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Community-Led Coastal Management in the Gulf of Mottama Project (CLCMGOMP)



Non-Fishery Value Chain Study Report

September 2015



HELVETAS
Swiss Intercooperation

MYANMAR

About SDC

The Swiss Agency for Development and Cooperation (**SDC**) a division of the Federal Department of Foreign Affairs (FDFA), is responsible for Switzerland's international cooperation and development program.

The most important areas of work for the SDC are as follows:

- Bilateral and multilateral cooperation
- Humanitarian aid, through the Humanitarian Aid Department and the Swiss Humanitarian Aid Unit (HA/SHA)
- Cooperation with Eastern Europe and the CIS

SDC in Myanmar

SDC partners with both multilateral organizations and government institutions to create long-term, sustainable programs to reduce poverty, strengthen food security, expand economic opportunities for rural and marginalized communities, encourage gender and ethnic equity, while promoting a more active civil society that fosters transition to democracy.

SDC focuses its bilateral interventions in the southeast of Myanmar, namely Mon, Kayin, Kayah States, and east Bago and northern Tanintharyi Regions.

SDC is also a donor member of the Livelihood and Food Security Trust Fund (LIFT).

The Swiss Cooperation Strategy in Myanmar for 2013-2017, outlines four main domains:

- Employment and Vocational Skills Development
- Agriculture and Food Security
- Health, social services and Local Governance
- Peace, Democratization and Protection

Mainstreamed are three priority transversal themes which underpin interventions carried out in the four domain clusters:

- Gender equality
- Good governance
- Climate change and disaster risk reduction

The Community-Led Coastal Management in the Gulf of Mottama Project (CLCMGoMP) contributes to SDCs Agriculture and Food Security (AFS) portfolio.

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About HELVETAS

HELVETAS Swiss Intercooperation is one of the most experienced and largest development organisations in Switzerland. It is a denominationally and politically neutral association governed by Swiss law. The organisation represents the collected experiences of **Helvetas, Swiss Association for International Cooperation**, founded in 1955 as Switzerland's first private organisation for development cooperation and of **Intercooperation, Swiss Foundation for Development and International Cooperation**, a knowledge organisation, combining a professional approach with social commitments.

It operates under the brand **HELVETAS Swiss Intercooperation** since the integration of Intercooperation's operations into Helvetas in 2011. HELVETAS is also registered as a not-for-profit organization in Germany, and maintains a branch office in the United States of America. HELVETAS works in 33 developing partner countries in Asia, Africa, Eastern Europe, and Latin America. HELVETAS is primarily committed to working towards the elimination of the causes of poverty and marginalisation in the South and the East.



Its **mission** is to support the efforts of disadvantaged people and communities in developing countries to determine the course of their own lives and provide help for them to help themselves. HELVETAS promotes fair access to essential resources and protects social, economic, political, environmental and cultural rights. In Switzerland, HELVETAS Swiss Intercooperation promotes a spirit of solidarity among the population and campaigns for coherent policies that benefit people in developing countries.

Our working approaches

HELVETAS Swiss Intercooperation's work is based on a **human rights-based approach**.

In order to make a sustainable contribution to poverty alleviation, its work takes into account a **multi-dimensional character, including social, ecological and economic aspects**.

Special importance is given to **gender equality and social equity, capacity development and knowledge sharing and learning**, which are three aspects embedded in all its work.

HELVETAS Swiss Intercooperation remains **accountable** to its stakeholders, builds lasting **partnerships**, is **quality** conscious, seeks to make a substantive **impact** and nurtures and promotes **innovation**.

Our working areas

Water and Infrastructure: drinking water, sanitation and water for food; rural roads and bridges.

Rural Economy: sustainable agriculture and food security; income markets and fair trade.

Governance and Peace: decentralisation, governance and human rights; conflict prevention and transformation; migration; culture.

Skills Development and Education: basic education; vocational training.

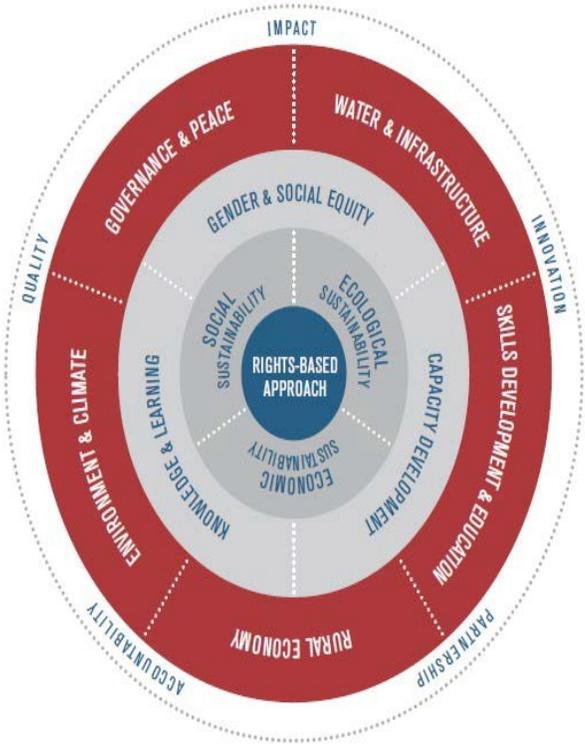
Environment and Climate Change: sustainable natural resource management; climate change; disaster risk reduction.

Our transversal priorities

Gender and Social Equity: We treat gender relations and those between different social groups as a crosscutting theme within our work. In our organisation we are striving to improve the proportion of women and members of ethnic minorities in management positions. We make a point of discussing gender relations and the inclusion of minorities in our cooperation with our partners.

Capacity development and partnership: Our programmes build the abilities and skills of our primary stakeholders in our projects and promote the individual and institutional capacities of our project partners from a technical, methodological and strategic point of view. We emphasise training in management and leadership.

Learning and innovation: We endeavour to document the various levels of results of our work in a systematic fashion. We strengthen mutual learning and exchanges of experiences within our organisation and with our partners. This focus also underscores our culture as learning organisation, promotes our partners' institutional learning and also creates room for results-oriented innovation. We use the insights gained from monitoring our results for planning and steering purposes, as well as to show accountability.



For more information on HELVETAS Swiss Intercooperation, please refer to www.helvetas.org and www.helvetas.de

HELVETAS in Myanmar

In Myanmar, HELVETAS works in close cooperation with the Department of Rural Development under the Ministry of Livestock, Fisheries and Rural Development, in partnership and coordination with local actors from the civil society, private and public sector. We implement rural livelihood development projects in the Dry Zone, Southeast and plan to also engage in Shan State.

For more information on HELVETAS' work in Myanmar, please visit us at www.helvetas.org/myanmar or contact us at myanmar@helvetas.org

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Methodology of the Non-Fishery Value Chain Study

The study focused on selected sample townships Thanatpin, Kawa and Waw in Bago region and Kyaikhto, Bilin, Thaton in Mon state. Townships in Bago region and Mon State were prioritized according to the pre-selected CLCMGoM project target areas.

In accordance with Outcome 2 aim for *Vulnerable coastal communities to have increased income and resilience through livelihood diversification and improved access to non-fisheries resources* the study focused on assessing current market context and potential value chain development in on and off farm sectors in the coastal Gulf of Mottama region.

The study also served to increase understanding and mapping of stakeholders and commodities alongside their specific market functions, capabilities, incentives and constraints and related marketing channel. The report specifically aims to first value and secondly complement existing on and off farm non fishery sector value chain related studies in Myanmar, paying particular attention to those relevant to the southeast and project context.

The study applied the value chain approach in identifying linkages between farmer groups, commercial buyers and private service providers in order to increase profitability throughout the industry. Gender equality and social equity, governance dynamics and environmental risks were integrated into questionnaires, focus group discussions and data collection.

For on farm data, a comprehensive desk review and preliminary data collection related to key actors along at least three key value chains (rice + 2) were carried out.

Farmer/ community respondent related questionnaires were used to collect socio-economic characteristics, including crop production, post-harvest handling, selling, marketing, trading and services opportunities and constraints. Public and private stakeholder questionnaires were used to collect data on trading, costs, marketing, pricing, services, opportunities and constraints. The study was done by semi structure interview for input suppliers, millers, wholesalers, and traders, focus group discussion for producers, key informant interview for key market players at village cluster level and township level for the primary data collection.

For off farm data, a desk review of existing reports (both published and unpublished) including the project baseline provided key information. Additional data was collected during on farm interviews and market surveys.

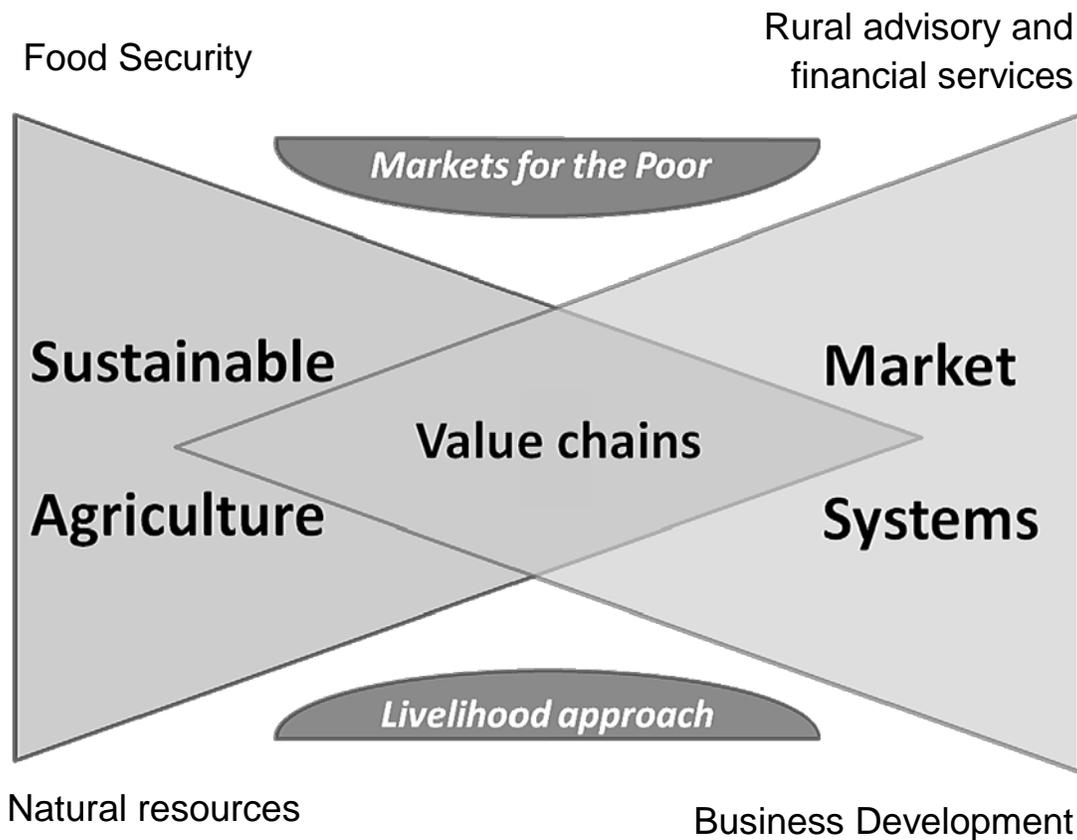
Number of respondents in the study area is shown in Annex 2.



Accronyms

ADB	Asian Development Bank
AEC	ASEAN Economic Community
AFS	Agriculture and Food Security
ASEAN	Association of South East Asian Nations
BANCA	Biodiversity and Nature Conservation Association
BCR	Benefit Cost Ratio
CLCMGoMP	Community-Led Coastal Management in the Gulf of Mottama
DoA	Department of Agriculture
DRD	Department of Rural Development
GAP	Good Agriculture Practices
GDP	Gross Domestic Product
GoM	Gulf of Mottama
HELVETAS	HELVETAS Swiss Intercooperation
Hp	High performance
IRRI	International Rice Research Institute
IUCN	International Union for Conservation of Nature
JICA	Japanese International Cooperation Assistance
Lb	Pound
LIFT	Livelihood and Food Security Trust Fund
MADB	Myanmar Agricultural Development Bank
M4P	Markets for the Poor
MMK	Myanmar Kyat
MoAI	Ministry of Agriculture and Irrigation
MoECAF	Ministry of Environment, Conservation and Forestry
MoIC	Ministry of Industry and Commerce
MoLFRD	Ministry of Livestock, Fisheries and Rural Development
MRF	Myanmar Rice Federation
MRSDS	Myanmar Rice Sector Development Strategy
NAG	Network Activities Group
NCDDP	National Community Driven Development Program
NEP	National Electrification Plan
NSSA	National Skills Standard Authority
PH	Potenz Hydrogen
PPP	Public Private Partnership
RAS	Rural Advisory Services
RC	Ready cargo
R&D	Research and Development
SDC	Swiss Agency for Development and Cooperation
SLRD	Settlements and Land Records Department
SME	Small Medium Enterprise
UN	United Nations
UNCDF	United Nations Capital Development Fund
WB	World Bank
YAU	Yezin Agriculture University

A value chain can be defined as “the full range of activities which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final customers, and final disposal after use. The chain actors who actually transact a particular product as it moves through the value chain include input (e.g. seed suppliers), farmers, traders, processors, transporters, wholesalers, retailers and final consumers (Hellin and Meijer, 2006).



1. Introduction

Myanmar is the largest country in South East Asia, hosting an ethnically diverse population of just over 51 million², mostly rural inhabitants. The country has a substantial land and water resources in different agro-ecological zones which allow for a wide range of crop production, namely paddy, pulses, oilseeds, rubber, sugarcane, maize, alongside a wide range of fruits and vegetables. Within the agricultural sector, crop production accounts for about 80% of total agricultural income. Rice occupies about 40% of the total agricultural area in the farm economy and employs around 5 million farmers and family members (MoAI 2014). Pulses are also important averaging at about 20-30% of crops grown.

With 63%³ of employment in agriculture and 69%⁴ of total population living in rural areas, agriculture has a fundamental role in promoting inclusive growth and poverty reduction. The sector accounts for over 20% of exports, with pulses the largest agriculture export, followed by rice, rubber and fisheries. The value of agricultural exports has increased over the last decade as a result of liberalization in production and marketing policies.

Pulse production has grown more rapidly than any other crops since liberalization in 1988. Early liberalization of pulse marketing, fifteen years earlier than rice marketing, resulted in improved incentives to pulse growers and traders, who quickly appeared to compete for export markets in India. The competitive structure and liberalized market of pulses, has resulted in more profitable value chain engagement for farmers and other market actors along the pulses supply chain more so than other crops in Myanmar. Regarding Myanmar's comparative advantage, rice remains extremely important.

In most cases, low value crops such as paddy and pulses and oilseeds, are farmed on larger surfaces, while high-value horticulture and fruit crops are grown on much smaller landholdings. Paddy farmers cultivate an average of 5 acres per holding, with pulses and oilseed crops closer to 4 acres (Agricultural Census, 2003).

Rice is the most important commodity to supply growing population and obtain surplus of rice to be exported in order to have national income and sustainable growth. However, other factors may demoralize the attractiveness of paddy production and marketing in Myanmar. A desire to keep the price of staple foods low for urban consumers, keep wages down, with little or no value adding incentives and investments, certainly impacts unfavourably on farm gate prices in the absence of an enabling smallholder market environment and pro-poor support schemes.

Poor access to services in rural areas such as finance, electricity, infrastructure and processing facilities and small business development is increasing pressure on already indebted and struggling smallholders, further exacerbated by increased vulnerability to a changing climate – and hazards, both natural and man-made.

As the country continues to transition socially, politically, economically, the environmental landscape on which smallholders and rural families rely on is shape shifting bringing both opportunities and

² Myanmar 2014 Census

³Background Paper No.5, Current Situation and Future Opportunities in Agricultural Education, Research and Extension in Myanmar, Khin Mar Cho, USAID & MDRI, March 2013

⁴ Myanmar Agriculture at A Glance 2014, p 12

challenges. Rural communities are ill prepared and equipped to negotiate these changes. Secure access to resources such as land, water and forest is challenged as these very same resources required for food and income generation for farm based livelihoods are also relied on as natural collateral for GDP capital. Indebtedness, landlessness, and climate change are contributing to changes in traditional roles and social structures in rural areas. Increasing numbers of young men and women are migrating, farmers are becoming labourers and fishers are becoming farmers among other forms of livelihood coping strategies.

New market and trade opportunities in the country and across-borders are push-pull factors contributing to the ever-changing market environment and employment options. However rural men, women and youth lack knowledge, skills and services to effectively engage, benefit from and contribute to local economic development.

