihoods.

**First, I will illustrate value chain development, technology transformation, and farm product diversification with three key examples, those of fish, chicken & corn, and horticulture products.** I picked these because they are all mainly sold to the domestic Myanmar market; they are important for nutrition for local consumers; and because all over Asia the rate of increase of their demand far exceeds that for rice, and so these will be the “products of the immediate future” in terms of opportunity for growth. Let us start by considering the rapidly developing fish sector in Myanmar, which we have studied in field research in the Delta and Mon. More than 90% of fish production (capture fisheries and aquaculture) in Myanmar goes to domestic urban and rural markets. Less than 10% is exported, although there are excellent prospects to increase fish exports. But often in policy discussions there is a focus on export markets only, when in fact the domestic market is just as exciting if not more so. We have observed that over the past decade, clusters of fish ponds, both small and medium and large, have spread very rapidly over the Delta region; there has been a spread of private hatcheries and nurseries, of small and medium feed mills, or wholesaling and trucking and specialized boat services for transport of fish to Yangon and Mandalay and Shan markets. We have observed rural migrant remittances and local farmers cash invested into excavating ponds. We have observed laborers flocking to the fish zones for the year round work. The development of this sector is truly stunning and rivals, at take-off stage, what I have seen in Indonesia, Bangladesh, and China. This is good news for fish farmers, and for poor consumers for whom fish is a main source of protein. A similar fish sector revolution started in Bangladesh a decade earlier and turned around a situation which had been described as a fish price crisis in the 1990s to affordable fish available year-round to the poor in the 2000s. We think Myanmar has embarked on this same path.

The chicken sector is also developing quickly in Myanmar, especially in the Yangon and Mandalay areas. This again mirrors the experience of the rest of Asia in the past 15 years. Chickens raised intensively eat feed made from corn (maize). It is thus no surprise that production of corn has skyrocketed in a short time in Shan and the Dry Zone. Half of the corn is exported to other Asian

countries, half goes to Myanmar chickens. I think the share to Myanmar will rise fast over time as chicken consumption here catches up with the Asian norm. The rapid rise of corn production mirrors what happened in China and Thailand and Vietnam. In China for example, corn was a tiny share of the rice acreage in 1990; now more corn than rice is grown in China. This dual development of chicken and corn is a basic agricultural development motor throughout Asia.

Poor consumers gain because the price of a main protein source is driven down over time. Logistics and processing and wholesaling actors and laborers they employ are benefitted as employment in supply chains rises. Corn and chicken production has also been a door into increasing contract farming by local and regional companies, reducing risk to farmers and providing them a premium. The horticulture sector is yet another emerging success story in Myanmar. There is justifiable excitement about initial breakthroughs in exporting mangoes and melons and other fruit. This initial success will only be magnified and accelerated as domestic and international companies increasingly invest and help local farmers with know-how. To witness the export story, I had only to travel the road from Mandalay to Muse last December and watch hundreds of trucks move from thousands of farms in the Dry Zone to the vast China market, and then stand and watch 300 trucks each morning sell 8000 dollars each truck of melons on the border, generating a river of cash going back up the supply chain to rural areas in the Dry Zone.

But my excitement has not been limited to observing the export value chains. In fact the great majority of vegetables and fruit grown in Myanmar go to city markets in Myanmar, diversifying diets and raising nutrition of poor consumers. To witness the emerging horticultural value chain revolution to Myanmar cities I had only to sit last February in a large tomato wholesale warehouse on the shore of Lake Inle. The tomato trader had recently invested in a fleet of boats and was loading trucks bound for Yangon market. He noted that a dozen years before there had been 1 such warehouse, and now there are 30. That, dear audience, is a sign of a Quiet Revolution starting, with the heroes the thousands of farmers and irrigation pump salesmen and truckers and wholesalers and retailers who are building this success.

**Second, I give emerging cases we observe in Myanmar of beneficial links between value chain development and crop diversification on the one hand, and rural livelihoods on the other.**

**A first aspect of livelihood impact is that agricultural diversification and commercialization increase local labor demand** – to pick and pack and transport fruit, to attend to fish ponds all year, to harvest and transport maize, and so on. Horticulture in particular is very labor intensive and is known throughout developing countries as an employment generator in rural areas. How this is happening in Myanmar came to us in a flash in a discussion with tea plantation managers in Shan; they noted how much of a shock to them it has

been to see a doubling over the past four years of the wages they have to pay the tea-picker migrants from the Dry Zone; we asked them why, and they said “it is all due to the fruit and vegetable boom in their own Dry Zone, that is driving way up demand for labor and so now we have to compete and pay them higher wages!”. We heard this story all over the country. Think of how good this is for the poorest people in Myanmar, the landless rural workers.

But there is also a challenge inherent in this story. As the cost of labor increases, we observe (and are told by farmers) that the use of small-scale farm machines is rising swiftly; we observed that in the Delta and in Shan. Michiko Ito of IOM told me of how the villagers describe the massive shift away from animal traction to tractors in the Eastern Shan villages she long worked in – shifting from a water buffalo to “Thai buffalo” by which they mean Thai farm machines. This appears to be the start of a similar shift that occurred in the early to mid-2000s in Bangladesh and in China, where small farmers (with farms far smaller than in Myanmar) shifted massively over to renting small tractors and attachments, used for farming and for transport to product markets and employment in rural towns. However, this will also mean a difficult transition period for the poorest farm laborers lacking skills, seed capital, and education to transition to better employment. This will be an inevitable challenge in Myanmar to address over the next decade.

