FOOD SECURITY POLICY PROJECT

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Submitted by

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Project Overview

The USAID Burma Food Security Policy Project (FSPP) is implemented by Michigan State University (MSU). Implementing partners are Myanmar Development Resources Institute – Center for Economic and Social Development (MDRI-CESD) in Burma and the International Food Policy Research Institute (IFPRI). 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.

Introduction

This report provides a summary of activities conducted by FSPP during the first quarter of year 2 from October to December 2015, including activity development and progress achieved during the period. Work during the quarter focused primarily on cleaning and analyzing data from the Mon State Rural Household Survey (MSRHS), disseminating findings from the aquaculture value chain study, and beginning preparations for new survey activities beginning in 2016. Members of the project research team also participated in flood recovery activities and provided training on agricultural development strategies for newly elected MPs.

Component 1: Policy/strategy advising.

This quarter saw the release of a policy brief summarizing key findings from aquaculture value chain study, titled "A Quiet Revolution Emerging in the Fish farming Value Chain in Myanmar: Implications for National Food Security" (See Annex 1, http://fsg.afre.msu.edu/fsp/burma/index.htm#pb) and full length report, titled "Aquaculture in Transition - value transformation fish and food security in Myanmar" (http://fsg.afre.msu.edu/fsp/burma/index.htm#rr). Both documents were circulated widely and garnered considerable interest and positive feedback. In recognition of the contribution of the report to the policy debate on aquaculture in Myanmar, Ben Belton was invited to give a 30 minute presentation, titled "Policy recommendations for inclusive aquaculture development in Myanmar", at a meeting with key development partners in fisheries and resource governance, organized on December 17 by the national NGOs Pyoe Pin and Network Action Group (NAG). The meeting was well attended by a number of senior officials from the Ministry of Fisheries, Livestock and Rural Development, and from the Department of Fisheries

CESD and MSU staff organized and participated in training event on economic reform for around 20 incoming MPs for Yangon region on December 8th. The following presentations were given at the event: "Agriculture: Engine of Rural Economic Growth in Myanmar" by Duncan Boughton, Aung Hein and Ben Belton (MSU & MDRI-CESD) (http://fsg.afre.msu.edu/fsp/burma/index.htm#pp), "Reducing Regional Inequality without Punishing the Richer States in Myanmar" by Wing Thye Woo (University of California Davis), and "Building Capacity for Reforms in the Early Stages of Major Political Upheavals" by Peter Boone (London School of Economics).

MUS, MDRI-CESD and IFPRI published a research paper on agricultural growth policies for Myanmar titled, "Promoting Agricultural Growth in Myanmar: A Review of Policies and an Assessment of Knowledge Gaps" (see link below) (http://fsg.afre.msu.edu/fsp/burma/Research_Paper_5_Promoting_Agricultural_Growth.pdf)

Dr. Zaw Oo continued in his role as Special Coordinator of the National Disaster Management Committee. Dr. Zaw Oo has used this position to make the case for economic reforms as a central component in rebuilding a more resilient post-flood rural economy. FSP research staff attended the third flood recovery forum of the National Natural Disaster Management Committee in Nay Pyi Taw on December 11. Duncan Boughton prepared an analysis of the potential contribution of beans and pulses sector to flood recovery prepared at request of ZO in his capacity of national flood response coordinator.

Duncan Boughton and Ben Belton prepared comments on Draft Myanmar National Action Plan for Food and Nutrition Security (MNAPFNS), and proposed policy actions in support of flood recovery at the request of the USAID mission.

Component 2: Agrifood value chains.

Fish Value Chain

As noted above, this quarter marked the release of a report and policy brief presenting findings from in research on aquaculture value chains in Myanmar. These findings were disseminated during a two week visit to the United States by Aung Hein and Kyan Htoo (MDRI-CESD) and Ben Belton. During this visit, the team presented a poster at the Global Food Security conference at Cornell University, titled "You Can Have Your Rice and Eat Fish Too: Rice, fish, land use trade-offs and food security in Myanmar and Bangladesh" (http://fsg.afre.msu.edu/fsp/burma/GFS_Poster_06_10_15.pdf). The team also gave a presentation titled "Aquaculture in Transition: Value Chain Transformation, Fish and Food Security in Myanmar" at Michigan State University in East Lansing, to 17 faculty members and graduate students in the Department of Agricultural, Food and Resource economics, and to 24 staff of the International Food Policy Research Institute in Washington D.C.