Myanmar's current commodity and production focused systems need reorienting towards a farming system/farm household approach. Smallholders dominate Myanmar's agriculture sector, and so need to be the core of any development strategy aimed at equitable and inclusive growth for sustainable poverty reduction. Since the majority of the country's population resides in rural areas, with women representing over 50% of the population and rural youth facing increasing vulnerability, services and policies need to be strengthened to ensure a more enabling and promising employment environment for women and youth, which on one hand promotes local small business development while also enhancing opportunities for a skilled workforce and sound labour conditions.

The coastal region in the southeast of Myanmar, where the study was carried out, relies primarily on the fishery sector for both food and income security. However significant depletion of marine resources over the past 10 years has resulted in fishers seeking other forms of income by engaging in both on and off farm production and income generation activities, including migration to in particular neighboring Thailand.

The southeast, in particular the coastal area is rich in ethnic, cultural and natural diversity. The area is important for both national economic development, and regional market engagement, but remains vulnerable as a result of cumulative environmental degradation, globally important biodiversity depletion, natural resources sparsity and increasing climate change and disaster hazards. Socially and environmentally responsible and informed economic development is vital to achieve sustainable poverty reduction and rural development in the Gulf of Mottama region.

This study aims to gain insight into non-fishery value chain development options and the market environment in the Gulf of Mottama, with special consideration given to gender and environment dynamics.

1.1 Target area profile

1.1.1. Mon State

Mon State is located in the southeast of Myanmar and neighbors Bago Division to the northwest, Kayin State on the east, Tanintharyi Division in the south and the Gulf of Mottama along its western coastline.

According to the 2014 Census there are just of 2 million inhabitants, representing approximately 4% of the total population of Myanmar. Mon, Myanmar, Pao, Dawei and Shan ethnic groups among others inhabit the State. The State is organized in ten Townships, 443 Wards and Village Tracts.

Principal crops of the State are paddy, groundnut, pulses, rubber, sugar-cane, coconut, betel nut, dhani, durian, rambutan and mangos teen. The pulp, textile and handcrafts, tourism, and ceramics industries are growing, as are special economic zones, and increasing exploration of oil and hydropower potential.⁵



Approximately 35% of the population has access to electricity, and over 75% relying on firewood as their primary source of energy.

Access to communication and information is relied on primarily through television (61%); radio (32%) and mobile phones (34%). Main means of transportation are bicycles (49%) and small motorcycles (42%).

Employment sector data reveals that unemployment rate is over 6%, with women gainfully participating in the labour force at about 50% less than men.

In regard to the study area, according to secondary information for selected townships in Mon state, total number of conventional households is 48,336: in Thaton, 38,110 in Kyaikhto and 39,207 in Bilin Township. The household size in Thaton, Kyaikhto and Bilin is 4.71, 4.38 and 4.42 respectively. The gender ratio in Thaton, Kyaikhto and Bilin townships indicates that 47% are male and 53% are female. According to the baseline survey carried out during the Inception Phase of the CLCMGoM project in 5 sample villages in each of the 3 townships (total 15 villages), there were 3814 total households. Among them 27% of households engaged in crop production in agricultural sector, 14% of respondent households were involved in fisheries, 4% of households had livestock business and 55% of selected households identified as landless. Among total households, 9% of households were woman headed. Based on the 610 selected households, 27% worked in crop production, 14% involved in fishery sector and 59% were landless, relying mainly on daily wage labor.

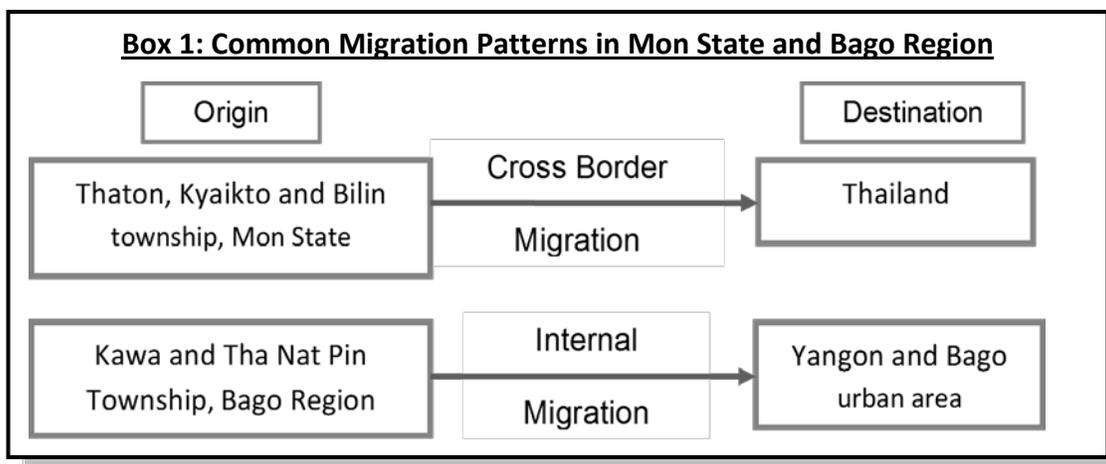
⁵ <http://www.myanmar.net/myanmar/mon-state.htm>

study area townships, therefore about 44% of total households are landless. In this section firstly highlighted to the income sources of landless households. According to the project baseline findings, landlessness among other key constraints is contributing to a significant number of rural men and women seeking alternative forms of employment and income from a variety of on farm, but increasingly off farm market and labour options.

In Mon State, approximately 46% of respondent households are employed as casual workers. In Kyaikhto Township 23% identified as vendors, 13% as carpenters/masons/motorcycle mechanics/factory workers; with a lower percentage working as daily wage labour in agriculture e.g. rubber, betel farms, rice and the fishery marine sector. In Bilin Township, 74% of respondents answered that 49% are general workers, with 24% working as vendors and 11% engaged in agriculture work.

In Bago Region, 85% of those surveyed identified as general workers (71% in Thanatpin and 51% in Kawa Townships respectively). Most common employment options are for general vendors, betel farm and rice mill workers alongside 15% employed as agriculture laborers or working in carpentry/masonry/mechanics/ and factories. A more detailed overview of different types of employment and income options by township is shown in Annex 1.

The project baseline survey also revealed an interdependent correlation between landlessness and migration, both internal and cross-border. Surveyed landless family members in Mon State usually go to Thailand where they can gain higher wages for similar work in their native areas, where in general they have limited opportunity for earning stable incomes. e.g. 200 persons from Thaug Gyi village, Thaton Township. Alternately, rural Bago region is characterized more by internal migration to Yangon and Bago urban areas and to a certain extent Mon State. In both cases, workers are undereducated, and under-skilled and increasingly exposed to common risks such as human trafficking and labour rights breaches among other hazards. In general men seem to migrate across-borders, while women tend to migrate internally. Common migration patterns from the study area are presented in Box 1.



Landlessness and migration are causing impacts both negative and positive in way of helping to increase income options for individual households on the one hand, while on the other hand changing gender roles, labour availability and access to productive resources in areas of both origin

and destination. A recent Internal Migration Study⁷ conducted by HELVETAS in partnership with the Yezin Agriculture University revealed that tensions and conflicts are not uncommon, in particular in Mon State between 'natives' and incoming internal migrants. The Internal Migration Study conducted by HELVETAS which focused on migration patterns between the central Dry Zone, Shan State and the southeast, also revealed that a significant number of Dry Zone dwellers migrate internally and seasonally to the southeast area. While migration is relied on as a livelihood coping strategy, when surveyed, migrants and their families routinely confirmed that if better employment options existed in their communities or vicinities, they would prefer to not migrate.

Weak and unresponsive rural finance services, poor financial literacy, limited education, knowledge and skills, under developed public private service sector, increasing land and water access insecurity each contribute to ever-present challenges inhibiting local economic growth potential while indirectly perpetuating migration of unskilled and underpaid rural young men and women, leaving youngsters and elderly behind to take on the everyday challenges of rural life and work in southeast Myanmar.

1.3. Production systems in Mon State and Bago Region

1.3.1. Crop varieties and seasons

The non-fishery agriculture sector in the study area relies mainly on rain-fed conditions. Farmers in Mon State and Bago Region can produce a wide range of rain-fed tree crops such as durian, rambutan, jack fruit, mangosteen, mango, custard apple, lemon, pomelo, betel nuts, and horticulture products such as banana, radish, bottle gourd, eggplant, chili, winged bean and pumpkin, along with rice, maize and pulses. Nevertheless, the major crop for in particular food security remains low land and rain fed rice, alongside green gram for additional income. Green gram is grown in the paddy field after rice harvesting as a winter crop.

In Mon State, rain-fed tree crops such as durian and jackfruit are produced followed by rubber, pomelo and betel nut. In Bago, tree crops including custard apple, jack fruit, mango, lemon, pomelo and betel nut are grown. Farmers from Mon State (Kyaikhto, Bilin and Thaton townships) grow paddy as their main crops in the monsoon season. Some farmers grow late monsoon paddy (December and January) because of flooding during monsoon season. After harvesting the paddy, some grow again Green Gram or Groundnut or White Cow Pea in November and then harvest in February.

In Bago Region, there are three crops annually. Paddy is grown in the monsoon season. After monsoon paddy, again green gram or groundnut or white cow pea are grown in November and then harvested in February as a second crop. Moreover, some farmers grow summer paddy after monsoon paddy and then harvest in March. Most of the farmers get high profit and income by growing pulses and vegetables in the paddy land.

However, increasingly paddy fields are no longer suitable for pulses or vegetables commonly relied on as an alternative food and income source, because of high PH (more than 8.5) and high salinity from sea water intrusion during the summer period. High salinity intrusion occurring at the most critical stage of paddy growth e.g. heading and ripening stage is contributing to low productivity⁸ and

⁷ https://assets.helvetas.org/downloads/helvetas_myanmar_internal_migration_study_feb2015_final.pdf

⁸ A Strategic Agricultural Sector and Food Security Diagnostic for Myanmar, prepared for USAID/Burma1, July 2013

losses, compounded by increasing unsafe and uninformed usage of conventional fertilizers and pesticides as well more intense weather and climate impacts in particular from flooding⁹.

1.3.2. Gender in rural livelihoods

In Myanmar – in particular in rural and peri-urban areas women’s traditional role is centered on homebased work and obligations, ensuring the homestead and family are sheltered, clothed and nourished among other everyday welfare and wellbeing necessities. Ensuring that the basic needs of home and family are met involve women working inside and outside the home. On one hand women are charged with daily food security, making and acquiring necessary household and personal items, and caretaking for children and other dependents, on the other hand women are also helping to plough fields, harvest crops and tend animals. Women are often also involved in the selling and trading of crops and goods in the market place. The activities women are actively participating in both from tradition and requirement range from subsistence farming, petty trading and hawking, daily wage employment in small enterprises or contract work for larger formal sector firms, in more skilled trades such as tailoring, weaving, embroidery and food processing. Women from poorer and/or landless households in rural areas mostly work as daily casual laborers in transplanting, weeding, harvesting and post-harvest farm based activities. As agriculture work is seasonal, employment and income for these more disadvantaged women laborers is neither regular nor stable, and working conditions are usually more difficult.

Women surveyed during both the project baseline and this field study repeatedly disclosed that while they can and do participate in village cultural and social affairs, a very small minority reported having opportunities to meaningfully participate in village development affairs and decision making. Inequities were also reported in pay scales for similar or same work between men and women e.g. men receive 3000 – 4000 Kyats /day and women are paid only 2500 Kyats/day, in addition to limited access to information, education and training, and services including financial. Landless women and young undereducated women are amongst the most vulnerable.

Taking into account that 70% of Myanmar’ population is rural and over 50% are women, it is critical for both poverty reduction and equitable economic growth for rural women, in particular young women to have increased educational and training opportunities and better access to inclusive and responsive services to be more empowered to both fulfill their traditional roles, and optimize their potential roles in the socio-economic development of their communities and in turn the country.

2. Market Systems and Constraints

2.1. Myanmar

2.1.1. Pulses

Myanmar is a significant producer and exporter of pulses (green and black grams and pigeon peas). Rice is mainly grown for food security while pulses are main income crop for farmers. Myanmar produces over 20 varieties of beans and pulses and because of relatively low national consumption, many of these varieties are export-only commodities. Pulses are important not only as a vegetable protein source in the daily diet of the Myanmar people but also as an export commodity for national income. Black gram and green gram are consumed domestically and exported. Pulses are one of

⁹ <http://www.bbc.com/news/world-asia-33844076>

the most profitable crops to farmers than other crops in terms of comparative advantage. Growing pulses can render profit during the short time period.

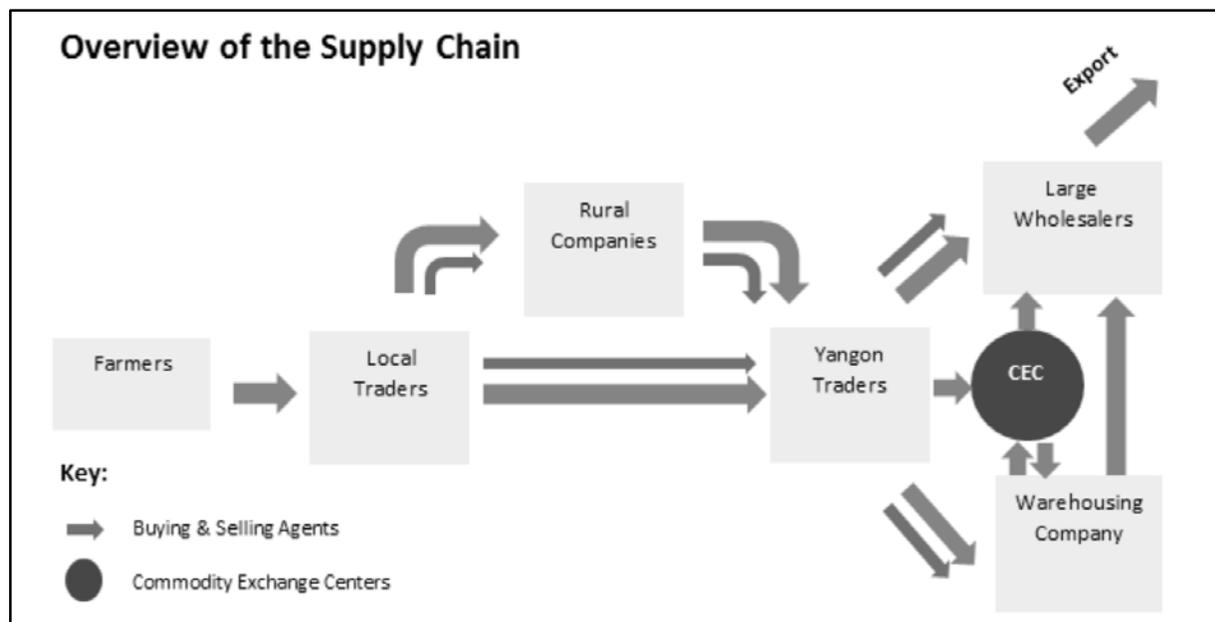
Myanmar has been long reliant on its pulses industry for economic growth. India is the largest consumer of pulses in the world and is currently Myanmar's largest export market. Domestic prices are therefore based on international export prices and fluctuate with international price movements. In Myanmar, a lack of rainfall directly caused a decline in production of pulses. Adverse weather conditions in other countries have also affected international prices for pulses exacerbating existing challenges for Myanmar farmers and traders. At present, the price of pulses sharply increased because of bad weather, reduced crops in top pulses producing countries and higher demand of India's market. Because India retains such a large market influence, Myanmar's pulses commodity prices are closely linked to India's price. Currently, strong demand from India leads to higher prices for black gram and green gram.

The supply chain of Myanmar's pulses trade involves several key parties: farmers, local traders, Yangon traders, large wholesalers/exporters and agents. The supply chain is sometimes convoluted and farmers rarely do direct negotiations with large wholesale traders, relying on several middle parties to make their deals. The chart outlines the steps in the supply chain according to representatives from the Myanmar Pulses, Beans & Sesame Seeds Merchants Association, and local Myanmar export import experts.

Source: Thura Swiss special report (2013)

From farmers to local traders

Harvested pulses are bought from farmers by local traders who sometimes offer to give farmers support through small loans and use of machinery. The relationships between farmers and local traders can become complicated when the farmers come to rely on the traders for financial and technical support. When borrowing from local traders there are often informal agreements for the farmers to sell back their goods to those respective traders. The traders determine the prices, leaving much room for exploitation. Furthermore, after are harvested, farmers are often in a rush to sell all of their stocks in order to pay off debts as soon as possible. Farmers are thus left in difficult situations where selling goods to pay off debts becomes the main goal, even when more profits could be made if selling were stalled until a more profitable period or crops were saved for other traders that could offer higher prices.



