



## **Myanmar Fertilizer Policy Evaluation**

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## Acronyms and Abbreviations

ARDC	Myanmar Agribusiness Research and Development Consultants
AS	ammonium sulfate
CAN	calcium ammonium nitrate
CARTC	Center for Agriculture Research and Training Centre
DAE	Department of Agricultural Extension
DAP	diammonium phosphate
DAR	Department of Agricultural Research
ECC	Environmental Compliance Certificate
FAO	Food and Agriculture Organization of the United Nations
FPA	Fertilizer and Pesticide Authority
GSSP	granulated single superphosphate
GTSP	granulated triple superphosphate
ha	hectare(s)
IFDC	International Fertilizer Development Center
kg	kilogram(s)
Ks	kyat (currency of Burma)
LUD	Land Use Division
MOAI	Ministry of Agriculture and Irrigation
mt	metric ton(s)
MOP	Muriate of potash
NPK	nitrogen, phosphorus and potash
SOW	Scope of Work
USAID	United States Agency for International Development
VAT	value-added tax

## **Acknowledgements**

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# Fertilizer Sector Improvement Project

## Myanmar Fertilizer Policy Evaluation

### Executive Summary

A rapid assessment of the fertilizer sector policy issues was requested by USAID, Myanmar in July 2014. IFDC responded with a SOW (Annex 1) and a country assignment from July 29<sup>th</sup> to August 9<sup>th</sup> 2014. Consultants from ARDC arranged all meetings and provided translation services and expert advice throughout the assignment. All scheduled meetings were made except for one with the Hmwin Urea factory, where the Ministry of Energy declined to respond to the visit request. Additional visits were made to the Ministry of Agriculture and Irrigation (MOAI) Center for Agriculture Research and Training Centre (CARTC) and Yezin Agricultural University in NawPyiTaw. A full itinerary is presented in Annex 2.

This was very much a scoping exercise given the limited time available but multiple visits were made in Yangon, Yangon Region, Bago Region, Ayerwaddy Region and Mandalay Region. In each location discussions were held with private and public sector actors within the fertilizer sector including importers, distributors, retailers, Land Use Division officials and Extension Service officials of the MOAI as well as farmers.

**Myanmar has an open competitive fertilizer market dependent on imports for over 80% of the total market demand estimated at between 1.2 and 1.4 million product tons per annum.** The market is dominated by imports from China entering mainly through Muse in Shan State and is dominated by urea use.

Domestic manufacture of fertilizer is restricted to urea produced in three operating plants of small annual capacity by modern standards of 500 to 600 mt per day. Annual total production is around 200,000mt urea. This low production is caused by intermittent natural gas supply that creates frequent plant shut downs and affects physical product quality. In a carry-over from previous times when all domestic urea was allocated to Regions and States based on

recommendations from MOAI officials domestic urea is sold to permit holders that include contract farm groups and individuals. **The system of permits is opaque and reportedly is subject to rent seeking by some permit holders who re-sell either their permits or product allocations.**

**Myanmar has no comparative advantage in fertilizer production despite having natural gas as a resource for ammonia production.** Myanmar is geographically located next to the huge Chinese fertilizer manufacturing industry that can compete with fertilizer ocean imports to Myanmar to within 200 miles of Yangon. Also bordering Thailand with a significant manufacturing capacity particularly for NPK compound fertilizer, the sector should continue to be reliant on imported fertilizer.

The private sector fertilizer market is highly competitive within the country and in sourcing imports from China and a handful of other regional countries. There are 270 registered fertilizer importers and distributors of which around 80 are serious agro-input suppliers. The remaining numbers are general traders who opportunistically import fertilizer for resale when occasion arises. The large importers are estimated to account for about 90% of all fertilizer imports. Some of these large companies that have established distribution networks and provide advisory and sales services to dealers but feel threatened by the low cost price competition from the general traders and expressed desires to have them banned under the Fertilizer Law which governs the operation of the industry.

**No barriers to entry should be contemplated.** Myanmar farmers buy on price but also quality and preventing access to lower priced products is detrimental to farmers and **can be more firmly regulated through quality control standards.** With less than 8% of the total market and no services provided the general traders are little more than a pin prick to established agro-input companies. Nowhere in Southeast Asia do fertilizer regulations or Laws provide significant barriers to entry. However, the conditions for granting registration of firms and product import licenses are frequently more thorough than under Myanmar's existing Fertilizer Law.

An example from the Philippines is presented in which the **registration requirements** for importing fertilizer are far more vigorous than those currently used in Myanmar which

**concentrate on what is permissible once an import license is issued rather on the suitability and capability of the applicant to import and market fertilizer.** It is recommended that in Myanmar similar requirements be incorporated into the Fertilizer Law.