**A second aspect of the impact of market change on local livelihoods** is that the income from migration and the new agricultural incomes are feeding the **growth of rural nonfarm employment**. This was stunningly clear to us when we were on the roads in Southern Shan, observing literally hundreds of small construction sites, additions to homes, re-roofing, and transport jobs with hundreds of small tractor-pulled vehicles, but nearly no bullock-pulled carts in sight. This rise of rural nonfarm employment again shows Myanmar starting to converge with the normal trend in the other Asian countries, where rural nonfarm employment is 40% of rural incomes, actually much higher than the migration income share except in a few areas. It will be increasingly important for livelihood development to train and equip rural households to enter this kind of employment.

**A third aspect of livelihoods links to market transformation is that migration (and rural nonfarm employment) are themselves important sources of investment capital for farm productivity and value chain investments.** A stunning fact is that remittances from Myanmar citizens in international migration are estimated at 8 billion US dollars per year! That is near to the total official value of exports from Myanmar. Add to international remittances the largely uncounted internal migration remittances, from the 1000s of rural migrants in Yangon and Mandalay, or Dry Zone migrants in Mon or Shan or the Delta. And then add to that again a sizable amount that must come from rural nonfarm employment of rural laborers commuting to the local towns to work. Together these three sources of off-farm cash earned in

migration and in the local nonfarm sector are fundamental sources of investment capital for rural development. From our fieldwork, it seems that at least part of these cash sources are used for that: we found in Mon and Delta that fish ponds were dug, and in Shan irrigation pumps and tractors bought, and housing construction undertaken, financed by remittances. Experience in other regions of Asia is again telling: investment from migration remittances and local nonfarm income have been fundamental factors in the transformation of rural areas in the Philippines and China and Bangladesh. Governments in these countries have seen this inflow as a potential bonanza for rural areas – but have been worried about how to create the incentives for that reinvestment and lower the risk. The Mexican (and now the Philippine government following them) set up a “3 + 1” program where the government matches remittance based investments three to one. Rural banks have set up programs to cater to these flows. In the end, the “business climate” of profitability and risk will determine where migrants reinvest their cash. To that “business climate” I turn in the final portion of my talk.

### **3. Strategies**

To this point I have made the case that Myanmar has indeed started on the path of transformation of its agrifood sector, with initial progress in all three corners of the triangle of success I introduced at the start of the talk. In the last part of the talk, I would like to suggest **two strategies to encourage that rapid transformation while promoting pro-poor inclusive development in Myanmar**. Of course the application of these strategies will need to be adapted to the very different kinds of zones and capacities of different socioeconomics groups and strata in the rural areas.

**First, it is crucial for policymakers and international partners to encourage and leverage the emergence of the transformation.** The take-off speed and altitude of that transformation, and its inclusiveness of the poor, will **depend a lot on the “business climate”** for the 1000’s of small and medium investors – the 100’s of 1000s of farmers who want to act like and earn like small businesses, and small and medium rural business entrepreneurs in agricultural services and supply chain services. The generation of local employment will depend on their investments and the hiring they do. The success of large investors will also in the end depend on whether there are investments by farmers and the cluster of local services needed to grow and move product.

While there is good and active discussion of the business climate for foreign direct investment (FDI), it is just as or even more important to have an intense and evidence-based policy discussion about the “business climate” for the small and medium enterprises (SMEs), the small farms and off-farm businesses along the value chains – the issues to focus on are the following:

- how free are they to choose the products they grow (or are they limited to paddy by law);
- How easily and at what price can they get complementary capital from banks and micro-credit institutions?
- How risky are their investments (or can they get titles to land whether they are rice farmers or not, even though our work shows how profitable and growing are the “beyond rice” diversification options)?
- How accessible are output markets (or are they constrained by poor roads and electricity access?); sometimes a good road is the difference between an area being a hinterland and being a dynamic area; witness a story I heard recently of Chin farmers bringing baskets of oranges on their heads down mountain paths; what a difference and an opening up of the area a good road would make!
- How close and well equipped is the nearest rural wholesale market (a fundamental success story in the take-off of Chinese and Thai farming)
- How accessible are input markets for fuel? Electricity? machines? Fertilizer? Good quality certified seed for paddy but also for vegetables?
- How much information can they get about investors and contract farming companies to help them?
- How much information can they get about new technology that goes beyond paddy farming, into non-rice production for farmers, and into packaging and processing and sorting and cooling and other technologies for the various services along the supply chains?

All these policy questions treat small and medium rural entrepreneurs as small businesses building diverse portfolios and expecting good return and low/moderated risk.

**Second and finally**, to complement the promotion of small and medium enterprise and job creation, it is important to match that with interventions that help landless households (and others) participate profitably in the changing rural economy. This will both speed up the overall transformation of agriculture and value chains by supplying these transformations with labor and grass-root cash investments, and will ensure fewer people are boxed out of benefiting. Two kinds of policy interventions can be useful. The first is to enable employment diversification (such as with credit and job training for rural nonfarm activities like construction and food preparation and processing). The second is to enable labor mobility (providing better information about distant opportunities, ensuring people can get National Registration Cards and passports if they want them; enabling access to public services in destination sites; enabling access to financial services - savings and credit - to enable migration).

Thank you very much for your kind attention.

## **Annex 2:**

### **Fish value chain rapid reconnaissance: Summary of preliminary findings and recommendations**

This document provides a synopsis of preliminary findings from a rapid reconnaissance study of the fish value chain in the Delta region of Myanmar, conducted between September and December 2014, and provides initial recommendations based on these findings. The first section of the executive summary briefly reviews some of the more widely held conventional views of aquaculture in Myanmar. These contrast sharply with many of the most important findings from the rapid reconnaissance, as outlined in the second section of the document. The final section summarizes the policy implications and offers preliminary policy recommendations based on evidence derived from the rapid reconnaissance.