From local traders to large wholesalers

Local traders then sell their commodities to larger rural companies that then resell their commodities to Yangon traders. Large wholesalers that are the main handlers of exports buy from Yangon traders making deals through commodity exchange centers such as Bayintnaung Market or directly from the traders themselves. Almost all of the pulses exports are made from Yangon. Therefore, the supply chain usually ends in the country's commercial hub with Yangon traders, large wholesalers and commodity exchange centers are the key actors.

From wholesalers to overseas markets

Once the commodities are in the hands of the wholesalers, those wholesalers with the capacity to process their own products can do so to produce Ready-Cargo (RC) stock. Otherwise, the commodities are sent again to another processing-capable company and sent back to the original wholesaler to be ready for export. Raw pulses are easier to store but wholesalers also keep ready-cargo processed stocks available at all times. Warehousing companies also make up a major part of the supply chain. Large wholesalers export their commodities directly or sell them to warehouses located in Yangon, often in the industrial zones. These warehouses are important for the trade as they are responsible for hoarding the commodities and selling them throughout the year depending on price fluctuations. The warehouses are often involved in speculative selling but ensure that there is a steadier stream of beans and pulses supplied to international markets.

2.1.2. Paddy - rice

Myanmar is aiming to reclaim its previous status as a major rice exporter. However, while there has been a recent strong growth in exports to China, this is currently informal and thus unpredictably volatile. Almost 95% of Myanmar's recent rice export is dominated by low-value rice. Improving and increasing integration into regional and global markets, can only be achieved if the efficiency of the value chain is strengthened. Leveraging the existing interlinkage between the private and public sector in the Myanmar rice sector can contribute to upgrading rice production and value in Myanmar for both national markets and consumption, and international trade. The Myanmar Rice Federation (MRF) and Myanmar Agriculture Production Companies are playing a key role in encouraging investment and modernization throughout the value chain.

The rice value chain is characterized by a smallholder-based production system in which farming households own on average around 1 hectare of paddy land. Many different sub-value chains ranging from own production and storage with interaction with small local millers only to highly specialized rice export commodity supply chains with complex systems (Janssen and Ranijan 2012).

The rice value chain includes an inherent network of public and private interactions and responsibilities. The public responsibilities are often in infrastructure (roads and irrigation), policies and regulations (seed laws, use of inputs, export policies, tax incentives, etc.), research and development (variety selection, etc.) and agricultural extension. The private responsibilities are concentrated along the supply chain from provision of inputs through production to processing and trade.

All value chains of crops were similar particularly at the upstream stages of the chain, right after harvest. Once farmers harvested their crops, they either sold production directly at the farm gate level or stored and bulked. Selling at farm gate level is not preferred by farmers but is often done out of necessity, especially small scale farmers immediate need for cash or due to very limited access to markets therefore high transportation cost. Farmer bargaining power is diminished and the selling

prices of their crops is often very low. Another marketing strategy is often to bulk up the crop commodity either in the granary on the farm or in local stores in order to seek better prices (sold at the right time and in larger quantities which were usually done by large farmers (Dalipagic and Gabriel 2014)).

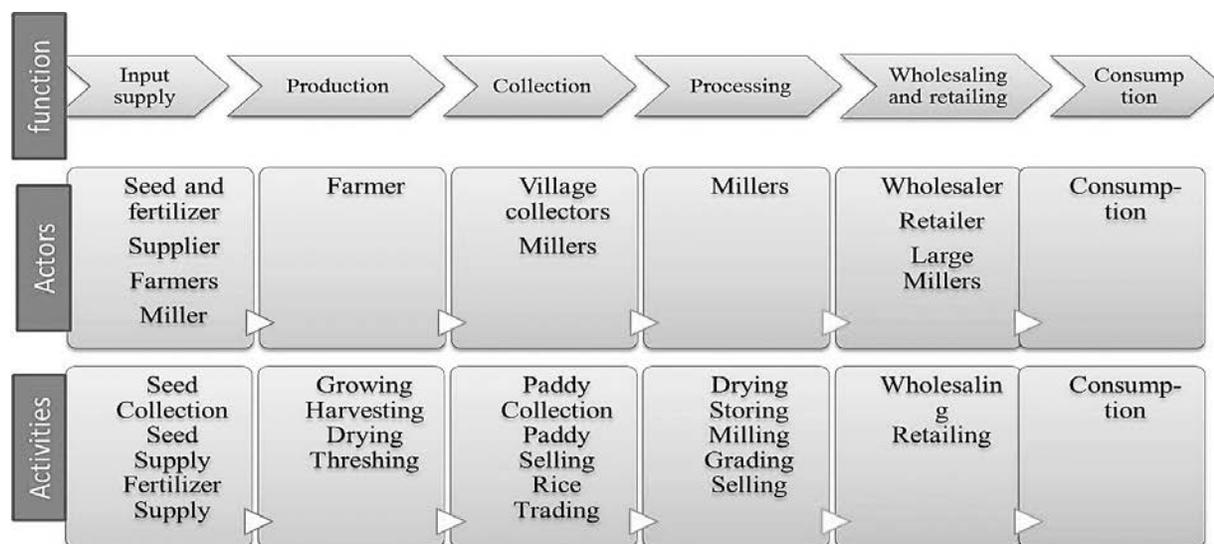


Figure 1 Rice Value Chain Source: Shrestha, 2012

The unique situation in Myanmar is that the marketing of certain crops is completely handled by the open market. For transferring agricultural produce from farmers to consumers, various intermediaries play important role in domestic marketing system. General structures of market intermediaries are mentioned to exhibit the overall market structure in Myanmar. Rice marketing in Myanmar is operated by several intermediaries for moving paddy from farmer to ultimate rice consumer. In general, marketing intermediaries in marketing channel of Myanmar can be distinguished into five groups: farmer, primary collector, rice miller, rice wholesaler and rice retailer.

Farmers

Farmers in this country can be grouped into three: small, medium and large farmers depending on land holding size and working capital. Most farmers have surplus of sale and store for family consumption and seed for next planting season. With regard to farmer marketing, the major key points are mentioned as follows:

- Some of the small farmers immediately part their crops after harvesting. The reason is that they need working capital to grow second crop in time before losses of soil residual moisture. In domestic market, newly harvested crops enter the market and prices start to decline therefore farm gate price is generally low for farmers.
- Most of the large farmers store marketable surplus with the expectation of higher price in later season.
- As regards to sale, it is found out that some farmers sell their crop at farm, and some deliver their crop to the nearest town.

Primary collector

The local collectors or brokers were farmers' first link to the market for paddy marketing. These local collectors or brokers travel even to remote and difficult to access areas to collect harvests from farm gates, collection points and small rural markets until they accumulate a sufficient quantity.

Primary collector usually purchases paddy directly from farmers for millers and wholesalers with basket, the volume of which varies from region to region. Some collectors play as the brokers with their own capital and some are commission agents of big millers and town wholesalers. During transaction time, farmer and broker used to negotiate the price of paddy depending on the advance payment, quality, variety, moisture content, and size of the basket and so on. The primary collectors have opportunity to easily enter into and exit out of the rice marketing depending upon market condition. Their working capital is small and it is partly provided by millers or wholesalers.

Rice Miller

Myanmar milling sector has not yet been blessed with favourable environment for high milling standard and performance (San Thein 2006). Rice milling in the country is carried out in three categories: large-sized, medium-sized and small-sized rice mills though the milling capacity varies among the categories. Huller mills have the advantage of being cheap and simple to operate but are very inefficient in converting paddy into rice. The rice recovery from huller is less than 50 percent while it is more than 60 percent in medium-sized and large-sized mills with high quality of rice. The modern medium and large-sized mills return higher yield of rice output with least broken and better quality of by-products. The owners of the small rice mills are often farmers because they have insufficient capital to invest for medium or large mills. They mill their marketable surplus paddy and home consumption as well. Most of the large millers buy paddy from farmers/collectors with commission and sell the milled rice to wholesalers and retailers. The large millers in surplus area often act also as wholesalers, and they sell their milled rice to wholesalers in the central markets in other regions. Millers or processors have a central role to play in rice value chains and are usually located in semi urban and urban trading centres. Most of the time they serve as marketing centres where sellers and buyers meet: local traders deliver the crop and sell it directly to wholesalers while processors take a fee for processing the crop commodity. Farmers also bring their crop directly to millers and thus directly bear the transport cost (LCBCCAP, 2012).

Rice Wholesaler

Wholesalers play an important role in the rice marketing channel in Myanmar. They operate rice marketing with much more capital than other participants. They conduct their business in local market and inter-State/ Region trade. For crop collection, some town wholesalers in major producing areas employ with agents and pay commission to agents for purchasing. Mostly, they are also rice millers especially in surplus regions. They operate as the centre point of the rice marketing in Myanmar. The market price information from the nearest market, supply/demand situation from focal point, and policy environment are important factors for wholesaler's decision making process. At this stage of rice marketing, 'Myanmar Rice Wholesaler Association' was formed consisting of almost all of the wholesalers in each region.

Rice retailer

Retailer is the last layers of the direct link to consumer in rice marketing channel. Of course, retailers of rice market are tightly close to consumers who have to buy rice every day for their daily consumption. The relationship between retailer and consumer is much more complex compared to the relationship between the market participants. Because of the majority of consumers are low income consumers, and a large portion of their budget is used for rice. Therefore, rice retailers understand well the customer budget and they adjust the time of payment for buying rice later on. Most of retailers purchased rice from wholesalers. A few retailers bought rice from millers and directly from farmers. They mainly sold to consumers in retail markets which are the nearest to consumer. It is evident that rice retailers had no organizational action in all rice markets. They had much more freedom to enter into and exit out of the rice marketing system. Moreover, they represent a layer which has much more competitive structure in the rice marketing in Myanmar.

Along the marketing channel, most of stakeholders are normally men very rare women participants except retailers who are typically women stakeholders in Myanmar rice market.

2.1.3. Common key constraints

Value chain actors surveyed repeatedly highlighted following key challenges:

Market access and engagement for in particular smallholders compounded by producers not being capacited and organized, high transport costs, poor road and infrastructure conditions, limited information.

Limited access to financial and physical resources, impeding incentive to and investment in production

Poor added value capacities and facilities in way of post harvest handling, processing, packaging and marketing including certification options

Land and environmental insecurity in way of access, pollution and degradation, climate change and natural disasters.

Underdeveloped public private partnerships

Sub-optimal policies and services stifling small-medium farm based business development and trade

Market control and dominance by larger actors; little space and opportunity for freer market competitiveness

Unfair contracting and labour conditions

Low standards, poor capacities and under equipped public and private services for upgrading skills, inputs, technologies and outputs to meet national and eventually regional food safety and trade standards, demands and competitive advantage e.g. ASEAN Economic Community (AEC)

2.2. Structure Of Marketing Systems And Value Chain Mapping In The Study Area

2.2.1. Pulses

The pulses value chain includes input suppliers to market intermediaries, the local consumer to the export market in India.

Pulses are sold out immediately after harvest to the village collector or broker who sometimes acts as a local money lender offering small loans in order to pay off debts as soon as possible. Most of the local collector/broker sell the pulses to township wholesalers. Some township wholesalers sell a portion of their supply to Bago and Waw wholesalers and to retailers or food processors for sprouting and value added products for resale. Bago and Waw wholesalers and other large wholesalers are the main handlers of exports and trade with Yangon traders making deals through commodity exchange centres such as Bayintnaung market or directly from the traders themselves. Majority of pulses sold for export are from Yangon. An example of the Green gram value chain is shown in Figure 2.

Pulses processing usually involves two steps. Primary processing consists of receiving, cleaning and quality sorting of seeds. Secondary processing consists of preparing seeds for consumer use and can include dry packing, canning and the making of soup mixes, powders and flour. However, In Myanmar, secondary processing is minimal with the processing sequence ending at dry packing. Many of these pulses are sent in their raw state to the traders. If Myanmar can focus on producing more value added beans and pulses, improving farmers' conditions through financial and technical assistance and garnering more private and public sector research and development (R&D), the industry can continue to grow.

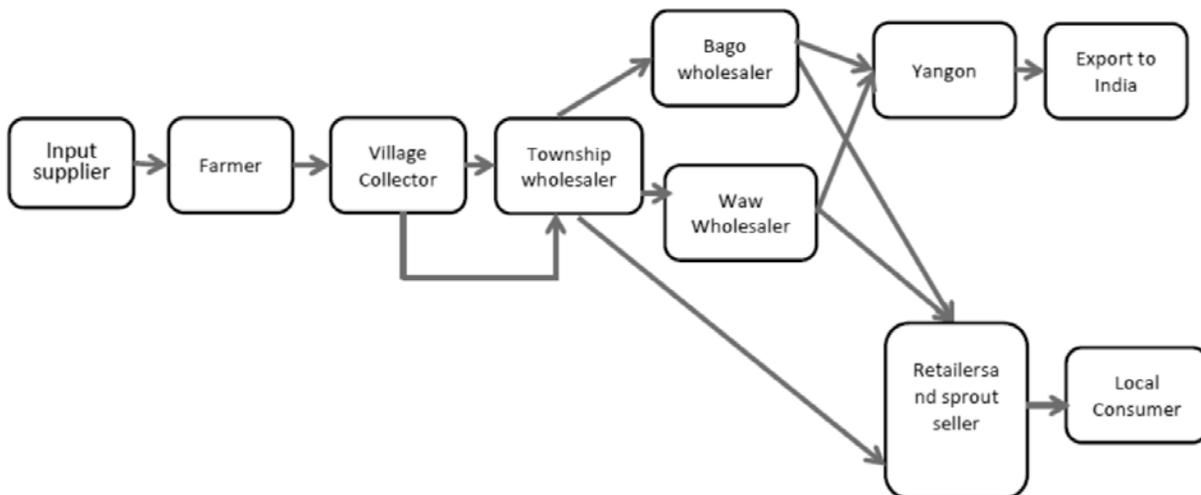


Figure 2 Green Gram Value Chain Mapping in Mon State and Bago Region

2.2.2. Paddy – rice in Mon State

The rice value chain study from the input suppliers to the local consumers and destination markets focused on Kyaikhto, Bilin, and Thaton Townships in Mon State as the primary sample area.

Farmers usually buy inputs such as fertilizer, pesticide, insecticide, weed killer fungicide, sprayer, except seeds from local suppliers in paddy growing season. Paddy is sold out immediately after harvest to local collectors or brokers who come to the farm. A portion of harvested paddy is sold directly to local millers and township wholesalers by the farmer. Most of the local collectors/brokers sell paddy to local millers and some collectors also resell to township wholesalers. Paddy bought by township wholesalers is sent for milling. Once rice is milled, the fallout is returned back to the farmer from miller or the township wholesaler. Rice flows from the miller to the local retailer via township wholesalers, then finally up to the local consumer. Township wholesalers in Mon State trade locally grown rice to Yangon, Kayin state and other rice deficit townships in Mon State. Moreover, rice especially Pawsan variety from Pathein market, Ayeyarwady Region and Shwe Bo market, Sagaing Region is imported to Mon state and this rice variety is sold at the local market by local wholesalers (Figure 2).

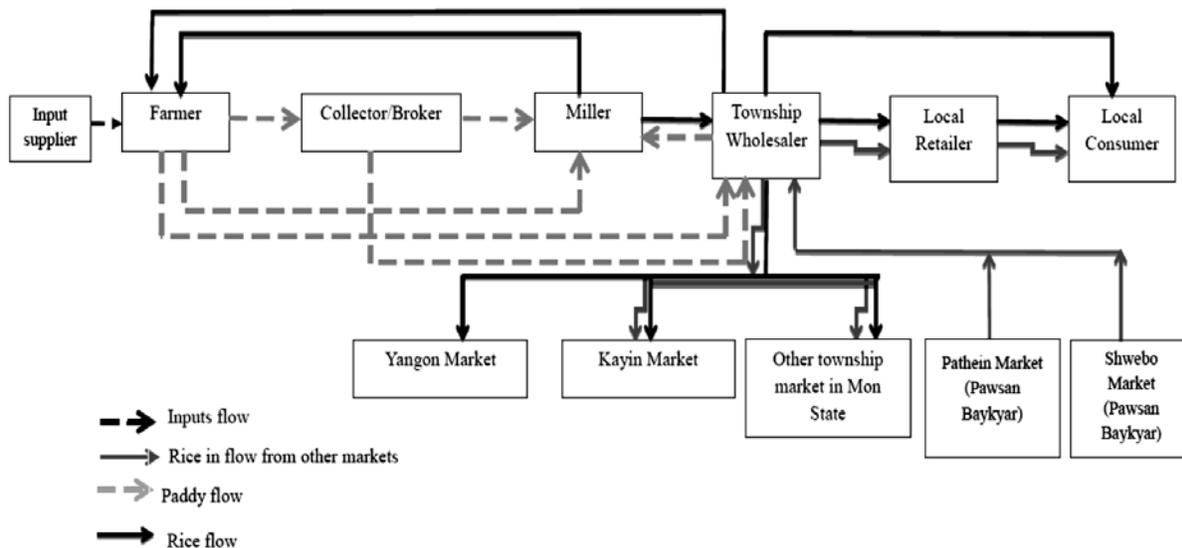


Figure 3 Paddy/Rice Value Chain Mapping in Mon State

2.2.2. Paddy – rice in Bago Region

Structure of paddy/rice marketing system in Bago region starts normally from input supplies in Thanatpin and Kawa Townships. Agrochemicals such as fertilizer, pesticide, insecticide, weed killer fungicide, sprayer except for seeds are obtained from local input suppliers. Farmers connect to collectors/brokers, local millers and wholesalers in Waw Township where there are improved added value milling facilities for the sale of paddy. The paddy flow from farmer through collector to local miller is the common channel. Township wholesalers and millers are sometimes one in the same person, otherwise wholesalers are the primary actor for paddy milled for rice by millers. Township wholesalers trade rice back to the farmers and collectors. Normal channel of rice flow is from miller and/or wholesaler via retailer to local consumer. Wholesalers from Thanatpin and Kawa Townships sell also to central Dry Zone markets such as Pyawbwe, Meikhtila, Myingyan and Mandalay markets.