Preparations for the next round of in depth study on aquaculture began, with a training workshop on sample design led by David Megill, former chief advisor to the Myanmar Department of Population on implementation of the national census. This process led to the development of a protocol for selection of a sample population. This will include a total of 1200 households drawn from 80 enumeration areas in 40 village tracts, in 4 townships (Kayan and Twantay in Yangon Region and Nyuangdon and Maubin in Ayeyarwady region). The study will facilitate comparison of the impacts of large-scale and commercial smallholder-led aquaculture on employment and rural growth linkages, and support analysis of the size of these effects relative to those generated by paddy dominated agriculture. The study will also capture data on ownership/use of agricultural machinery and mechanization services, and

paddy seed use. Prior to developing the sample methodology David Megill also provided a two day training session on theoretical and methodological aspects of sample design. All MDRI-CESD and MSU research staff engaged in FSP received this training

Component 3: Household and communities livelihoods.

Major activities completed under this component related to cleaning and analysis of the Mon State Rural Household Survey dataset and preparation of a survey report. MDRI staff applied their knowledge on the use of STATA software, gained through training provided in the previous quarter to the analysis. This was an ongoing, iterative process during which MDRI-CESD, IFPRI and MSU researchers collaborated very closely, leading to a 10 day 'write shop' held in Mawlamyine (Mon State) during early December. This event proved to be extremely effective, and a first draft of the report is expected early in the following quarter. Analysis of household income sources by agroecological zone, and detailed analysis of economic activities (including paddy, rubber, marine fisheries, non-farm income, migration and remittances) was conducted, in addition to descriptive analysis of all survey variables.

Component 4: Capacity and network building.

MDRI-CESD researchers Myat Thida Win and Zaw Min Naing participated in a World Bank sponsored workshop on "Rice Sector Development for Poverty Reduction in the Greater Mekong Sub-region", held in Bangkok, Thailand from December 10-12.

In the USA, the Global Food Security Conference and visits to MSU and IFPRI provided excellent opportunities for networking, and included a large number of meetings both formal and informal, with conference attendees, MSU faculty and students, and IFPRI staff. It is anticipated that personal connections made during this period will ultimately result in new collaborative research activities. Meetings scheduled at MSU included Dr. Mywish Maredia (impact evaluation expert, Food Security Policy Innovation Lab), Dr. Eric Crawford (Professor, Agricultural, Food and Natural Resource Economics), Dr. Wynne Wright (Department of community Sustainability), Gary Brinkman (Dupont Pioneer), Drs. Mark Axelrod, Sejuti Das Gupta and So-Jung Youn (Department of Fisheries and Wildlife); Dr. Titus Awokuse (Professor and Chairperson. Agricultural, Food, and Resource Economics); Professor Steve Pueppke (Director, MSU College of Agriculture and Natural Resources, Global and Strategic Initiatives), Professor Jiaguo Qi (Center for Global Change and Earth Observation).

In Myanmar, Ben Belton held networking meetings with a number of development partners, including; Kenneth Mackay of NAG, regarding an ongoing project on fisheries in Mon State; Stefan de Haan of the International Center for Tropical

Agriculture (CIAT) to discuss possibilities for potential strategic collaboration with MSU in Myanmar, and Rouja Johnstone of FAO, working on the FAO sponsored National Action Plan for Aquaculture. Discussions with CIMMYT and the Syngenta foundation regarding possible scope for collaboration on work around agricultural mechanization also continued during this period, and is expected to lead to substantive work during the following quarter

Other Issues

Management and personnel changes
The project rented a new office space at 30C Thiri Mingalar road (close to Junction Square), effective December 1. Seng Kham (MDRI-CESD) took maternity leave at the end of the quarter, and will return to her position in April.

Deliverables completed
The project made good progress toward meeting its deliverables on the MSRHS during this quarter despite unexpected events which slowed down the pace of data analysis somewhat. The aquaculture value chain report received a full release.