#### **Conventional views of aquaculture in Myanmar<sup>1</sup>**

Commonly held views of the characteristics of aquaculture in Myanmar are summarized as follows:

- Aquaculture in the Delta region is dominated by large-scale production systems, which are, to a large extent, export oriented. Selling to domestic markets represents a ‘second best’ option for these enterprises (Johnstone et al., 2012; Delta Alliance, 2013)
- Large-scale aquaculture is characterized by low productivity and efficiency, with long production cycles, and its long term economic viability is questionable (Johnstone et al. 2012; Delta Alliance, 2013).
- Large-scale farms provide low levels of employment seasonal (Johnstone et al. 2012)
- There is an “almost complete absence of a small-scale aquaculture sector”, in part because of “an absence of small multipurpose ponds near farming homesteads... dug in response to water shortages [and to] provide a domestic water source and refuge for wild fish” Edwards (2005).
- “The authorities do not allow ponds to be built on land suitable for rice cultivation” (Edwards, 2005), representing a major constraint to more widespread aquaculture development (FAO, 2003).

In short, according to this narrative, the prospects for aquaculture as a driver for rural development in the Delta region are weak; constrained by poor technical performance, an unfavorable policy environment, a rather sluggish domestic market, and offering few opportunities to small and medium-scale producers or workers.

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<sup>1</sup> In this document we consider only freshwater aquaculture. Coastal and marine aquaculture (including tiger shrimp and crab), account for a very small fraction of total national aquaculture production, and were not surveyed.

## Summary of key rapid reconnaissance findings

Whilst there is an element of truth to most of the characterizations presented in the preceding section, preliminary results from the rapid reconnaissance paint a dramatically different picture of aquaculture development over the last decade. During this period, rapid and sustained growth of aquaculture enterprises, relatively unfettered by official restrictions on land use, has taken place in response to burgeoning domestic market opportunities. Rapid technical change has occurred, resulting in widespread productivity increases, and large and growing numbers of small and medium producers have entered production, engaging in commercial enterprises, especially nurseries which supply larger operations with seed, as well as in subsistence-oriented extensive fish production in ‘backyard ponds’.

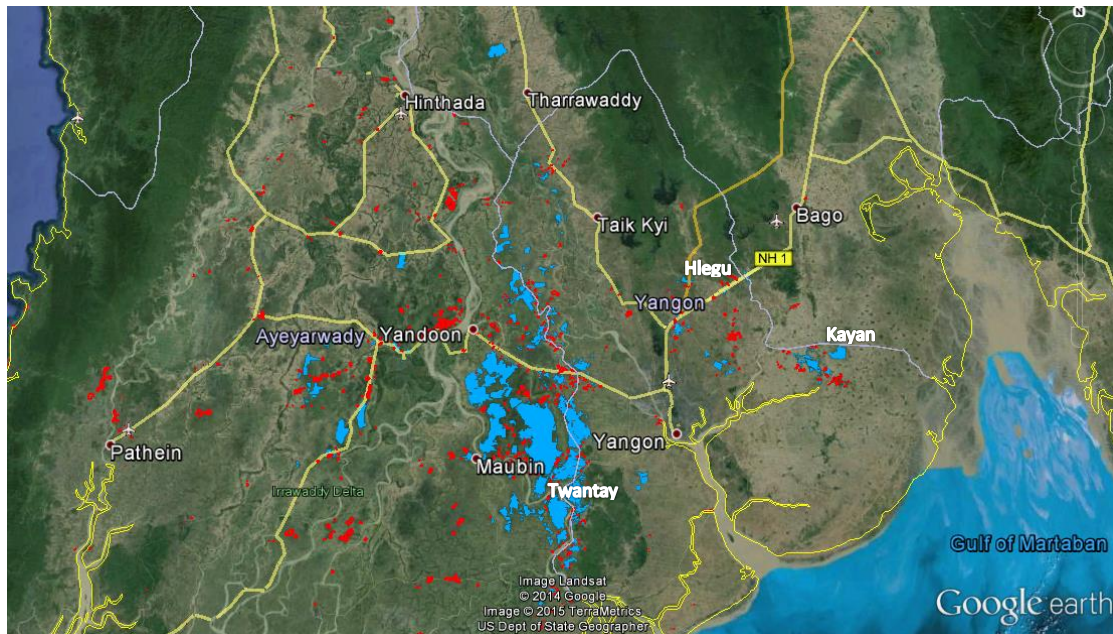
In almost all locations visited, these changes have resulted in rapid value chain development, with small and medium enterprises providing an increasingly diverse range of supporting goods and services, and employing large numbers of workers. A ‘silent revolution’ in fish value chains is thus very much underway in Myanmar. A note of caution must also be sounded however as, in many locations in the Delta, conversion of paddy and wetlands to large scale pond farms has resulted in the displacement of rice farmers and natural resource users. The remainder of this document summarizes some of the most important of these findings and their implications in more detail.

### Geography and historical development

Aquaculture started to emerge from the mid-1960s onwards, as farmers in Kayan and Twantay townships began stocking wild fish in enclosed rice fields, where they were grown without feed. As hatchery produced seed became available from government run hatcheries during the 1970s, pioneering farmers in these areas began to construct purpose built ponds, stock hatchery produced seed, and use rice bran as a feed input. Informal knowledge transfer of hatchery techniques from government staff to early pond farmers followed, resulting in the development of the first private hatcheries, initially in Kayan and subsequently in Twantay.