Moreover, rice milled in improved mills in Waw Township is traded and exported to China through Mandalay and Muse markets (Figure 4).

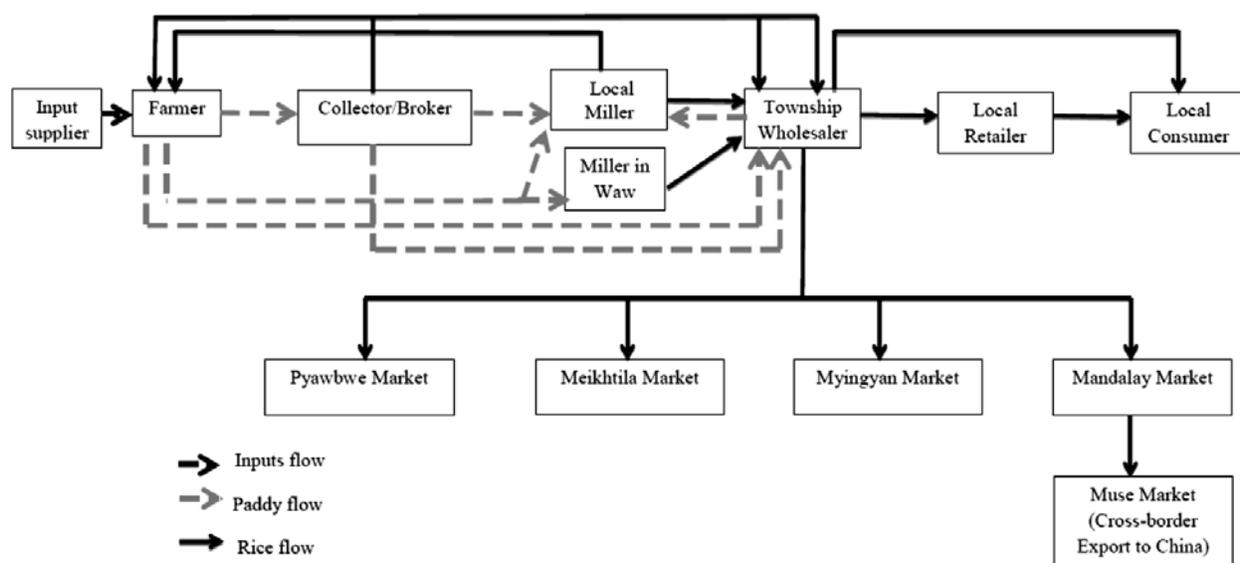


Figure 4 Paddy/Rice Value Chain Mapping in Bago Region

2.3. Key Market Functions of Major Stakeholders and Rules of Marketing System

2.3.1. Key Market Functions and Rules of Pulses Marketing System in Mon State and Bago Region

In Mon State and Bago Region, most of the farmers buy seed (local variety), foliar, insecticide and fertilizer from the input suppliers for pulses production. Input suppliers support to farmers for buying inputs with delay payment system. Farmers grow pulses by broadcasting and they don't use row system. After picking and threshing, they always sell their commodities to local traders with cash payment system. Some farmers have direct contact with town wholesalers. The village collector does not buy the products if the crop is mixed with dust and sand because the town wholesalers want to purchase only good quality. Before going out to the village, collectors make an agreement with town wholesalers to negotiate the price. Most traders always buy pulses with weight (lb) system and then resell to wholesalers in Yangon and Bago region, food processors, and retailers. The town wholesalers receive the daily price information from Bayinnaung wholesaler market in Yangon and they give the buying price to their agent in the region. Private exporters buy the crops from Bayinnaung wholesaler market and also from the town wholesaler who have specific contact with exporter. The exporter uses cleaning devices and hand labour for sorting in accordance with export standard quality according demand requirements. Finally, commodities from wholesalers in these regions go to the Bago, Waw and Yangon markets and some commodities flow to the customers through the food processors and retailers.

2.3.2 Key Market Functions and Rules of Rice Marketing System in Mon State and Bago Region

Most of the **input suppliers** in Mon State sell products from local and foreign agrochemical companies such as Awbar, Diamond star, Wisarya and Red Arrow. In Bago Region, input suppliers sell products such as fertilizers, pesticide, weed killer etc. from local and foreign agrochemical companies such as Awbar, Golden lion, Ye Shin, KaungThukha, and Shwe Nagar. Most of the agrochemicals are certified by the Department of Agriculture (DoA), under the Ministry of Agriculture and Irrigation (MoAI) however some products from Thailand are sold without registration certificate. The highest in demand products are unregistered and from Thailand. The Input suppliers usually operate relying on commission based agreements ranging from 5% to 40% with the supplying Company. Some input suppliers offer farmers a delay payment system option for buying inputs. Farmers who opt for the delay payment system can avoid waiting for what can be 4-6 months until they have the required funds to purchase their inputs, however. If they use the delay payment option, a 3% monthly interest rate is applied. The pay back system is based on a 3 month timeframe. Most common delay payment practiced is 50% cash down at time of purchase and 50% at three months. The main incentive of input suppliers is to profit from the late payment interest rate while the input company needs to guarantee the quality of the product. The details of marketing functions of input suppliers are included in Annex 3.

In Mon State, surveyed **farmers** who include male and female can be grouped according to small and medium land holding. All farmers grow monsoon paddy with transplanting method except for farmers from Kyaikhto. Small and medium farmer groups in the study area sell their paddy mainly to collectors with cash down payment system while farmers from Kyaikhto sell to wholesalers at the local market. The weighting system of paddy at farm gate level is basket which contains different volume ranges from 17 to 21 pyi/basket which equates to about 95 pounds. In Bago Region, all farmers grow monsoon paddy by broadcasting method, and sell their paddy mainly to collectors, wholesaler/millers with cash down payment system at local market. The weighting system of paddy at farm gate level is pyi/basket or 50 pounds.

In Mon State and Bago Region, farmer's income from production and marketing activities of monsoon paddy, is assessed and analysed using enterprise budgets. In Mon State, cost and return analysis of monsoon paddy shows that low yield level, high variable cost and not attractive paddy price significantly decreases the profit margin which is indicated by Benefit Cost Ratio (BCR) range from 1.23 to 1.54. Farmers in Mon State earn only about 50,000 MMK/acre in monsoon paddy production and 54% of investment can be earned as a maximum by medium farmers in Bilin Township. There was not much difference in profit earned by small and medium farmers in Mon state (Annex 4.a). In Bago region, cost and return analysis of monsoon paddy shows a slightly higher yield level than that of farmers in Mon State namely around 50 baskets/acre in Thanatpin and 68-80 baskets/acre in Kawa Township. However, higher variable costs and not attractive paddy prices make for a very thin profit margin indicating Benefit Cost Ratio (BCR) range from 1.13 to 1.29. In the end, despite higher yields, farmers in Bago Region earn less profit than farmers in Mon State in monsoon paddy production and 29% of investment can be earned as a maximum by medium farmers in Thanatpin Township. Also notable, is that there is not much difference in profit earned by small and medium farmers in Bago Region (Annex 4.b). The highest BCR 1.54 is notably higher for medium farmers in Bilin Township, Mon State. The comparison of BCR in monsoon paddy production in Mon State and Bago Region can be observed in (Appendix 4.c).

The **collectors/brokers** are closely linked to farmers in the value chain system. Their contact is mostly direct. Primary collectors/brokers often visit more than 5 villages where they buy paddy from farmers. They also hire other middle men to buy the paddy. The total buying amount of brokers ranges from 20,000 baskets to 60,000 baskets and average buying price is 4000 MMK/basket. Average transportation cost was 20,000 MMK. At time of sale, traders/larger wholesalers from the township come and buy from them. Other types collectors purchase paddy from farmers and sell to millers or other persons for their own direct profit and private business. They sell on average 20,000 baskets to millers at an average price is 6,500 MMK. Average transportation cost is 30,000 MMK. In Mon State, payment system to farmers is cash down system by setting the price based on the quality.

In Bago Region, primary collector/brokers often visit at least 5 villages where they buy paddy from farmers at local storage facilities or directly at the farmers' gates. A commission is paid at a rate of 100 MMK/basket of paddy. These collectors move from collection point to another and bulk up the paddy until they accumulate a sufficient amount. The total buying amount of brokers is in the range of 4000 baskets to 100,000 baskets and average buying price is 4000 MMK/basket. Average transportation cost was 300 MMK/basket. At the selling time, traders/larger wholesalers from the township come and purchase from them. Other types of collectors who buy paddy from farmers and then sell to millers or other persons for direct profit and their private business. These collectors primary interest is to get high quality rice increasing their sale price and therefore profit margin.

Quality is primarily assessed based on purity, cleanliness and moisture content. Weighting system for buying is basket of paddy and selling is pound of rice, therefore paddy is milled for rice. In Mon State, one collector used payment in advance based on last market price, while in Bago Region, one collector uses a fixed advance payment with contract without consideration of paddy quality. In Mon state, significant variations in weighting system are found in market to market. In Bago, the variation of weighting system is less than the markets in Mon state. They would prefer to buy paddy by the pound instead of the traditional basket trading system. Their interest is to get drying machines because moisture content of paddy is too high at the buying time which has weighting and pricing implications. A detailed overview of marketing activities of collectors/brokers in Mon State and Bago Region are in Annex 5.

Millers and wholesalers are often the same person. Wholesalers buy paddy from villages in Bilin and Kyaikto Townships and then rice from Waw township in Bago region and other markets in Mon state. Especially, they buy Pawsan variety from Shwebo and Patheingyi markets which is sold to local market retailers, local wholesalers and consumers.

Majority of rice millers in Mon state either sell locally or trade with other local wholesalers, retailers and Yangon market. In Mon State, millers have little or no improved milling facilities which results in low milling capacity in quantity and quality. Medium yield can produce 75% full grain, meaning 25% is broken rice losses. All rice mills operate year round with 2-3 permanent labourers. The capacities of these mills range from 15 Hp to above 35 Hp in average. The mills mostly use electric power for their operation with a few using diesel. Rice mills emerged around 2005 and could mill on average 30-50 baskets per hour with some mills able to process 100 baskets per hour. Average milling capacity can produce 2,880lb of milled rice per 100 baskets. Average milling amount per day in peak season ranges between 250 and 1,500 baskets in comparison to off season range of 50 to 250 baskets. All rice mills operate year round with 2-3 permanent labors. Some millers have already upgraded their machine since 2005 and some have a plan to upgrade in near future to improve the

milling capacity. Average buying amount from farmers ranges from 5,000 to 80,000 baskets and quantity measuring unit at buying time is bag which equates to 2 baskets. Milling costs for 100 baskets of paddy is 25,000 MMK. .

In Bago region, rice mills were established around 2013. Mills in Waw Township have been upgraded by Chinese Companies for high milling capacity and good quality for export to China via Mandalay and Muse markets. The cost of upgrading mills is from 3,000,000 MMK to 10,000,000 MMK. All rice mills operate year round with 4-5 permanent labors. The capacities of these mills are above 35 Hp on average. These mills use mostly diesel for their operations and can mill 50-150 baskets per hour. Milling capacity can produce average 36 baskets of milled rice per 100 baskets of paddy. Average milling amount per day of millers in peak season is in the average range of 700 to 3,200 baskets while in off season is 100 to 1,500 baskets. Quality of paddy and rice is interdependent. Therefore, better quality paddy on average produces 75% full grain and 25% broken rice. Average buying amount from farmers is the range of 50,000 to 350,000 baskets and quantity measuring unit at buying time is bag which equates 2 baskets. Milling cost for 100 baskets of paddy is 25,000 MMK

In general, millers check the paddy quality and standard of rice for higher price benefits. Most small scale millers do not give by product to farmers but large scale millers give back by products such as husk and rice bran to farmers. In general, millers appear to practice a certain degree of social responsibility. Millers have a key interest to improve the rice value chain in way of quality and skilled labour in order to increase demand for high quality rice in local and international markets. They expect to upgrade their milling facilities to get 100% full grain out of 100 grains

Details of marketing activities of millers in Mon State and Bago Region are shown in Annex 6.

In Mon State Town wholesalers trade rice in local and other markets such as Pathein market, Ayeyarwady delta and Shwe Bo markets in Sagaing Region. Some wholesalers contract farmers who have at least more than 2 years' experience. Some have an oral contract with upper value chain wholesalers from Yangon market. Mostly wholesalers from Mon state maintain regular contact with a pool of at least 5 buyers. Storage and upgrading facilities are non-existent, and rice marketing relies primarily on traditional methods and channels. In Bago Region, Town wholesalers sell rice to local and other markets such as Yangon, Mandalay, Myingyan, Pawbwe and Muse and cross border export to China. They maintain contacts in some cases with the same interlocutors for 12-25 years. They have very limited storage and upgrading facilities with millers primarily in Waw benefitting from contracts and support from Chinese traders and companies. In general, marketing is year round with balance of supply and demand. However, Town wholesalers in both Mon State and Bago do not provide loans to the farmers. Moisture content of paddy is the key factor for setting the price followed by purity and cleanliness.

Detailed marketing activities of township wholesalers in Mon State and Bago Region are included in Annex 7. Key market functions and rules of rice marketing system in Mon State are illustrated in Annex 8.

2.3.3. Governance in value chain development

In addition to input suppliers, farmers, miller/wholesalers, key actors such as the non-profit sector, rural advisory services, local authorities, regulatory and enforcement institutions are important in the promotion of good practices, and good governance for improved value chain development. However

inexperienced non-profit sector¹⁰, weak public private partnership building, and disabling policy framework alongside poor enforcement are each contributing factors to handicapping the potential of various value chain development.

While overarching laws and policies, specific rules, regulations and standards may exist, their actual enforcement along the value chains in Mon State and Bago Region are weak. The project baseline revealed that majority of farmers have very limited or no awareness of their rights and obligations, while local authorities are also ill informed and poorly equipped, making them vulnerable and easy targets for corruption and conflict of interests. Unregistered and illegal chemicals are routinely sold. The application of laws, quality control and standards inspection of agrochemical markets is critically required.

The same applies to public and private services in the areas of information, training and extension provision. Farmers are buying agrochemicals at high costs with little or no knowledge how to use responsibly and safely apply, or if alternative bio-organic options may be available and more suitable. This has negative consequences on various aspects of farming communities' livelihood security in the short and long term.

Moreover, nonstandard and inconsistent weighting system is common practice. Pricing and contracting is not informed and transparent, disadvantaging the smallholder farmer especially. Incoherent and unclear application of existing the land use policy and laws, is contributing to tenure insecurity which in turn cripples especially smallholders in way of incentives, investments, production and losses.

Finally women who play a vital role at various stages of the value chain e.g. in production, processing and marketing, are for the most part excluded from decision making, and often face limitations in accessing relevant training and other basic service opportunities.

Overall informal rules and norms are set by key stakeholders market by market, with negative effects on in particular small scale farmers, which ultimately weakens and destabilizes the whole of the value chain, because the full potential of one of the key actors, the producer is not realized.

Interaction between, organization and participation of input suppliers, advisory services, farmers, millers and wholesalers needs to be strengthened, building more sound and equitable partnerships, contracts, and standards of operating. This needs to be reinforced with improved access to especially transport, information, finance and infrastructure in ways which will make markets work for the poor (M4P).

Overview of key functions and rules in the Mon State and Bago Region paddy-rice value chains are included in Annex 8 and Annex 9.