Priorities for programming during the next reporting period

Component 1: Policy/strategy advising: During the next reporting period, the project will be responsive to opportunities presented by the new election and support the incoming government in the rapid implementation of a wide ranging of effective agricultural policy reforms. MSU and MDRI-CESD will participate in USAID supported efforts to develop a white paper on agriculture.

Component 2: Agrifood value chains: During the next quarter the project will 'launch' the aquaculture value chain report with a half day workshop on January 28, and will begin informal collaborative scoping work on agricultural mechanization value chains in collaboration with CIMMYT and the Syngenta Foundation.

Component 3: Household and communities livelihoods: Analysis of the MSRHS dataset will be completed, and a summary report and in-depth livelihoods analysis will be published. A follow up survey module on the economics of hope will be implemented in Mon State with the support of an MSU graduate student, Jeff Bloem.

Component 4: Capacity and network building: Networking and capacity building activities with incoming MPs will be intensified to support the new administration in implementing effective agricultural policy.

ANNEX 1

A Quiet Revolution Emerging in the Fish-farming Value Chain in Myanmar: Implications for National Food Security

NOVEMBER 2015

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1. Introduction

Fish farming (aquaculture) is important to Myanmar's food security and is developing and transforming quickly. This brief presents findings from a new field survey of the farmed fish value chain that is more detailed and broader than any previous study conducted in Myanmar. Many of our findings are at odds with what we perceive as conventional wisdom about fish farming in Myanmar. The findings have important policy implications to unlock the sector's full growth potential and food security contributions.

2. Our Field Study of 250 Value Chain Actors in the Delta in 2014

The study is based on a field survey, conducted September-December 2014, by six researchers from Myanmar Development Resource Institute-Centre for Economic and Social Development (MDRI-CESD) and Michigan State University. The survey focused only on inland (freshwater) fish farming, which is responsible for 95% of Myanmar's reported aquaculture. We started by identifying, measuring, and cataloguing inland fish ponds in the Delta (where 90% of Myanmar's aquaculture takes place), using satellite images from Google Earth. We then traveled to seven townships accounting for 75% of total fish pond area, and to San Pya market – the main fish wholesale market in Yangon which receives most of the fish produced in the Delta. In each location we did an inventory of all the segments of the value chain, with numbers of fish farms, rural traders, hatcheries and nurseries, feed mills and feed traders, fish wholesalers and linked services like transport and ice suppliers. We asked groups of key informants about the numbers now, five years ago, and 10 years ago to examine growth and structural change. Then we randomly sampled actors from different size strata in each value chain segment. We interviewed 251 persons in detail, using structured interview guides. These included: 23 nurseries, 19 feed traders, 14 hatcheries, 87 fish farms, 35 fish traders, and 19 transporters and ice sellers.

3. Fish Farming is Important to Myanmar's Food Security

Fish is important for domestic food security – it is the leading purveyor of animal protein and the lead provider of micronutrients, important especially for child development, to Myanmar consumers. Fish is important in the food budget of households: nearly as much is spent on fish (14% of food expenditure) as on rice (19% of food expenditure). Fish farming also generates a lot of employment – about twice as much per acre as paddy farming. Fish-farming accounts for about 20% of domestic fish consumption in Myanmar. This is a long way behind neighboring Thailand and Bangladesh (about 80% and 55%,

respectively); farmed fish already accounted for about 20% of the fish consumed in both these countries by the late 1980's.

We also find that, on average, as household expenditure climbs one quintile the amount of fish consumed per capita goes up by 16%, but the amount of farmed-fish goes up 34% and capture-fish by only 10%[1]. This means that as incomes rise in Myanmar, farmed-fish consumption will grow fast as a share of fish consumption, and capture-fish from rivers, lakes and the sea will decline in share. This is a common trend all over Asia. Thirty percent of Myanmar's population lives in cities. About 26% of the fish they eat is farmed, compared to 19% of the fish eaten by the 70% of people who live in rural areas. Of the total volume of farmed-fish sold domestically, urban consumers buy 38% and rural, 62%. As urbanization proceeds and incomes grow, cities will gain an increasing share of the farmed-fish market, rising to maybe more than half of the farmed-fish consumed in a decade or so.