Early pond farmers were rapidly able to expand their operations (which were highly profitable at this time), by buying up low productivity submerged paddy fields from neighboring farmers using credit provided by large fish traders in Yangon. The sector suffered a temporary setback during the late mid to late 1980s as the Socialist government cracked down on these emergent operations, but began to expand again rapidly post-1988, as the command and control of agricultural production was relaxed, and there was a period during the early 1990s during which the development of aquaculture was actively promoted by the military in in some areas. As the land frontier in pioneering areas was closed, the most successful farmers began to acquire land for pond construction outside the original clusters, and residents of newly forming clusters also began construct ponds in increasing numbers.

This pattern of expansion has continued until the present day. Most pond farms are now located in a set of clusters shaped like a sickle with a fat handle, centered around main demand hub of the city of Yangon. The point of the sickle starts in Kayan to the East of Yangon City, running through Hlegu to the North (at the top of the curve of the sickle), and curves down to the fat handle of the sickle to the South and West, through fish pond clusters in the Townships of Twantay, Nyaungdon and Maubin on the borders of Yangon and Ayeyarwaddy Divisions. Newer pond clusters are also beginning to emerge further to the west and north of these main centers. The total area of land under aquaculture in the Delta region, as ascertained from analysis of satellite imagery, is currently 210,700 acres (Figure 1)



**Figure 1: Satellite image overlaid with the location of major pond clusters (shaded light blue) and smaller groups of ponds (shaded red). Source: adapted from Google Earth**

### **Sectoral structure**

In terms of production volumes, aquaculture is dominated by large scale operations. These include a small number of farms operated by companies, with sizes of up to 7000 acres, and some very large farms around the 1000 acre mark operated by individuals or families, often from among the earliest investors in the sector. These large enterprises are all vertically integrated to varying degrees, often incorporating hatcheries and, in some cases, pelleted feed production facilities and marketing outlets. Farms in the low 100s of acres represent a large share of pond acreage in some clusters. However, there are also significant numbers of ‘medium-sized’ farms, ranging from 5-50 acres in each cluster.

Kayan township in Yangon Region, and village tracts along the border between Twantay and Maubin Townships in Ayeyarwaddy Region are major hubs for seed production, each supporting several private hatcheries and large numbers of specialized commercial nurseries, the majority of which are sized 1-5 acres. All major pond clusters are well connected by waterways and/or roads to Yangon, the main demand hub where the vast majority of fish are marketed. Clusters of medium sized fish farms integrated with poultry production (which provides ‘free’ pond inputs in the form of chicken manure and spilt feed) have developed rapidly over the last decade in peri-urban areas along major roads to the north of Yangon.

Unexpectedly, given the common belief that there is little or no very small-scale ‘backyard’ aquaculture in Myanmar, satellite images reveal there to be in excess of one hundred thousand homestead ponds sized less than half an acre in townships throughout the Ayeyarwaddy and Yangon Regions. Interviews conducted in Thongwa, to the east of Yangon indicated that over the past 10 years, these ponds (which were originally excavated to provide drinking water for farm households in areas with saline groundwater), have increasingly been stocked with hatchery seed to provide fish for home consumption as a replacement for dwindling stocks of wild fish. This pattern is likely to be repeated through other



townships to immediately to the east and west of Yangon, although it has yet to be determined whether fish are stocked in this type of pond in remoter areas of the Ayeyarwaddy Region, located far from the main seed production hubs.

### **Supply side growth**

In all but the most mature clusters where the land frontier for pond construction has already been closed, pond acreage has increased rapidly over the last decade through the conversion of paddy land and uncultivated wetlands. For instance, analysis of satellite images show that the area of ponds on ‘Nyaungdon Island’, which covers much of Maubin and Nyaungdon townships, grew by more than 250% between 2003 and 2014, from approximately 9,700 to 34,000 acres. The acreage of ponds around Hlegu to the North of Yangon grew by more than 150% over the same period, with integrated poultry-fish farms expanding dramatically, from nothing in 2004 up to three quarters of total acreage in 2014.

Hatchery numbers have grown steadily in all major pond clusters. Nursery operations have increased extremely rapidly on the Twantay-Maubin border, where numbers of entrants have increased an estimated 5-10 times, and nursery pond acreage has grown threefold during the last decade, as large numbers of smallholders have seized the opportunity to diversify away from less profitable horticulture and paddy farming. There are also an estimated 3000 acres of nursery ponds located in the original hatchery cluster of Kayan.

A proliferation of other up- and mid-stream value chain actors performing increasingly specialized functions has taken place in key growth hubs, most notably the towns of Twantay and Kayan, where numbers of transport services (truck and boat rentals), feed traders, mechanics, hardware suppliers and ice factories have doubled or trebled over the space of a decade. Workshops in these areas have also begun to manufacture fiberglass boats, water pumps and specially modified boats for the live transport of fingerlings over this period.

### **Demand side growth**

Perhaps the single most striking finding of the entire study is the dramatic growth of demand for aquaculture fish from Upper and Eastern Myanmar which has occurred since 2011. Transport workers and companies at San Pya central fish wholesale market and Aungmyingalar Bus Terminal in Yangon city reported a huge increase in the number and volume of consignments of farmed fish distributed to more than 25 destinations outside the capital since the liberalization of regulations on motor transport and completion of the Yangon-Mandalay express way, sharply reducing transport costs and times.