2.4. Constraints for Performance in the Market System

2.4.1. Constraints for Pulses Market System in Mon State and Bago Region

There are many difficulties for pulses production in Bago region and Mon state, of which the most common are:

¹⁰ Non-profit sector actors e.g. civil society in Myanmar has limited exposure and experience in equitable value chains and fair market systems support. Only few organizations like HELVETAS and Swisscontact have the pre-existing capacity. The engagement of civil society in this area is nascent but interest and involvement is on the rise.

Changing climate and weather patterns is the most important destabilizing factor according to farmers surveyed. Farmlands have been lost from increased and heavier flooding, erosion and mud slides. Soil deterioration also is a serious problem because of saline intrusion and increase reliance on agro-chemicals. Labour scarcity and migration is the second most important problem cited. Labour shortage impacts are most pronounced at time of pulling of seedling, transplanting and harvesting and then picking and threshing in pulses.

Lack of value added processing capacity, lack of quality preservation, lack of incentives for farmers, and lack of suitable access to finance mitigating reliance on international traders for money lending are the major constraints cited by private sector actors. Possibilities for value addition are limited as pulses are traded along the value chain as raw, unprocessed products. Grading and cleaning according to export standards is done by the traders according to specific requirements and cannot be done at village level. According to the farmer's income from pulses production in Mon state, cost and return analysis of pulses show low yield level which is average 7 basket and average price is 35290 MMK/basket. Total cost of pulses is 124,333 kyats/acre but farmers in Mon state earned about 247,030 MMK/acre in pulses production. Benefit Cost (ratio) is 1.99. Pulses provide higher profit for farmers than paddy cultivation.

In 2010, the Myanmar Beans, Pulses and Sesame Merchants Association banned verbal agreements for sales. Nevertheless verbal agreement sales remain common in absence of stringent regulations and better control. According to a Myanmar bean exporter, Indian informants are for the most part aware of the sizes of bean and pulse stocks in the major commodity markets such as Bayintnaung. And despite ten Indian trading representative offices directly doing trade in the beans and pulses industry, prices can still be manipulated. If Myanmar prices are higher than those of India's then the buyers will refuse to purchase.

2.4.2 Constraints for Rice Market System in Mon State

Key stakeholders along the rice marketing system in Mon State reported following main constraints: Input suppliers lack knowledge about agrochemicals. This in turn incurs problems for the small and medium farmers, contributing to high input cost and low yield of production resulting in income losses. Climate change, flooding, and saline water intrusion are having adverse effects on productivity and stability. Additionally labour shortage, insufficient capital, low germination rate of seeds, and improper fertilizer application, limited mechanization, lack of livestock (for income, work and bio-inputs) cause low yield of paddy, high wage rate and low farm gate price leading to profit losses. Brokers in Mon state consider paddy seed quality, moisture content of paddy, lack of knowledge of farmer about weighting system, low rice quality and insufficient investment as major constraints in the value chain. Millers report substandard milling facilities are a key factor while wholesaler's list limited paddy production, high transportation cost and quality of rice based on moisture content of paddy as barriers for improved marketing (Annex 10).

2.4.3. Constraints for Rice Market System in Bago Region

In Bago Region, input suppliers rank low income and indebtedness of farmers as a key constraint, resulting unsettled payments by farmers for inputs from suppliers and improper use of agrochemicals with negative impacts in yield quality and quantity. Farmers report climate change, flooding, insufficient capital, labour shortage and high wages, and lack of transportation and poor road access as most significant obstacles. Broker's list appropriate transportation and access to finance as their main challenges. Miller's cite electricity shortage, skilled labour scarcity and low

demand for quality rice in local markets as major constraints for improving market chain. Meanwhile wholesalers prioritize paddy purity, labour and transportation as key factors for improving the rice value chain in Bago Region (Annex 11).

2.4.4. Access: a Cross-cutting constraint

Crop value chain in Mon State mainly connects with private sector. As the market is fully liberalized, value chain is composed of a wide range of players where individual entrepreneurs of private sector are involved in production, collection, processing, marketing, and distribution. Crop value chain in study areas is far from perfect and stained by weaknesses that make it inefficient, resulting in high transaction costs for all stakeholders.

Access to inputs

Starting point of value chain, there are two main sources of connections of input suppliers in Mon state and Bago Region. Input suppliers doing private business mainly connect with domestic agrochemical companies formally and unofficially with dealers of agrochemicals from Thailand.

Among agrochemicals, fertilizers in which the most common fertilizer applied is urea and often the rates applied are low and not done at the right crop stage because farmers often lack skills and knowledge about proper plant nutrient management. Unregistered, low-quality fertilizer products and formulation put up for sale because of weak implementation of regulations and the certification system.

The incidence of major pest problems lead to low crop yield, therefore farmers mix of a variety of pesticides with limited knowledge on integrated pest management, bio options and the proper use of pesticides.

The implementation of pesticide regulations is also weak; therefore, unregistered and/or banned pesticides enter to the input market in Myanmar. The lack of policy regarding pesticide use, weak regulation and monitoring of pesticide entry in the market, and pesticide misuse and the eventual incidences of pest problems and loss of biodiversity in the crop ecosystem are exacerbated by farmers' lack of knowledge and skills, unsupported by weak information and extension services.

In fact, the agrochemicals from domestic companies are mostly registered and are endorsed by the Ministry of Agriculture and Irrigation (MoAI). The products from Thailand are more often unregistered and illegally imported. Normally all imported products samples are analysed and are then approved and certified by MoAI. Only after the certification, are the products legally permitted for sale. Actually, agrochemicals should be inspected at the wholesale and retail shops also in each and every region to control the quality standard.

The existing Fertilizer and Pesticide Laws need to be implemented to regulate registration and entry of products into the market and to ensure that quality standards are met by agrochemical companies who are the main source for input suppliers who then resell in local markets. However, MoAI is poorly equipped and resourced, to carry out regular inspection of agrochemicals because of lack of laboratory facilities, limited human resources, and weak law enforcement.

Access to rural advisory services (RAS)

On the other hand, rural farmers tend to be undereducated and lack skills for innovation and market engagement. Generally, the project baseline points to an interdependent correlation between education and employability and income, whereby most respondents highest level of education is primary with only about 20% reaching mid or high-school level. Therefore, extension and education programs promoting good agriculture practices (GAP), alternative technologies, climate change and marketing is required. MoAI, its departments and research centres is a key institution for improving farmers' livelihood options and standards.

In fact, the agricultural technology extension network of Myanmar is wide spread from the national level down to the rural rea. More than 4,700 extension staff members are employed in the country as a whole (Agricultural Extension Division, Department of Agriculture unpublished data). However, extension staff have limited knowledge on the latest developments in different farming systems technology. Also important is ensuring that smallholders can move beyond improved production, but also engage in markets and build small businesses. The Ministry of Industry and Commerce (MoIC), and institutions like the Department of SME and National Skills Standard Authority (NSSA) are increasingly involved in supporting better skills training and standards. In this respect strengthening and linking relevant academic institutions is important for improving the education and capacities of relevant actors in the rural advisory services system, alongside strengthening public and private sector partnership development for the benefit of smallholders and rural communities.

Access to finance

In addition, crop productivity and farmer incomes are low because of limited financial resources. The current loan program of the Myanmar Agricultural Development Bank (MADB) lends up to 100,000 kyats/ac (about USD \$247/ha) for crop production with the maximum area 10 acres that can be applied by each farmer for the loan. Formal land holding is required as collateral. Farmers who are small scale cannot easily access such loans schemes, without borrowing money from informal credit sources at high interest rates (5-20%), compounding pervasive debt cycles. Lack of crop insurance schemes are also having adverse effects and contributing to indebtedness. According to the project baseline, on average, surveyed households reported having income shortfall or instability between 1 and 4 months every year. Lower income/productivity is also reported to impact availability of food, with reports of rationing, including skipping meals during these leaner sufficiency periods. According to the UNCDF FinScope Myanmar 2013 Survey, commissioned by the Livelihood and Food Security Trust Fund (LIFT)¹¹, under 20% of the population is accessing formal financial services; with use of informal credit providers widespread. The unavailability of reliable financial services in particular in rural areas has important implications for stimulating local entrepreneurship and economic development. The current microfinance system is under reform, and needs to consider more pro-poor and responsive service options in order to ensure smallholders can both access capital and also mitigate debt. In this regard financial literacy and small business development training, alongside improving access to information and mobile technology services are interdependent to improving rural finance access.

¹¹ <http://www.lift-fund.org/>

Access to Infrastructure

One of the major constraints along the value chain is inadequate infrastructure in rural areas.

Schemes for improving Irrigation and soil management are needed. The study area farming systems mostly rely on rain fed systems. Infrastructures which also protect against vulnerabilities to climate change and disasters need to also be improved. Most of the polders that protect crop lands from salty water intrusion were damaged during cyclone Nargis in 2008. In general a nationwide repair of polders, irrigation and drainage canals needs to be supported.

Meanwhile, climate and salinity resistant crop varieties, quality seeds, availability of organic alternatives are needed. For this appropriate nursing, producing, storing and selling facilities need to be enhanced at different levels.

In addition, farm-to-market roads, as well as links between rural and urban market centres, are very poor in many of the villages, incurring high cost of transport and high post-harvest losses. These are significant barriers for farmers to gain quick and easy access to market information.

While the government is promoting mechanization and the application of modern post-harvest technologies, the infrastructures and related skills to implement are lacking. Modern drying facilities are not accessible, thus farmers, primary collectors and millers rely on sun drying which is often not feasible during the monsoon season, resulting in poor quality crops. Lack of processing and packaging support further limits value addition. Poor post-harvest, processing, packaging and transport practices which do not meet minimum food safety and market standard requirements are crippling value chain development. Because the majority of primary stakeholders are more or less small and medium scale producers with limited capital investment for upgrading post-harvest practices, they rely on public institutions which are still mostly ill equipped and international outfits which do not always support pro-poor values and options. These barriers are only reinforced by significant lack of access to electricity in rural areas, and unstable and insufficient access in township centres. Sufficient supply of electricity is essential for growth of agro-processing and manufacturing along the value chain. The National Electrification Plan (NEP) aims to address shortage in energy supply. The NEP includes supporting access to renewable energy options for rural poor areas. The Department of Rural Development (DRD) under the Ministry of Livestock, Fisheries and Rural Development (MoLFRD) is responsible for this service. DRD is also implementing a National Community Driven Development Program (NCDDP) which provides small grants to rural communities for water and infrastructure development.

Access to information

All of above mentioned constraints have direct impact on access to information for smallholders and rural communities. Lack of reliable and efficient access to information services leads to ill informed choices and decision making, favouring actors who may prefer to control or manipulate the market system benefitting their own conflict of interest. Information is power, and both women and men smallholders need to be empowered to improve their livelihoods and better engage in the market chains of their choosing, be it on or off farm based sectors and trades. Improving access to finance, extension, electricity and mobile technology services will ensure more meaningful participation of rural men and women in local economic development and more equitable value chain and labour market development.

3. Current and Future Situation of Pulses and Rice Market

3.1 Inclusive Sustainability Matrix of Current Situation in Mon State and Bago Region

This section brings together the analysis done in sections 1 and 2 and aims to synthesize the current situation of crop value chain in the selected study areas of Mon State and Bago Region.

Table 1. Inclusive Sustainability Matrix of Current Situation in Mon State and Bago Region

Function or Rule	Who Does	Who Pays	Who is Socially Included/ Excluded	Who has Power/ Who Makes the Rules
CORE FUNCTIONS				
Unregistered and low-quality fertilizer and unreliable pesticides quality	Agrochemical importer Company and input supplier	Farmer who use inputs with high cost in crop production	Women in farm household are socially included but lack training Landless excluded	Department of Agriculture, MoAI and Ministry of Industry and Commerce
Inappropriate fertilizer utilization practices and misuse of pesticides in crop field	Farmers who grow crop	Farmer who grow crop	Women in farm household are socially included but lack training Landless excluded	Department of Agriculture, MoAI and Ministry of Industry and Commerce and Other inline Ministries and
Secure access to land and water	Settlements and Land Records Department (SLRD)	Smallholders, rural households	Women, landless, undereducated, differently abled are marginalized	MoAI, Ministry of Environment, Conservation and Forestry (MoECAFF), Parliament
Insufficient investment for high variable cost of crop production and low profit	Farmers who grow crop	Farmers who grow crop	Women in farm household are socially included but lack training and access to pro-poor capital Landless excluded	Department of Agriculture, MoAI and Ministry of Industry and Commerce
Inadequate post-harvest facilities cause low quality of crop	Farmers who grow crop	Farmers who grow crop	Women in farm household are socially included but lack training Landless excluded	Department of Agriculture, MoAI and Ministry of Industry and Commerce and Private sector
Insufficient facilities for marketing activities such as drying, storage, transport because	Village collector and Broker	Farmers, Village collector, Broker and consumer	Woman in farm household are socially included but lack training and access to capital	Public and Private Sector

of low capital investment			Landless are also included	
Poor quality crop output	Miller	Farmers, miller, and consumer	Woman in farm and miller household are socially included Landless are also included	Public and Private Sector
Very weak participation in organization and collective action of marketing activities	All stakeholders along the supply chain	All stakeholders along the supply chain	Women are marginalized; landless often excluded	Private sector, Ministry of cooperative and NGOs
RULES				
Weak fertilizer and pesticide law enforcement, rules and regulations for quality control	Agrochemical importer company and input supplier	Farmer who use inputs with high cost and little or no knowledge	Women are socially included but lack training and face health risks especially if pregnant Landless are excluded in terms of being able to afford such inputs or require them, but because Landless often act as day labour - they are exposed to the risks of improper agrochemical application	Department of Agriculture, MOAI and Ministry of Commerce and Other inline Ministries and Parliament
Substandard weighting system for inputs & outputs	All stakeholders along the supply chain	All stakeholders along the supply chain	Women are included however lack training and knowledge which given their role in market selling and trading, is an important gap	Public sector inline Ministries and Parliament
SUPPORTING FUNCTIONS				
Weak rural advisory services and extension	Public and private sector; Departments of relevant Ministries at township level	Smallholders; rural communities	Women, landless, undereducated, differently abled are marginalized	Relevant line Ministries; Civil society and INGOs; Private sector service providers
Inadequate infrastructure such as rural road, polders, irrigation,	Public sector	Public finance	Women in farm household are socially included as labour but not	Inline ministries of Public sector and Bilaterals e.g. ADB, WB, JICA

drainage system, electricity, crop and market facilities			decision maker Landless are included as labourers but not decision makers	
Insufficient seasonal loan for crop production	Public finance and microfinance public/private	Public finance and microfinance public/private	Women in farm household are marginalized Landless is excluded	Myanmar Agricultural Development Bank, MoAI and Myanmar Central Bank
Lack of financial support program for market participants such as collector, miller and wholesaler	Public finance and microfinance public/private	Public finance and microfinance public/private	Woman market participant is socially included Landless is excluded	Inline ministries of Public sector and Myanmar Central Bank; Bi-laterals/Multi-laterals e.g. ADB, WB, UN
Weak collective action	All market participants along the value chain	All market participants along the value chain	Women and landless are included but marginalized	Ministry of Cooperative, Private sector and NGOs, INGOs
Weak coordination among institutions of public and private sectors	Public and private sectors	Public and private finance	Women in institutions are socially included but overall marginalized Landless excluded	Public, private institutions and INGOs, NGOs,

4. Crop Marketing Sector Strategy

4.1 Overall Marketing Sector Strategy

Myanmar opened its doors to democratic and economic transformation in 2011. One of the development goals is to increase crop exports while maintaining domestic food security. According to the this goal, Myanmar crop sector needs to be developed by increasing crop exports which will generate the income to stimulate agricultural development, revitalize the economy, and improve poverty reduction in rural areas (MRF 2014b).

The Government of Myanmar has emphasized agricultural development as one of seven key pillars supporting and enabling inclusive and sustained economic growth. The Ministry of Agriculture and Irrigation (MoAI), with technical assistance provided by the International Rice Research Institute (IRRI) developed the Myanmar Rice Sector Development Strategy (MRSDS) which includes a crop marketing strategy which was launched on May 2015. MRSDS seeks to improve crop production and thus better ensure food self-sufficiency and a larger share in the international rice trade for the country (Myanmar Rice Sector Development Strategy, 2015).

The MRSDS is anchored in improving farm productivity, raising crop farmers' incomes, and enhancing the global competitiveness of Myanmar's crop industry. Higher farm incomes, so crucial to poverty reduction and sustained food security, rely on increased productivity. Moreover, improved

farm productivity enables affordable food supplies and competitive wage rates across the economy, thereby generating employment that enables the absorption of plentiful rural labor in off-farm and non-farm occupations, thereby accelerating the growth and modernization of the economy as a whole (Myanmar Rice Sector Development Strategy, 2015).