Even though it is a common perception that aquaculture output is mainly exported, in fact, roughly 20% is exported and 80% goes to the domestic market. We anticipate that the export share will even decline further in the near to medium term as the Myanmar urban market grows.

4. Fish Farming is Growing Fast and Restructuring

We found fish-farming output from the Delta, which accounts for 90% of Myanmar's farmed fish, went up about 250% over just a decade. This is due to a combination of growth in pond area and yields. Our pond inventory census using satellite data from the past ten years showed rapid expansion - approximately a doubling of area - in clusters of pond farms all around the Delta. Of course this varies over clusters, newer and older; for example, in the largest cluster, in "Nyaungdon Island", pond area grew from 9,700 acres to 34,000 acres (a 3.5 times increase) in only 10 years. In the oldest cluster, Twantay, there was no change; in Hlegu, there was an increase from 680 to 1720 acres (2.5 times), and in Latkyargi in Maubin, from 2240 to 3110 acres (nearly 1.5 times). But this measured "doubling of area" underestimates the full increase of volume, because yields of fish per acre also increased rapidly: the length of the production cycle (season) reduced from 12 to 9 months (hence a third gain) for many farms, as a result of stocking larger fingerlings, and some increase in feed use.

Despite this rapid growth, there is little diversity in the production technologies used, or in the species produced. A single type of fish - the indigenous carp, rohu - constitutes roughly 70% of all farmed fish. Exotic species such as pangasius catfish and tilapia, which are important for both domestic markets and export elsewhere in Asia, are only produced in small quantities at present. There is even less production of other higher value 'niche' species commonly farmed in the region. One can expect these to become more important commodities for domestic consumption over time. Further product diversification will help meet local demand, especially among poorer consumers, and improve farm income and rural development in the medium term while setting the stage for possible export growth in the long term.

[1] Expenditure is used as a proxy for income. Expenditure quintiles are created by ranking all households in the population from highest to lowest expenditure, and dividing them into five equally sized groups, with each group representing 20% of households.

5. Farm Size and Spatial Distribution

Aquaculture in Myanmar is highly concentrated spatially. The main configuration is within 50km of Yangon, with a big set of clusters to the West of Yangon and then a swath to the North and Northeast, with growth occurring towards Bago and spreading further North and West, with a lot of room for expansion. This pattern occurs because near Yangon transport times are low, boats can use the river system to deliver fish and feed, energy grids exist, and water is neither too abundant nor too scarce.

Contrary to conventional wisdom, which holds that it is impossible to convert paddy land to fish ponds, we find that most ponds are constructed on rice paddy land. Fish farming is highly concentrated, with very large farms (including several vertically integrated companies) accounting for well over half of total pond area. This farm size distribution is far more concentrated than in Thailand, Bangladesh, or China. The sector in Myanmar is thus "dualistic", with two poles of larger and smaller fish farms. One reason for this pattern of development is the 1989 Aquaculture Law, which promoted the conversion of uncultivated "wasteland" to fish ponds. In fact, there is little uncultivated land left in the Delta, so in practice many of the concessions granted to fish farm businesses included paddy land. The conversion of paddy land to fish ponds was actually accelerated by improvements to paddy lands: flood control schemes constructed in rice growing areas of the Delta in the late 1990s to intensify rice production made the land more suitable for pond farming.

Small and medium-sized commercial farms are more numerous than is generally recognized. In certain areas these farmers, attracted by the high returns possible from fish production, have circumvented regulations about conversion of paddy land to fish ponds. But, in other parts of the country such as Mon State, strict enforcement of these regulations has stifled the development of a smallholder fish farm sector. Insecure land tenure for smaller farms means that, unlike in most other Asia countries, aspiring fish farmers rarely rent privately owned land to construct fish ponds. Our survey of satellite images also identified more than 200,000 small 'backyard ponds' in the southern Delta. Although these were originally constructed to harvest rainwater, field visits confirm that they are increasingly used for growing fish, mainly for home consumption purposes.