The rapid expansion of aquaculture over the last decade has taken place despite extremely high real exchange rate appreciation of the Kyat against the Dollar from 2007 to 2013, which sharply reduced the competitiveness of fish exports from Myanmar. Nevertheless, nominal domestic prices for farmed fish have remained buoyant so it appears that domestic demand has been able to absorb both increased production and surplus from falling exports. We hypothesize that the opening up of the internal market via improved transport linkages has been *the* single most critical a factor in allowing this to occur (rapid urbanization, rising real incomes and declining freshwater capture fisheries output over this period are also likely to be contributory factors). The rapidity of growth in demand from Upper Myanmar is illustrated by the emergence of cluster of 50 small enterprises at San Pya market processing *nga chit* (a paste of minced fresh fish used in fish cakes), employing a reported 1500 laborers. 10 years ago there

were very few *nga chit* producers in the market, and their numbers have jumped very sharply within the last 5 years in response to demand from newly opened hotels in Nay Pyi Taw.

### **Technological change**

Fish production continues to be dominated by semi-intensive farming systems utilizing agricultural byproducts as feeds (most importantly rice bran and peanut oil cake and, increasingly, chicken manure in integrated poultry -fish systems). Use of manufactured pelleted fish feeds is on the increase, facilitating shorter production cycles, but its use remains relatively limited at present, accounting for perhaps <20% of total production. Despite this, per acre yields have risen steadily over the past decade, principally as a result of the practice of stocking increasingly large fingerlings, at sizes of up to 12 inches. This has the effect of shortening production cycles by a third or more, as well as increasing yield per acre/cycle in some instances. Based on farmer interviews, we speculate that productivity increases are responsible for as much as half the output growth which has occurred over the past 10 years.

The tendency toward stocking large fingerlings has been responsible for the boom in small commercial nursery operations, since although larger farms nurse fingerlings to advanced sizes on-site, they require inputs of smaller fingerlings in order to do so, and are also often unable to produce larger fingerlings in sufficient quantities to meet their own needs. Although aquaculture remains dominated by production of Indian major carps (mainly rohu), other species (most importantly pangasius and pacu) are also increasingly important, and production of a variety of minor species including African walking catfish, climbing perch and giant freshwater prawn is also apparent, suggesting emergent processes of product differentiation.

### **Inter-sectoral linkages**

Total sales of unprocessed fish feeds and fish feed ingredients are growing rapidly. Traders at Yangon's largest wholesale market for agricultural goods estimate that the market for fish feeds and feed ingredients is as large as the market for all other animal other feeds combined. The fish feed market supports a vibrant interstate trade in the agricultural byproducts, both from North to South (mainly oil cakes from the Dry Zone), and within the Delta region (rice bran). The growth of aquaculture is thus highly dependent on these other agricultural sectors and their allied processing industries, and also supports their development, since the ability of processors to derive income from sales of byproducts reduces effective operating costs.

Much of the growth in integrated poultry-fish production to the north of Yangon has been fuelled by the inflow of capital from investors in Shan state with trading, mining and agricultural businesses, seeking to diversify their asset portfolios. Marine fishing boat owners have also invested in aquaculture for the same reasons. The investment of remittances from international migration in pond farming in the Delta, while present, is rather limited, as the capital threshold usually proves too high. Investment of international remittances in smaller scale trading businesses (e.g. fingerling brokers) appears somewhat more common.

### **Labour**

All medium and large scale fish farms employ permanent labour to tend ponds (often husband and wife teams who live in on-site accommodation). In all pond clusters visited, the overwhelming majority of permanent laborers (all of whom were landless) originated from outside the area, usually from the remoter townships of Western Ayeyarwaddy Region, where there were said to be few employment opportunities apart from casual seasonal agricultural work. Large teams of day laborers, hired for harvesting ponds,

unloading feeds and earthmoving work, were also found in all locations. These tended to be comprised largely or wholly of local residents (with the exception of peri-urban Hlegu, where groups of migrants from Ayeyarwaddy Region living in makeshift housing on roadside land perform a range of casual farm and non-farm labour).

Wage rates for temporary workers are in the region of \$4/day for men and \$3/day women, while wages for a single male permanent worker are approximately \$2.50/day, meaning that pond cluster residents preferred the greater freedom of better remunerated day labour. Widespread outmigration, most importantly to Yangon for jobs in garments and other industries, was reported in pond clusters in Twantay and Maubin, particularly among members of families who had sold agricultural land to fish pond operators, and other landless households. This outflow of labour has reportedly resulted in rising wage rates and occasional labour shortages within pond clusters. These observations appear to be correlated with recent growth in the use of mechanized earthmoving equipment, rental services for which have emerged in all pond clusters visited, mostly within the last three years.

### **Land**

Pond farms are mainly constructed on land purchased by their operators. In Latkyargyi village tract, Maubin, at least two thirds of pond acreage in several villages was owned by large farmers originating from earliest pond cluster in Twantay, who purchased land from small paddy farmers unable to support the costs of production inputs and living expenses. Similar patterns of land acquisition and pond ownership were reported in other pond clusters. The relative ease with which many pond farmers had apparently been able to purchase agricultural land may also be linked to very low historical incomes associated with paddy cultivation, due in part to low productivity, but also (in the past) to policies which strictly regulated paddy production targets, sales and prices, leaving many farm households deeply indebted (Okamoto, 2008). Uncultivated wetlands have also been converted to ponds, and land prices in all pond clusters have risen sharply as the land frontier has closed.