The ultimate goal of the Myanmar crop sector strategy is **a food-secure nation where smallholder farming households have tripled their household incomes, including income derived from rice and rice-based farming, thereby enjoying a decent standard of living comparable to that of urban dwellers**. The sustainable intensification of crop production, using efficient and effective natural resource management methodologies for higher crop productivity and profitability is the cornerstone for achieving this goal by 2030 (Myanmar Rice Sector Development Strategy, 2015).

All stakeholders in public and private institutions with coordination of international development partners need to support the effective implementation of the MRSDS. In fact, MoAI is the lead agency in implementing MRSDS. Political governance in Myanmar, as stated in the Constitution, is decentralized. Actually, the agriculture sector in each state and region falls under the managerial authority of the regional or state government. Given this decentralized nature of governance in the country, it is expected that regions and states have to formulate their own crop sector development strategies.

4.2 Proposed Interventions for crop marketing sector

Based on findings from the study and existing context analysis, the following are key recommendations for improving the market sector for better value chain development in the surveyed target areas of Mon state and Bago region, however it can also be said that these proposed interventions have broader relevance:

- Strengthen technology delivery and extension services
- Develop a new generation of subject matter and extension specialists, enhancing linkages between academia, research, extension and policy.
- Enforce seed, fertilizer and pesticide policies, rules and regulations
- Conduct awareness campaigns and education programs about the policies, quality, advantages and disadvantages of agrochemicals
- Encourage inspection and monitoring services of agrochemicals in local markets
- Establish fertilizer and pesticide-testing laboratories in focal market locations
- Ensure the adoption of good-quality seeds, appropriate fertilizer and pest management alternatives, and other integrated crop management practices by farmers
- Promote sustainable and good agriculture practices; consider added value certification services e.g. organics and fair trade in particular for engaging in regional (ASEAN AEC) and international markets
- Promote high-yielding and saline-tolerant crop varieties and develop climate-smart management options appropriate for smallholder farmers
- Strengthen weather information delivery and early warning systems
- Map areas vulnerable to floods, salinity, and drought to identify and plan adaptation measures.
- Improve adaption and resilience of smallholders through community led disaster risk management, and support crop insurance schemes

- Improve current credit schemes for smallholder farmers
- Establish a credit facility with loan equity to enable private sector to buy post-harvest and marketing machinery and facilities
- Upgrade existing crop mills or acquire new units to bolster efficiency, lower unit costs, and improve milled crop output
- Train farmers on crop and rice-based farming systems and postharvest losses
- Establish weighting standards for crops (following international standards) and the means to verify and enforce them.
- Improve access to information and communication services
- Empower women, youth and other disadvantaged rural community groups in crop farming and marketing
- Enhance specific opportunities for women, landless and other disadvantaged stakeholders to gain access to services which improve their participation and contribution along the value chain e.g. training, financial literacy, small business development
- Enhance capacity and understanding of collective action in marketing activities
- Support skills training in on and off farm sectors diversifying income options, building resilience, mitigating need for migration and improving livelihood standards for all
- Encourage responsible and responsive public private partnership (PPP)
- Review and adapt the foreign direct investment rules and regulations for agricultural sector
- Support equitable investment in agricultural sector development including an enabling policy framework which enhances smallholder access to core resources e.g. land, water, capital, services, markets
- Consider interventions to improve internal labour migration options in the frame of 'migration and development' at both departure and destination areas; and support awareness raising of migrants and receiving communities and stakeholders about pros/cons; rights and obligations, cultural norms etc.

5. References

Amina Maharjan & Theingi Myint. February 2015. Internal Labor Migration Study in the Dry Zone, Shan State and the Southeast of Myanmar. HELVETAS Myanmar.

CLCMGoMP, July 2015, project baseline report for Mon State (Thaton, Bilin, Kyaikhto Townships) and Bago Region (Thanatpin, Kawa Townships), HELVETAS Myanmar.

Dalipagic, Lan and Gabriel.E. 2014. Agricultural Value Chain Analysis in Northern Uganda: Maize, Rice, Groundnuts, Sunflower and Sesame. Action against hunger. ACF International.

DAP (Department of Agricultural Planning), MOAI (Ministry of Agriculture and Irrigation). Myanmar Agriculture at a Glance 2014, P 12. Ministry of Agriculture and Irrigation, Nay Pyi Taw, Myanmar.

Hellin, J., and Meijer, M. Guidelines for value chain analysis, 2006

Janssen, N. and Ranjan, S. Knowledge Along Traditional Rice Value Chains-a Practice-based Approach: are there lessons for Sub-Saharan Africa? SNV Netherlands Development Organization, Phnom Penh, Cambodia and Vientiane, Lao PDR.

Khin Mar Cho. March 2013. Background Paper No.5, Current Situation and Future Opportunities in Agricultural Education, Research and Extension in Myanmar. USAID&MDRI.

Lake chilwa basin climate change adaptation programme (LCBCCAP). 2012. A Rice Value Chain Analysis in Lake Chilwa Basin Under the Lake Chilwa Basin Climate Change Adaptation Programme and Wala. A Rice Value Chain Analysis in Lake Chilwa Basin Under LCBCCAP and WALA Projects.

Ministry of Agriculture and Irrigation (MOAI).2014."Myanmar Agriculture in Brief", Ministry of Agriculture and Irrigation, Nay-Pyi-Taw, Myanmar.

Myanmar Rice Federation. 2014b. <http://myanmarricefederation.org/content/about-myanmar-rice-federation-mrf>

Myanmar Rice Sector Development Strategy. May 20, 2015. Ministry of Agriculture and Irrigation (MoAI), Myanmar.

San, Thein. 2006. Agro-based Industries in Myanmar: the long road to industrialization. VRF Series No.414 Institute of Developing Economics, JETRO, Tin Htut Oo and Kudo, Toshihiro eds. 2003. Agro-based industry in Myanmar: prospects and challenges, ASED No.67, Institute of Developing Economics, JETRO.

Shrestha, R. 2012. Final Narrative Report – Enhancing Milled Rice Production in Lao PDR, 2012. HELVETAS Laos, Vientiane, Lao PDR.

UNCDF FinScope Myanmar 2013 Survey, commissioned by the Livelihood and Food Security Trust Fund (LIFT) <http://www.lift-fund.org/>

USAID/Burma. July 2013. A Strategic Agricultural Sector and Food Security Diagnostic for Myanmar.

World Bank. 2014c. Myanmar: Rice Price Volatility and Poverty Reduction. Economic and Sector Work, Report 89687-MM.84 pp.

Annex 1. Livelihood Activities of Landless Households

No	Township	Types of livelihood activities	Remark
1	Thaton	Carpenter, Vegetable growing, tapper, Bike taxi, casual labor in paddy transplanting and harvesting, hair dressing and mason.	Go to Thai as worker
2	Bilin	Retailers, residence-cum-shop, casual labor in crop cultivation, livestock breeding (Pig, Duck and Chicken)	Go to Thai as worker
3	Kyaikhto	Residence-cum-shop, hair dressing salon, casual labor in agri sector, bike taxi	Go to Thai as worker
4	Thanatpin	Daily wages in agri sectors, Carpenter, mason, painter, small enterprise, Bike taxi and livestock breeding	Go to Bago and Yangon as worker
5	Kawa	Casual labor in crop sectors, Carpenter, mason, painter, small enterprise, Bike taxi and livestock breeding, fish farming with small pond	Go to Bago and Yangon as worker

Annex 2. Number of Respondents in the Study Area

Market participants	Number of sample respondents	
	Mon state	Bago region
Input suppliers	3	2
Farmers	78	43
Brokers/Collectors	4	3
Millers	6	5
Town Wholesalers	3	3

Annex 3. Marketing activities and constraints of Input supplier in Mon State and Bago Region

	Mon State			Bago Region	
	Kyaikhto	Bilin	Thaton	Thanatpin	Kawa
Type of inputs	Fertilizer, insecticide, weed killer fungicide	fertilizer, pesticide, insecticide, weed killer fungicide, sprayer	Fertilizer, pesticide, insecticide, weed killer fungicide, foliar	Fertilizer, pesticide, insecticide, weed killer	Fertilizer, pesticide, insecticide, weed killer
Input source	Local Company (Awbar, Wisarya) and Foreign Company (Red Arrow)	Local company (Armo (fertilizer, seed) Awbar, Arysta and Foreign Company (Red arrow) sprayer	Local and Foreign company	Arzar Ye Shin, Golden Lion, yarzar min	KaungThuka, Shwe Nagar, Awaba, Gloden lion
Highest demand chemical fertilizer	Thai without register	Local company products	Local company products and Thai without register	Shwe Kyat, Moe Thee pulae, Yarnar min	Awaba in fertilizer and KaungThuka in Pesticide
Requires Certificate from DOA or other organization	Yes	Yes	Yes	Yes	Yes
Commission percentage from company	888	5% and 10%	40%		
Month of high demand	July, August, Sep	March and April	Sept, Oct and Nov	Fertilizer – Nov, Dec and Jan Pesticide – Jan, Feb, Mar	Fertilizer – June, July, Nov Pesticide – Nov, Dec
Financial support to farmer	No	Yes (Late payment of fertilizer)	No	Yes (Late payment of fertilizer for 4- 5 months, support machinery without interest rate for six months)	Yes (Only cash down 50% when buying time and the rest 50% at late payment)
Pay back system		3 months duration after selling time	-	pay back after selling the product	pay back after selling the product

Farmer pay back the advance (cash and kind)	cash	cash	-	Accepts both in kind and in cash payback	Accepts both in kind and in cash payback
Interest rate	3%			3%	3%
Constraints in marketing	-	Farmers do not have information and knowledge in responsible use of pesticide and fungicide	Farmers do not have information and knowledge in responsible use of pesticide and fungicide	65% of farmers unable to make full payment due to chronic indebtedness	The producing company need to guarantee the quality of their product , 10 to 15 % of farmers do not pay the 50% down payment balance

Annex 4. Enterprise budget of monsoon paddy in Mon State and Bago Region

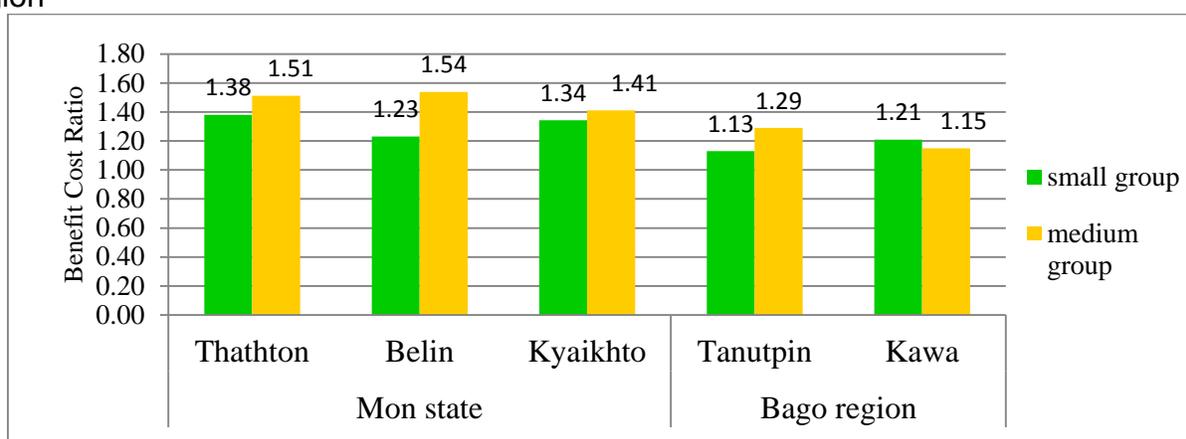
Annex 4.a Cost and Return Analysis of Monsoon Paddy in Mon State

Item	Thaton Township		Bilin Township		Kyaikhto	
	Small	Medium	Small	Medium	Small	Medium
Yield (basket/acre)	45	50	45	48	50	45
Price/bsk (MMK/bsk)	3500	3500	3500	3500	3500	3500
Total revenue (MMK/acre)	157500	175000	157500	168000	175000	157500
Material cost (MMK/acre)	15500	33250	27850	25650	35250	29500
Labor cost (MMK/acre)	98500	82500	100000	83500	95000	82100
Total variable cost (MMK/acre)	114000	115750	127850	109150	130250	111600
Gross margin (profit)	43500	59250	29650	58850	44750	45900
Benefit Cost Ratio (BCR)	1.38	1.51	1.23	1.54	1.34	1.41

Annex 4.b Cost and Return Analysis of Monsoon Paddy in Bago Region

Item	Thanatpin Township		Kawa Township	
	Small	Medium	Small	Medium
Yield (basket/acre)	55	50	68	80
Price/bsk (MMK/bsk)	3750	4000	4200	3500
Total revenue (MMK/acre)	220000	200000	283500	280000
Material cost (MMK/acre)	59000	40250	54750	63250
Labor cost (MMK/acre)	155000	114800	178000	191000
Total variable cost (MMK/acre)	214000	155050	232750	244250
Gross margin (profit)	26500	44950	50750	35750
Benefit Cost Ratio (BCR)	1.13	1.29	1.21	1.15

Annex 4.c Benefit and cost ratio of monsoon paddy production in Mon State and Bago Region



Annex 5. Characteristics, marketing activities and constraints of collector/broker in Mon state and Bago region

Items	Kyaikhto	Thaton (Mon State)			Kawa (Bago region)		
		U Nya War	U MyatMaung	U MaungAung	U San Myint	U Than Htun	KoKyaw Win
Experience	About 10 years	Over 5 years	Within 3 year	Within 3 years	> 10 years	> 10 years	Within 3 years
Management	By himself	By himself	By himself	By himself	By himself	By himself	By himself
Overall business running costs	45,000	17,500	30,000	20,000	22,500	250,000	4,500
Member of trader association	No	No	No	No	No	Rice trader association	No
Main commodity of trading	Agricultural commodities	Agricultural commodities	Agricultural commodities	Agricultural commodities	Agricultural commodities	Agricultural commodities	Agricultural commodities
Type of trading commodities	Paddy and Rice	Paddy and Rice	Paddy and Rice	Paddy and Rice	Paddy, pulses and bean	Paddy and Rice	Paddy
Buying system (name of villages) and reselling	Kyaik Pi, Fatkalat, Fatkalat OSS, TheinGu, TheinGu OSS, TaungZun, ZokeThoke	Villages from Thaton, Kyaik Kaw and Bilin	Ka Tike Ka Lay, Taw Gyi, SeikKyun, Ma Yan Kone, Ka Tike Gyi	Villages from Thaton, Kyaikto and Paung Township	5 villages	More than 5 villages	More than 5 villages
	He purchases at village level, and resells to a milled man	He purchases at village level, and resells to a milled man	He purchases at village level, and resells to a milled man	He purchases at village level, and resells to a milled man	Producers come and sell to him, he also purchases at village level	He purchases at village level	Producers come and sell to him, he also purchases at village level
Running the business					Commission business (100 MMK per 1 bsk)	Commission business (100 MMK per 1 bsk)	-
Purchasing system	Cash down based on quality	Cash down based on quality and without quality assurance	Cash down based on quality	Cash down without quality assurance	Cash down based on quality	Cash down based on quality	Cash down based on quality

Quality standard	Purity, cleanliness, moisture , contain red rice color	Purity, cleanliness, moisture ,	Purity, cleanliness, moisture	Purity, cleanliness, moisture, not pure variety	Purity, cleanliness, moisture	Purity, cleanliness, moisture	Purity, cleanliness, moisture
Unit of buying	Basket	Basket	Basket	Basket and lb	lb	lb	lb
Conversion weight (for paddy)	1 bsk=18 pyi	1bsk= 18 pyi	1bsk= 18 pyi	1basket = 55 lb 1bsk= 20 pyi	1 bsk=50 lb 1 bsk= 10 pyi	1bsk= 50lb	1bsk= 52.5 pound, 1bsk= 12 pyi
Conversion weight (for rice)	1bsk= 60 lb 1bsk= 15 pyi	1 bsk=72 lb, 1bsk= 16 pyi	1bsk= 72 lb 1bsk=16 pyi	1bsk= 65 lb 1bsk= 14.5 pyi			
Buying month	Feb	Feb	Jan	Jan	Jan	Nov, Dec, Jan	Jan -Feb
Buying amount (bsk)	60,000	20,000	30,000	30,000	4,000	1,000,000	800
Buying price MMK/bsk	4,000	4,200	4,000	6,500	4,000	3,600	8,000
Transportation cost (MMK)	20,000-50,000	20,000	10,000	30,000	0	300/bsk	300/bsk
Reselling for trading to township wholesalers	For milling and reselling locally and to other town wholesalers	For milling and reselling locally and to other town wholesalers	For milling and reselling locally and to other town wholesalers	For milling and reselling locally and to other town wholesalers	For milling and reselling locally to retailers	For milling and reselling locally to retailers	For milling and reselling locally to retailers
Weighting unit of re-sell the commodities	pound	pound	pound	pound	pound	pound	pound
Reclassified or process or sorting to improve quality	No	No	Yes (cost=500 kyat/unit)	Yes (cost=500 kyat/unit)	No	No	Yes (cost=400 kyat/unit)
Peak time for selling				January	Jan	Jan, Nov, Dec	Feb-March
Total amount (bsk)				20,000	2,000	0	2,000
Selling price/bsk				6,500	4,000	0	4,500
Transportation cost				30,000	0	0	150/bsk
Peak time of selling	Feb, March, April	May-June	Dec-Jan	Jan, Feb	0	0	0
Total amount	150,000	4,500	1,500	50	0	0	0