6. Fish Farming Value Chain - non-farm (urban and rural) segments developing rapidly

There is a rapid proliferation and development of small and medium enterprises (SMEs) in off-farm segments of the supply chain, linked to the growth and geographic lengthening of the chain (e.g., in ice manufacture, rural transport - including increasing numbers and size of boats and trucks to move fish around the country, growing numbers of fish traders and rapid expansion of urban wholesale markets). There is also rapid development of small-scale processing of minced fish balls (*nga chit*) in Yangon.

A particularly interesting case of development is the sudden and rapid growth of buses transporting fish from Yangon to wholesale markets throughout the country. Before 2011, bus company numbers and vehicle imports were restricted, petrol was rationed, and buses were not used for fish transport. When

these constraints were removed, bus lines multiplied and grew more competitive, bus companies took to moving fish to add an additional income stream, and the cost of transporting fish fell sharply. This has

burgeoned to more than 200 tons of fresh farmed fish going from the Delta to Upper Myanmar on buses every day! This has all occurred in spite official regulations restricting the interstate transport of fish. We think this trade can continue to expand quickly and is beneficial for consumers and fish farmers. It also indicates potential to expand fish farming in other areas of the country if restrictions on paddy conversion were lifted.

7. Fish Farming Value Chain - upstream segments are developing rapidly

There is a rapid proliferation and development of SMEs in the off-farm segments of the supply chain linked to intensification of fish farming (e.g. pond digging services, hatcheries and nurseries, and feed mills and feed traders). We focus on two support segments that are very important in aquaculture development throughout Asia, but are somewhat constrained so far in Myanmar.

7a) Feed segment – concentrated and costly

In most Asian countries, numerous fish feed manufacturing companies compete with one another to attract farm customers. Many of these companies also produce livestock feeds, and foreign direct investment in fish feed manufacture is common. None of this has happened yet in Myanmar. Rather, in Myanmar a handful of very large vertically integrated farms produce feed exclusively for their own use, and a very small number of domestic companies produce fish feed for sale to farmers. This latter group is dominated by just one firm, which provides feed on credit to farmers and buys back the harvested fish.

As a consequence of this lack of competition: 1) Manufactured fish feed prices in Myanmar are among the most expensive in Asia, costing 10-30% more than in neighboring countries; 2) More than 80% of farmers use agricultural byproducts as feeds (mainly rice bran and peanut oilcake) instead of commercially manufactured feeds, resulting in low levels of production. Feed is the main operating cost for fish farmers. There is very little formal credit available to fish farmers. Large farms are able to access credit for buying feed from large fish traders at moderate (for Myanmar) interest rates of 3% per month. Smaller farmers are unable to access fish trader credit, and often borrow from informal lenders at 4-6% per month.

7b) Seed Segment - basic technology

Fish fingerling production started in government hatcheries. Hatchery technology spread to the private sector through informal partnerships between government staff and early fish farmers. The number of hatcheries in Myanmar is small, and the technology used is quite basic compared to neighboring countries. Many large vertically integrated farms produce seed in their own hatcheries and nurseries, with limited spillovers to other businesses. Nurseries (which buy small juvenile fish from hatcheries and raise them for several months, before selling them onto fish farms), have boomed in several locations. These are an important entry point into aquaculture for small landowners because they require relatively low levels of investment.

8. Policy Implications

There is a lot of pent up demand for farmed fish in Myanmar. The fish farming value chain is highly dynamic in some respects, but lags behind other countries in the region in many others. This unevenness reflects the effects of Myanmar's long isolation and recent, partial, economic transition. The sector has massive potential to grow and develop further by becoming more competitive, spatially diversified and smallholder-inclusive. To achieve this growth there needs to be:

- Fewer restrictions on land use (patchy "informal" relaxation of regulations has led to uneven development, high transaction costs and a risky investment climate).
- Better access to formal credit for fish farmers and other small and medium enterprises in the value chain (even if they do not access this credit directly, it will help to drive down the costs of obtaining credit from informal sources).
- Increased private investment and competition in the feed sector (to bring down cost to the farmer and improve quality).
- Greater development of 'hard' infrastructure (roads, electricity and water control to increase efficiencies all along the supply chain).
- Public investments in seed production technologies for promising species (building upon past successes in this area to encourage technological and product diversification for farmers).
- More development of 'soft' infrastructure (human capital, extension and veterinary services, to support more responsive public and private service provision for farmers in areas such as disease control).