Farming on land leased-in from private owners is relatively uncommon, occurring mainly in cases where a pond farmer has incurred large financial losses, causing them to rent their land to others. Where land is leased-in for aquaculture, this is primarily from state institutions, including government departments, prisons and the military, or from companies granted land concessions by the state. We hypothesize that the limited development of private land rental markets may reflect the somewhat ambiguous situation pertaining to private property rights, as all land is formally owned by the state which allocates land use rights.

Widespread land grabbing was reported to have occurred throughout large areas of Maubin and Nyaungdon Townships in the early 2000's. A large government flood control and irrigation scheme completed in the late 1990s was intended to facilitate the intensification of rice cultivation in the area, but also improved its suitability for aquaculture. Following completion of the scheme, companies with close ties to the military government reportedly seized many 1000s of acres of land, including land already cultivated by paddy farmers (in one village visited, 180 out of 300 households had reportedly lost all or part of their agricultural land in this way). Paddy and wetlands in the most favorable locations were converted to ponds, most of which were leased out to large pond farmers rather than operated directly by the companies concerned. Since 2011, many of the paddy farmers affected have begun efforts to reclaim

their land or receive compensation. In some instances they have been successful in doing so, but many other unresolved cases are still being contested.

### **Regulatory issues**

Officially, a person wishing to convert any land to ponds must possess; 1) 'Form 105', which provides land use rights; 2) 'Form 39', which permits a change of land use; 3) a pond license issued by the Department of Fisheries, which permits the cultivation of fish. In areas visited, most land under cultivation is already assigned a Form105, and pond licenses were reported to be granted to any individual in possession of a Form 105 and a pond, irrespective of whether they also possessed a Form 39. According to informants, obtaining a Form 39 requires the consent of multiple agencies at local, regional and national level. These include the village head, the Settlement and Land Records Department, the Department of Agriculture, the Department of Irrigation, and the General Administration Department. The process can take several years and requires numerous visits to various government offices. It also entails the payment of substantial "unofficial" fees. Possession of Form 39 also requires the bearer to pay an annual tax to the Internal Revenue Department, reported by informants to cost MMK 80,000/acre.

In many of the pond clusters visited, it was widely reported that a person wishing to convert a small area of land to ponds would need to receive the assent of the village head in order to do so but that, if granted, this was sufficient to allow pond construction and operation to take place unhindered. Although the village head is only officially permitted to give consent to the conversion particularly poor quality paddy land (referred to as category "R3" land), informant's comments suggested that providing the correct financial incentives might facilitate a greater degree of flexibility with respect to the quality of paddy land that could be converted. Few farms of less than 10-15 acres choose to apply for a Form 39. In fact, from the perspective of the farmer, the only discernible benefit of obtaining Form 39 is that it affords the bearer protection in the case of a dispute over land use rights, and entitles them to compensation in the event that the land is confiscated by the state. Thus, farm owners have little incentive to apply unless their farm is sufficiently large that their lack of Form 39 might come to the attention of the authorities, subjecting them to the possibility of fines, or if they have reason to fear that their land use rights might be challenged.

As a result, the majority of informants in most pond clusters estimated that a Form 39 had been issued for around only half of total pond acreage, with some putting the figure as low as 10%. Even larger farmers often reported having applied for Form 39 for only part of their pond acreage in order to avoid the costs entailed, while others reported having begun the application process, but deliberately failing to pursue it further once the application had been lodged. Thus, at least in some areas where pond clusters are already well developed, the need to obtain permission for land use conversion does not appear to pose as large an impediment to the expansion of small and medium scale aquaculture as is widely believed.

### **Policy implications and recommendations**

We identify the following preliminary set of policy implications and recommendations on the basis of findings from the rapid reconnaissance outlined above. Recommendations are organized in relation to the midstream (farm sector), upstream (input supply) and downstream (marketing) segments of the fish value chain, and with respect to land.

## Midstream:

- The domestic market for fish in Myanmar is large (53 million people) and expanding quickly with strong long term growth prospects as urbanization, incomes and communications improve, and the productivity of freshwater and marine capture fisheries decline. In contrast, the total maximum potential market for exports in the Gulf States (the main target market for farmed freshwater fish exports from Myanmar) is around 20 million people, with more limited prospects for growth and less stable conditions of trade than those found in domestic markets (e.g. as a result of exchange rate fluctuations and occasional trade embargoes). **Policies aimed at promoting freshwater aquaculture should therefore focus primarily on fulfilling and creating additional future domestic demand.**
- In pond clusters where large numbers of small and medium scale commercial producers engage in aquaculture supported by numerous small services providers, levels of employment appear higher, and the distribution to access to benefits appears much more equitable, than where very large vertically integrated farms dominate production. This finding requires further empirical investigation, but suggests that **there is an economic case for prioritizing support for development of small and moderately sized commercial producers over that which serves the needs of very large farms.**
- The semi-intensive farming systems which dominate aquaculture in Myanmar perform well, but presently produce a very limited variety of species, and a very limited range of production technologies are utilized in comparison with other major producer countries in Asia. As the domestic market continues to grow and become better spatially integrated **there is ample scope to initiate production of a variety of additional species, both niche and high volume, including those which can be farmed commercially on a relatively small-scale, to meet demand from middle class and low income consumers and provide points of entry into aquaculture value chains for new producers and associated service providers.**
- Large farms are not generally credit constrained because they possess sufficient collateral to secure advance payments from fish traders and loans from other informal and formal sources. Bank credit is reportedly only available to fish farms with holdings of 50 acres or more. Some smaller producers reported being unable to access credit to cover operating costs, even from informal sources, resulting in suboptimal use of inputs and low profitability, and farmers stocking fish in homestead ponds reported using the agricultural loans provided for paddy cultivation to purchase fish seed. These factors suggest that **there is demand for carefully targeted and appropriately designed microcredit instruments to improve the productivity of small producers, along with improved access more substantial and appropriately tailored bank loans for medium-scale commercial producers.**
- The land frontier in the main townships where pond clusters are currently located is closing rapidly, and scope for further horizontal expansion of pond acreage in these areas is somewhat limited. There remains considerable scope for expansion into remoter townships further to the west, north and south of Ayeyarwaddy Region, but production in these areas is at a comparative