Reselling	Trader/larger wholesaler from township come and buy from him and he also sells at township level	Trader/larger wholesaler from township come and buy from him and he also sells at township level	Trader/larger wholesaler from township come and buy from him	He sells at township level	Trader/larger wholesaler from township come and buy from him and millers	Millers	Trader/larger wholesaler from township come and buy from him
Credit and purchasing system of the township wholesaler	In direct cash down based on quality	In direct cash down based on quality	In direct cash down based on quality and in advance payment and in kind payment based on market price and quality	In direct cash down based on quality	In direct cash down based on quality	In direct cash down based on quality	In advance payment and in kind payment based on market price and quality, contract buying with fixed price without quality consideration
Quality standard of township wholesaler for buying	Purity, cleanliness and moisture content	Purity, and moisture content	Purity, cleanliness and moisture content	Purity, cleanliness and moisture content	Purity,	Purity, moisture content	Purity,
Standard weight unit in buying of the wholesaler	Basket and pound	Basket and pound	Basket and pound	Basket and pound	pound	pound	pound
Conversion of weight for paddy	1 basket= 50 lb, 1 bsk= 18 pyi	1 basket= 50 lb, 1 bsk= 18 pyi	1 basket= 50 lb, 1 bsk= 18 pyi	1 basket= 50 lb, 1 bsk= 20pyi	1 basket= 50 lb, 1 bsk= 10 pyi	1 basket= 50 lb, 1 bsk= 10 pyi	1 basket= 50 lb, 1 bsk= 12 pyi
Conversion of weight for rice	1bsk= 67 lb, 1bsk =15 pyi	1bsk= 67 lb, 1bsk =15 pyi	1bsk= 72 lb, 1bsk =16 pyi	1bsk= 65 lb, 1bsk =14.5 pyi	-	-	-
Constraints	Paddy seed quality is not pure and high moisture content	Moisture content is too high at time of purchase. Drying machine for paddy needed for farmers and brokers	Want to buy the paddy with lb, but farmers lack knowledge in trading, want to use bsk as their traditional trading system.	Not enough investment and low price due to low rice quality (rice color)	Transportation: wants to own truck	Financial needs reliable loan options	

Annex 6. Characteristics, marketing activities and constraints of miller in Mon state and Bago region

Items	Mon State					Bago Region			
	Kyaikhto		Bilin	Thaton		Kawa	Waw		Thanatpin
Management	Owner	Owner	Owner	Owner	Owner	Owner	Owner	Owner	owner
Engine Type	Disel	Electric	Electric	Electric	Electric	Electric	Disel	Disel	Disel
Engine Power	25 Hp	25 Hp	35 Hp	Above 35 Hp	15 Hp	Above 35	Above 35	Above 35	Above 35
Manufacturing date of machine	2005	2009	1980	2006	2000	2015	2000, 2012	2013	2013
Experience (year)	10	5	35	9	15	3 month	9	2	1.5
Milling capacity (bsk/hr)	8	25	50	30	25	100	88 bsk/hr	150 bsk/hr	53 bsk/hr
Milling out turn per 100 basket	2880 lb	2880 lb	3600 lb	2880 lb	2304 lb	3024 lb	34 bsk	34.5 bsk	36 bsk
quality paddy vs. quality rice	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
If yes above, the highest % of quality of rice milled	75% full grain					(75%) full grain out of 100 grain			
Average milling amount per day (bsk)									
Peak season	40	80	600	1500	250	800	700	3200	1000
Off season	10	7	200	50	150	250	100	1500	700
Average milling period	12 months			12 months			12 /10 months		
Employment									
Permanent labor	0	0	2	3	2	5	4	8	4
Daily labor									
Peak season	0	0	5	13	2	0	10	60	8
off season	0	0	5	10	1	0	0	25	5
Upgraded machinery			2005	2013	2014		2013		
Plan to upgrade in near future(improve the milling capacity)	Yes (improve the milling capacity)					Yes (Machinery for increasing capacity and improve the milling capacity)			
Estimated cost for upgrading		120,000	50,000,000		10,000,000		10,000,000	6,000,000	3,000,000
Link villages	4	5	15	3	30	8	5	25	6
Buying raw from farmers (bsk)		1,000		5,000	80,000	30,000	50,000	500,000	50,000-350,000

Quantity measuring unit at buying time		Bag including 2 basket		Basket	Bag including 2 basket	Bag including 2 basket	Bag including 2 basket	Bag including 2 basket	Bag including 2 basket
Standardization for buying raw materials		Quality, Purity		Quality, Purity	Quality, moisture, purity	Quality, moisture, purity	Quality, purity and moisture	Purity and moisture	Purity and moisture
Based on above standard, price difference									
Quality based average price difference(100 bsk)				10,000			50,000		
Purity based on average price difference (100 bsk)		10,000				20,000	5,000 to 10,000	20,000	10,000
Moisture based average price difference (100 bsk)					70,000		20000	20,000	30,000
After milling, selling the product			Yangon, Local		local	Local	Local	Mandalay	Bago and Waw
Who sells the rice			Wholesaler, they sell their selves		Wholesale r, they sell their selves	Wholesaler , they sell their selves	Collector and they sell their selves	They sell their selves	Collector and they sell their selves
Measuring unit			lb		lb	Lb	1 bsk =108 lb	1 bsk =108 lb	1 bsk =108 lb
Peak months for rice selling			Jan, Feb	May, June, July	April, may	Jan, Feb	Feb, March , May, Jun, July	Oct, Nov, Dec, and Jan	June, July, Jan
Peak season for rice prices			Dec	May, June, July	Sep, Oct	Sep	20,000 ks per bag in June and July	21,000 kyats in June and July	18,000 kyats in june, July, Aug, Sept
Milling cost for 100 basket	28,000	35,000	25,000	20,000	25,000	Just milling own paddy only	25,000 kyats	35,000 kyats	25,000 kyats
Giving back to farmers all the side product	Not giving back	Not giving back	Not giving back	Rice, Bran, Husk	Rice, Bran, Husk	Rice, Bran, Husk	Rice, Bran	Rice, Bran	Rice, bran
The perception of interviewer (Appearance of mill)	Medium	Medium	Medium	Good	Good	Good	Good	Good	Good

Roof, Wall, floor, compound, cleanliness									
Social responsibility	Good								

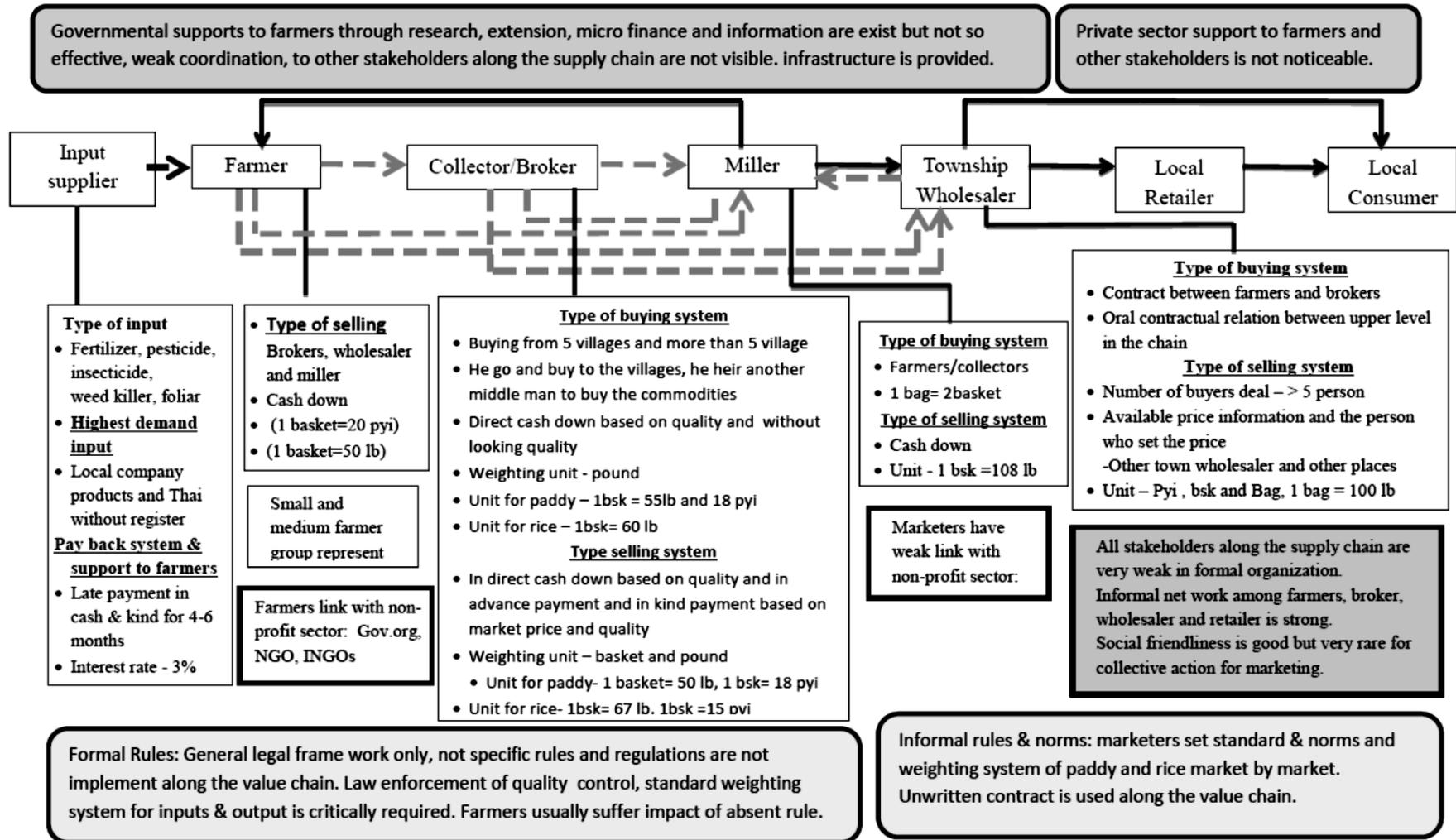
Annex 7. Characteristics, marketing activities and constraints of wholesaler in Mon state and Bago region

Items	Thaton_Mon	Bilin_Mon	Kyaikhto_Mon	Kawa_Bago	Tanatpin_Bago	Waw_Bago
Labor	3	-	2	3	0	7
Warehouse	3	-	3	1	0	1
Experience	8	2	15	2	25	10
The flow route in the region and volume in peak and low season	(peak season) Buying paddy from villages in Bilin and Kyaikhto. Buying rice from Waw, Thanatpin, Bago, Kyaikkaw, Zinkyaik, Shwebo, Pathein) and sell as retail and to other retailer in Kyaikhto Township	(peak season) La Thar Rice Shop, Ba Yin Naung, Bilin	(peak season) Village and Township retailers from Thanatpin and Kayin	Village rice seller/rice brokers to TW		
Condition of demand and supply	June, July and August have surplus in supply and the remaining month there is more balance between demand and supply	June, July and August have surplus in supply and the remaining month there is more balance between demand and supply	June, July and August have surplus in supply and the remaining month there is more balance between demand and supply	Balance between demand and supply every month	Balance between demand and supply every month	Balance demand and supply every month
Peak buying months (paddy)	Nov, Dec, Jan	-	Every month	Nil	Mar, Apr, May, Oct, Nov, Dec	Jan,feb, Mar, April
Peak buying time (rice)		Every month		Nil	Nov, Dec	Jan to Dec
Contract between farmers and brokers	Yes	No	Yes	-	Yes	-
Number of traders and brokers	10	-	2	3	0	0
Years of Experience working with brokers	8	-	5	2	25	-
Providing loans to farmers through brokers	No	No	No	No	No	No
Storage of product	Yes	Yes	Yes	Yes	No	Yes

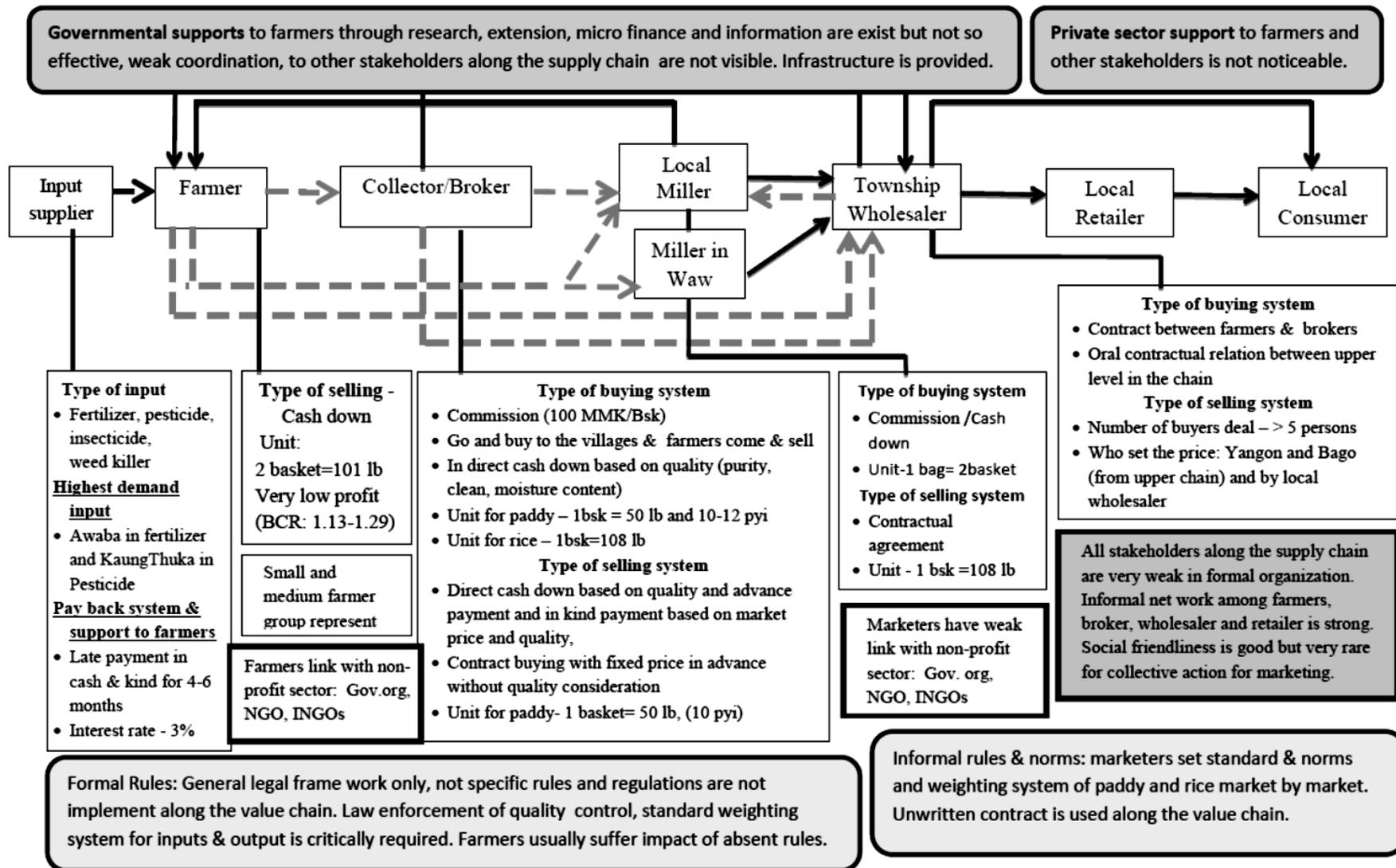
Storage duration (months)	5	0.5	3	10	-	8month
Contract with upper level in the chain		Oral				Oral
Selling system	Retailer at town and village	Retailer at town and village	Retailer at town and village	Retailer at town and village	Retailer at town	Retailer and consumer at town and village
Same person/company? How long do you work with?	No	No	No	No	Yes (25)	Yes(12)
Does the person provide loans?	No	No	No	No	No	No
Number of buyers deal within one year	More than 5 person	More than 5 person	More than 5 person	More than 5 person	-	-
Available price information and who sets the price(by him or by buyers)	Other town wholesaler and other place (by him)	Other places (by him)	Other places (by him)	Bago (from upper chain) and by him	By him	Yangon (from upper chain) and by him
Price validity in case of contractual agreement	15 days or one month	7 days	-	-	-	-
Reselling months	Maximum = Nov, Dec and Jan Medium = Feb to June, Sep and Oct Minimum = July, Aug	Maximum = every month	Maximum = April to Jan, Medium= Feb, Mar	Maximum= June, Minimum = the rest month	Maximum = June to Nov	Maximum= June
The future of the whole marketing Volume, price, market and chain structure?	Paddy supply volume will decrease because of flooding but price of rice will increase	Depend on rice production	Rice market will be more good	Supply volume will increase	-	-
The standard set when t bought from producer	-	-	-	Not buy if different color grain (eg. Red colour)	Full grain, moisture	Moisture, purity
Quality standard (measuring unit)	100lb/bag	Pyi and bag	Bsk and bag	-	-	-
Quality control to set price	Moisture is the most important	-	Moisture is the most important	Moisture is the second	Moisture is the most important	Moisture is the most

				important		important
	Purity is the second most important	Purity is the most important	Purity is the second most important	Purity is the most important	Purity is the second important	Purity is the second important
	Cleanliness is the last and not too concerned if paddy produces discolored red and yellow rice	-	-	Cleanliness is the last	Cleanliness is the last	Cleanliness is the last
Storage, upgrade or reclassification for added value	No	No	No	No	No	No
What is important to improve trading	Better storage facility is essential	-	Better storage facility		-	Better storage facility
	Improvement of processing for better quality end product is essential	-	Improvement of processing for better quality end product	-	Improvement of processing for better quality end product is important	Improvement of processing for better quality end product is important
	Better quality at buying time is important	Better quality at buying time is essential				
Barriers /constraints for the paddy trading	Scarcity and Raw Material (paddy)	Transportation cost, quality	Paddy moisture		Purity and transportation	labor