disadvantage due to weaker road and water transport links to the main demand hub of Yangon. **Improvement of road and/or canal access to remoter parts of the Ayeyarwaddy Region would open up new areas for pond expansion by connecting them to the Yangon Market.**

- Extremely large numbers of small homestead ponds identified through analysis of Google Earth satellite images hold great potential for the expansion of ‘backyard’ aquaculture for both household food security needs and the market. At present, the intensification of production in this type of pond is constrained by the need to limit feed use in order to retain their primary function as sources of drinking water in areas with saline groundwater. **Improving household access to potable water in these areas would remove the key constraint to the more intensive utilization of homestead ponds in aquaculture production.**
- **Fish diseases and parasites were by far the most common problems identified by farmers, compounded by extremely limited access to veterinary services and information on diagnosis and treatment.** These needs could be addressed through the development of public-private partnerships to ensure greatly improved coverage and quality of these services.
- The extent of electrification in most of the pond clusters visited was extremely limited. **Improved rural electrification would substantially reduce production costs** associated with pumping water and (in the case of integrated poultry-fish operations) lighting and ventilating hen houses, as well as that needed for important support services such as ice production, resulting in greater profitability and improved husbandry.

#### **Upstream:**

- Interviews indicate that the by far most effective interventions of the Department of Fisheries have been in the sphere of fish seed production. **Improvement, commercialization, and transfer of production technologies for seed of a variety of existing and ‘new’ or emerging species to the private sector should represent a priority.** These investments would be a key step in leveraging the potential for product and technological diversification highlighted above.
- The feed manufacturing sector is currently poorly developed, being dominated by a single company, with a few other large vertically integrated farms producing pelleted feed primarily to meet their own requirements. Part of the reason for the limited adoption of pelleted by smaller farmers is their quality, which is not always acceptable. Other reasons include the marketing practices of the main feed manufacturer, and the limited diversification of farming systems into species which are better suited to more intensive production. **Encouraging foreign direct investment in the feed sector could increase its competitiveness, leading to higher product quality, lower price, fairer marketing practices, and the provision of stronger embedded services by feed suppliers (e.g. veterinary services and promotion of new production technologies).**

### Downstream:

- The domestic market for fish has proven extremely responsive to the liberalization of regulations governing transport, and improvements in transport infrastructure. **Further investments in transport infrastructure, particularly linking to the main urban centers Upper, Eastern and Western Myanmar would improve market access and connectivity and reduce transport times.**
- Busses are not currently licensed to carry freight, including fish, and fish cannot legally be transported interstate without written consent from the Department of Fisheries. Both of these restrictions are ineffective in achieving their intended aims, and serve only to promote rent seeking behavior and increase transaction costs in marketing, which are ultimately passed on to the consumer. **All restrictions on the domestic transport of fish should be removed.**

### Land:

- In several of the pond clusters visited, producers wishing to convert less than 10 acres of land to ponds are already *de facto* informally exempt from the need to apply for official permission (Form 39), although they still require the consent of the village head in order to make these changes. **Exempting all farms sized 10 acres or less from the requirement to obtain Form 39 for pond construction would remove this constraint to the development of small-scale commercial aquaculture in areas of high potential where these rules are currently implemented strictly (e.g. Mon State), provide protection for the large numbers of small farms which currently operate without Form 39, and result in negligible cumulative reductions in the area under rice cultivation.**
- Large areas of ponds, particularly in Ayeyarwaddy Region, appear to have been constructed on land appropriated from farmers with pre-existing land use rights by companies with close ties to the military. **Future policy should ensure that: 1) no land is appropriated for the purpose of constructing ponds against the wishes of existing users with the right to occupy it; 2) legitimate claims for compensation brought by farmers displaced by the appropriation of land for pond construction are settled in the favor of the claimants, at market rates and/or through the return of land formerly operated.**
- In many areas of Ayeyarwaddy Region, the construction of ponds has taken place on wetlands. Although these are officially regarded as “vacant”, “fallow” or “wastelands”, they perform an important function in providing ecosystems services which are of critical importance to the livelihoods of large numbers of landless households (e.g. wild fish, fodder, fuel). **The importance of wetlands should be fully recognized, and their conversion to ponds or other agricultural uses should be more strongly regulated in order to maintain the ecosystem services and biodiversity which they support.**

## **Annex 3: Briefing Note: Myanmar Pulses and Beans sector**

### **Background**

As a follow up to the initial agricultural sector and food security diagnostic carried out by Michigan State University in collaboration with MDRI-CESD from October 2012 to May 2013, a targeted diagnostic of the pulses and beans sector was undertaken in 2014 as it represents Myanmar's largest crop export sector in volume and value terms.