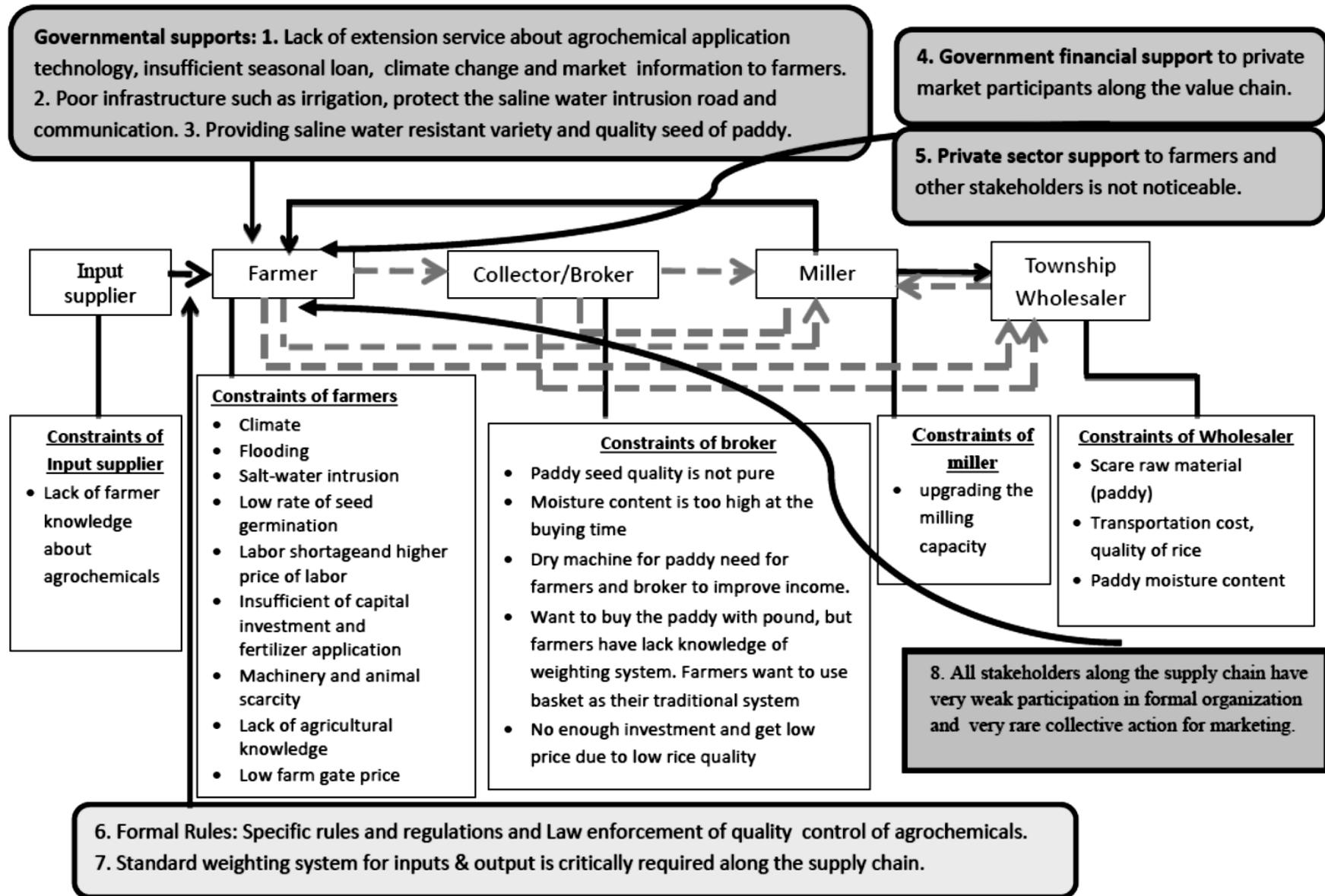
Annex 8. Key Market Functions and Rules of Rice Marketing System in Mon State



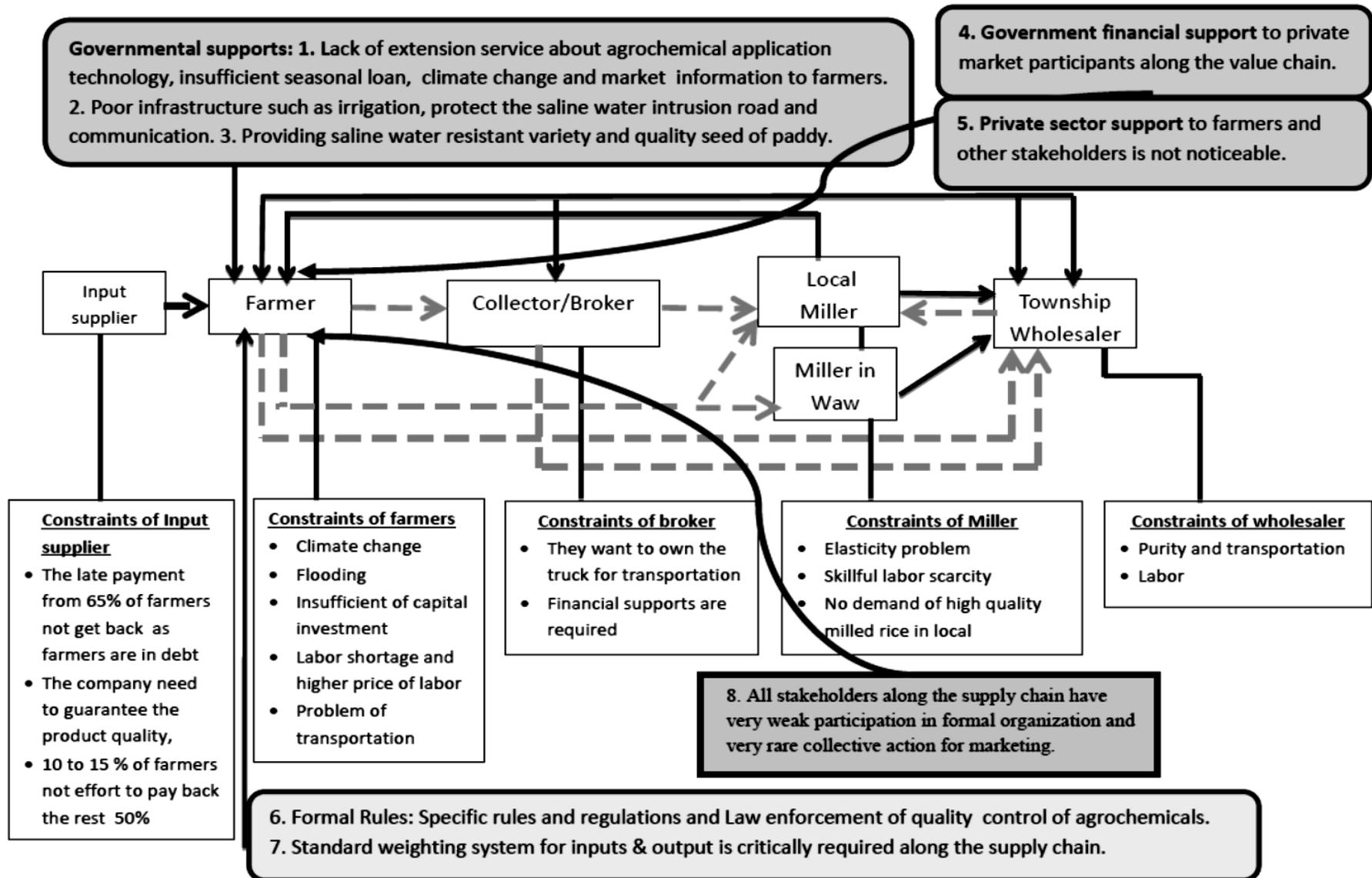
Annex 9. Key Market Functions and Rules of Rice Marketing System in Bago Region



Annex 10. Major Constraints of Rice Marketing System in Mon State



Annex 11. Major Constraints of Rice Marketing System in Bago Region



Annex 12. Stakeholder Summary in Mon State

Stakeholder	Function	Most Important Governance Interests	Inclusion of Women and Socially Disadvantaged ¹²
Input supplier	<ul style="list-style-type: none"> • Selling fertilizer, insecticide, weed killer fungicide • Input brand name – Awaba, Wirsarya, foreign company (Red arrow), Armo • Highest demand – March, April, July, August, Sept, Oct and Nov • Do not provide support financial to farmers • Selling the input – 3 month duration after selling pay back system , farmer pay back in cash and interest rate is 3% 	<ul style="list-style-type: none"> • They want to share knowledge about fertilizer and pesticide application and pest control/management 	<ul style="list-style-type: none"> • Women are marginally included
Farmers	<ul style="list-style-type: none"> • All farmers grow monsoon paddy with transplanting method except farmers in Kyaikhto • They sell their paddy mainly to collector with cash down payment system while farmers from Kyaikhto sell to wholesaler at local market. • The weighting system of paddy at farm gate level is basket which contains different volume ranges from 17 to 21 pyi/basket which is equal to about 95 pounds. 	<ul style="list-style-type: none"> • They are interested to get high quality yield for getting high farm gate price. 	Women are active but marginally included in actual decision making
Brokers	<ul style="list-style-type: none"> • Trading- Agricultural commodities (paddy and rice) • Paddy seed quality needs to be pure • Moisture content is too high at the buying time of paddy. • Payment system to farmer is cash down system by setting the price based on the quality of paddy such as purity, cleanness and moisture content. • Indirect cash down based on quality and in advance payment and in kind payment based on market price and quality at selling time to wholesalers 	<ul style="list-style-type: none"> • They want to buy the paddy with pound but farmers who lack experience and knowledge are reluctant. So, they are interested to share information about trading practices to the farmers to improve income on all sides • They want to get high rice quality to get high price and enough investment. • Drying machines for paddy are needed for farmers and brokers to improve income 	Women are active but marginally included in actual decision making
Millers	<ul style="list-style-type: none"> • They link with villages to buy the paddy from farmers (bsk) 	<ul style="list-style-type: none"> • They want to upgrade their milling 	Women are active but marginally included in

¹²This column should describe if and how women or socially disadvantaged groups are included or excluded in the stakeholder group. For example, ethnic minorities may be well represented as petty traders, but excluded from owning processing companies.

	<ul style="list-style-type: none"> • They use bag which equals 2 baskets as measuring unit at buying time. • They assess quality, based on purity and moisture standards for buying raw materials. • After milling, they sell the product to the wholesalers and direct for own profit 	<p>machine to get 100% full grain</p> <ul style="list-style-type: none"> • They want to get high quality demand not only from local market but also international market. 	actual decision making
Township wholesalers	<ul style="list-style-type: none"> • June, July and August has surplus in supply and the remaining months observe balance between demand and supply. • Peak buying months for paddy is November, December and January and for rice is every month. • Wholesalers have oral contractual relations with upper level in the chain. In case of contractual agreement there is a 15 to 30 day price guarantee and exclusivity agreement • Store rice for about 3 to 5 months. • Get price information from other town wholesaler and upper chain from Bago. • The measuring unit at selling time is one bag which is about 101 pounds, pyi. • Moisture and purity is the most important for quality control followed by cleanliness to set price. 	<ul style="list-style-type: none"> • Paddy supply volume will decrease because of flooding but price of rice will increase. Rice market will be better depending on rice production. • Better storage facility and improvement of processing for better quality end product is important to improve rice trading. • They want to get larger amount of raw material (paddy) and to reduce transportation cost. 	Women are active but marginally included in actual decision making

Annex 13. Stakeholder Summary in Bago Region

Stakeholder	Function	Most Important Governance Interests	Inclusion of Women and Socially Disadvantaged ¹³
Input supplier	<ul style="list-style-type: none"> Selling fertilizer, insecticide, weed killer fungicide Input brand name – KaungThukha, Golden Lion, Awaba, Yarzar min Highest demand – Fertilizer – June, July, Nov, Dec Pesticide – Nov, Dec, Jan, Feb, Mar Only cash down 50% when buying time and the remaining 50% at late payment Selling the input – after selling the product pay back system , farmer pay back in cash and in kind at an interest rate of 3% 	<ul style="list-style-type: none"> They expect to get late payment from 65% of farmers. Farmers need improve efforts to pay back the balance of 50% down payment The company needs to guarantee their product quality 	Very low inclusion
Farmers	<ul style="list-style-type: none"> All farmers grow monsoon paddy by broadcasting method. Cost and return analysis of monsoon paddy shows slightly higher yield level than farmers from Mon state e.g. 50 basket/acre in Thanatpin and 68-80 basket/acre in Kawa Township. All farmers in Bago region sell their paddy mainly to collector, wholesaler/miller with cash down payment system. The weighting system of paddy at farm gate level is pyi/basket which is about 50 pounds. 	<ul style="list-style-type: none"> Better road access, and lower transport costs 	Active but marginalized; not involved in decision making
Brokers	<ul style="list-style-type: none"> Trading- Agricultural commodities (paddy and rice, pulses and bean) They go and buy the product from more than 5 villages. Hire other middle men with commission to buy the commodities. Farmers come and sell to them. They assess quality based on purity, cleanliness and moisture content for getting higher price. Direct cash down payment based on quality at buying and selling time In advance payment and in kind payment based on market price and quality, contract buying with fixed price without quality consideration (from portion of money advanced) at selling time 	<ul style="list-style-type: none"> They want to own truck for transportation and to reduce costs. More reliable loan options 	Active but no decision making power
Millers	<ul style="list-style-type: none"> They link to villages to buy the paddy from farmers (bsk) They use bag which equals 2 basket as measuring unit at buying time They check the paddy quality and standard of rice for getting the 	<ul style="list-style-type: none"> They want to upgrade their milling machine to get 100% full grain They want to get high 	Active but marginalized; not involved in decision making

¹³This column should describe if and how women or socially disadvantaged groups are included or excluded in the stakeholder group. For example, ethnic minorities may be well represented as petty traders, but excluded from owning processing companies.

	<p>higher price.</p> <ul style="list-style-type: none"> • They fix price based on quality, purity and moisture 	<p>demand not only from local market but also international market.</p>	
<p>Township wholesalers</p>	<ul style="list-style-type: none"> • Wholesalers observe consistent balance between demand and supply every month. • Moisture content of paddy is the key factor for setting the price followed by purity and cleanliness. • They store for about 3 to 5 months but they don't have good storage facilities. • Wholesalers have oral contractual relations with upper levels in the chain. • Contract between farmers and brokers • They can get information about price from other wholesales and upper chain from Yangon. 	<ul style="list-style-type: none"> • Rice market will be better based on production. • Better storage facility and improvement of processing for better product quality • Interested to get skilled labor and to reduce costs. 	<p>Active but marginalized; not involved in decision making</p>