### **Key Findings**

1. *Past growth*: pulses and beans (especially black gram, green gram, pigeonpea and chickpea) were the first crops to be liberalized in 1988. Farmers and traders responded in dramatic fashion with exports rising from less than 100,000 tons to 1.4 million tons by 2010, generating \$1 billion in export earnings. Myanmar's climate is well suited to pulse production with black gram and green gram dominant in the Delta Zone, and a more diversified set of production systems, including pigeonpea, in the Dry Zone. Domestic trade is undertaken entirely by nationals and most exports are handled by a small number of international buyers.
2. *Current challenges*: since 2005 the sector has been subject to increased volatility due to a range of factors, especially the fact that exports are almost entirely in raw form with heavy dependence on a single buyer – India. Production increases have been driven almost entirely by area expansion with limited use of improved varieties and crop management practices. Marketing systems are competitive but costly due to multiple handling, lack of quality incentives, and limitations on foreign direct investment in processing and procurement. The domestic market is very limited and hence there is no “shock absorber” for export demand shocks.
3. *Future opportunity*: regional and global markets for pulses and beans are growing steadily. To break out of the status quo Myanmar must increase productivity and quality at the farm level, and increase the share of pulse and bean exports in processed rather than in raw form. Success will bring increased incomes for up to 3 million farm families, increased employment in processing, and growing domestic consumption of nutritious food.
4. *What it will take* to increase the share of exports in processed form: international companies with extensive global and regional export networks need incentives to invest in procurement and processing activities in Myanmar. Government should lift restrictions on international companies trading in local currency (at present they can only purchase on an FOB basis in US dollars from local traders) and engage in dialog with both international and domestic companies on policies and private-public partnerships to stimulate investment in processing.
5. *What it will take* to enable farmers to respond to increased demand for quality raw material: Burmese farmers need access to seed of improved varieties, improved pest management practices, improved post-harvest handling and mechanized services (for early planting). National research and extension capacity on beans and pulses is minimal and needs reinforcing through partnerships with international organizations (AVRDC, CIAT, USAID FTF Legume Innovation Lab).



## **Conclusion**

Myanmar faces a choice about the pulses and beans sector. With an intentional strategy to promote investment in processing and increase farm-level productivity the sector could make important contributions to the incomes of millions of farmers and thousands of workers, and remain a significant source of foreign exchange. Without such a strategy the sector will likely face continued volatility, decreased profitability as rural wages rise, and eventual decline.

**Annex 4: MSU FSP – Burma/Myanmar - Calendar of Activities Oct. 1, 2014 – Sept. 31, 2015 (combined USAID & LIFT funded plan), Version December 3; Initials are persons<sup>i</sup>. Outputs in **Bold**; USAID only; **LIFT only**; USAID&LIFT**

	Start-up Activities	Training and Outreach Component				Research Component							Policy Advising Component					
		FSP weekly training seminars for MDRI	Outreach: results workshops by int'l & MDRI & others	Analysis methods/ research findings/ Strategic-policy implications/ Lectures-training by team for stakeholder institutions	Compet. research grants program to non-MDRI	Liveli-Hoods	Fish VC	Potato VC <sup>i</sup>	Pulses VC <sup>iii</sup>	Input VC	Maize VC	Fruit VC	Reactive Study LIFT Asks	Issues Round tables	Policy Brief + Forum	Respond to USAID Policy Info Asks		
Oct	>MDRI & MSU hire staff; > identify field collabs. >sub-contracting > Office & accounts set-up > initiate MSU registration	4														ad hoc		
Nov		4		>TR: Keynote for LIFT Forum >TR: Speech to WEF-Myanmar Ag Network (private sector)												ad hoc		
Dec		3		>BB: VC analysis lecture at CDCE/Thailand >SB/AK/OT: FSWG training				RR-Report									Ad hoc	
Jan		3 & retreat	Pulses RR-VC workshop	> TR&SK Yezin; >TR&BB CDCE/Burma	Call for 10 Props. Linked to 1 <sup>st</sup> year activities	RR & Report	RR & Report	RR		RR					Round-table on Fish Policy	Policy Matrix Brief	ad hoc	
Feb		4	Fish RR-VC Workshop	>ZO&TR VC analysis/implications lecture at Min Commerce & MOLFRD; >DB&SK VC analysis & findings lecture Pulses, Min of Ag	Review/Plan/start			RR & Report		RR						Policy Forum with MFF (fish) & Policy Brief	Ad hoc	
Mar.		4	Potato RR-VC workshop	>TR, BB, RH & EP VC analysis & survey method lecture at Delta (fish) institution						Report		RR				Round-table on Input Policy	ZO Quarterly FSP Lecture on Reform Implications of Findings	Six-month report on ad hoc work
April		2	Input RR-VC workshop	>ZO&TR VC analysis & input findings lecture at Min Ag; >TR: WEF Southeast Asia Meeting/with MAN		Sample, Survey	Sample & Survey					RR & Report				Policy Forum on inputs & Policy Brief	Ad hoc	
May	2	Maize RR-VC workshop	>SB/AK/OT: FSWG training		Survey	Survey							RR		Round-table Hort Pol.	ad hoc		

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<sup>i</sup> MDRI: ZO=Zaw Oo; TT=Than Tun; AH=Aung Hein; SK=Seng Kham; International: TR=Reardon; DB=Boughton; BM= Minten; RH=Hernandez; BB=Belton; SB=Babu; AK=Kennedy; OT=Tasie;

<sup>ii</sup> In year 1 potatoes RR is only LIFT; in year 2 potatoes survey is only USAID.

<sup>iii</sup> In year 2 pulses is only LIFT; first year we are reporting on RR on pulses jointly funded by prior USAID contract and finalization by the Associate Award by the Mission.