**The interface between the fertilizer suppliers and the farmers is the fertilizer dealer.** The number of licensed dealers is now 3,093, almost double the number of three years ago. This reflects both a real growth and a tightening up of licensing unlicensed dealers over the past few years. Most of these dealers own small shops with limited storage capacity and resell fertilizer, pesticides and where appropriate vegetable and other crop seeds. Their financial and fertilizer knowledge capacity is limited. Many are supported by the large fertilizer companies either financially through commissions on sales or with service (agronomic) advice and field demonstrations. A survey of fertilizer dealers and supply chain costs by Yezin Agricultural University in 2013 reported importer and wholesale fertilizer mark-ups of around 8% each and for dealers of around 2-3%. With the small turnover for retailers and the low mark-ups for cash sales their capacity cannot grow. **As the interface with farmers dealers should become marketers and not resellers providing competent advice to farmers on products, product use, value of nutrients and organize demonstrations and field days for farmers.**

Farmers use limited quantities of fertilizer and are not aware of balanced fertilization preferring to use urea in preference to balanced nutrient application rates. Also they reportedly buy on the basis of lowest price per bag and not on price per unit of nutrient. **Farmer and dealer training on fertilizers and plant nutrition will greatly assist in more efficient fertilizer use by farmers.**

Farmers are faced with a situation that fertilizer prices will fluctuate in the domestic market reflecting international market prices. Some protection is offered by the lower prices from China which are generally lower than international market prices. **The low value cost ratios that are common in Myanmar can be tackled in many ways but importantly by (a) improving fertilizer use efficiency, (b) increasing yield productivity through balanced fertilizer applications (inorganic and organic), improved cultivation practices and improved varieties, (c) reducing post-harvest losses, and (d) improved output marketing.**

**Fertilizer quality concerns were widely reported but appear to be falling as fertilizer prices have fallen since the peak in 2008.** Complaints include; (1) mixing of GSSP with GTSP and selling as GTSP, (2) adulteration with inert materials particularly for organic fertilizer, (3) use of second-hand bags refilled with inferior product, (4) bags designed in China to mislead farmers as to the brand of fertilizer and (5) underweight bags. The Land Use Department (LUD) of the MOAI is responsible for administering fertilizer regulations under the direction of the Fertilizer Committee and the MOAI. The Fertilizer Committee banned the import of GSSP to stop the mixing mal-practices; however there are more important concerns.

The LUD is responsible for fertilizer sampling and analysis. Not all imports are sampled and the Government does not recognize international testing agency analysis results. At the Regional and State level the LUD does not have enough staff to examine and sample from fertilizer retailers at the Township level. As a result requests are made for extension officers to do this which is not a priority for them or the Regional Directors of Agriculture. **Retail store examination and sampling is not regular enough and should be completed by the LUD and not extension personnel.**

**LUD suffers also from a lack of analytical capacity.** There only fully operating laboratory is in Yangon. The Mandalay laboratory is operating but awaits new equipment. There is a new State financed laboratory in Karin State on the Thailand border. There is no laboratory at Muse where about 600,000-700,000mt per year cross the border from China. Any samples taken at Muse are sent to Mandalay or sampled in Mandalay. Some products are distributed directly from Muse and are never sampled.

The capacity of most retailers (dealers) to adulterate, remix or re-bag fertilizer is extremely limited. Any of these practices can be undertaken at the wholesale level in large distribution warehouses. **Sampling at the importer and wholesale level at Muse, Yangon and Mandalay wholesale markets complemented by more intensive sampling at the retail level in the high fertilizer use regions is therefore recommended with a new laboratory at Muse as a priority.**

## Fertilizer Quality Recommendations

### 1. Import Level

- a. Improve by accepting international certificates of quality and some manufacturer's certificates of quality
- b. Improve by sampling all import contract shipments
- c. Establish analytical laboratory at Muse.
- d. Consider laboratories in Shagaing, Bago, Magway and Ayeyarwaddy Regions
- e. Bring Mandalay laboratory up to capacity rapidly.
- f. Improve capacity of Yangon laboratory.
- g. Ensure training of laboratory staff.

### 2. Importing Licenses

- a. Improve specifications of business requirements for fertilizer imports.
- b. Increase transparency of Fertilizer Committee approvals by
  - i. Publishing requirements
  - ii. Publishing names of firms licensed as importers
  - iii. Consider adopting Philippine or Thailand guidelines.

### 3. Product Registration

- a. Adopt new regulations for organic fertilizers as suggested in main report
- b. Adopt truth in labelling regulations with specific tolerance limits on nutrient content
- c. Improve registration of bag/label information
  - i. Enforce regulation on use of Myanmar language for product description and use instructions
  - ii. Specify Myanmar or English for branding and enforce registered trade marks.
  - iii. Include traceability codes on bags or labels and company and country of manufacture.

### 4. Distribution Level

- a. Increase surveillance at Yangon and Mandalay wholesale markets.
- b. Increase surveillance of "general trader" operations signaled by applications for import licenses.

## 5. Retail Level

- a. In the fertilizer high use areas which have high numbers of retailers increase the LUD staff so that they can manage dealer store examination and sampling at the Township level.
- b. Ensure retailers are adequately trained in plant nutrition and fertilizer recommendations (extensions service and private sector) and in knowledge of fertilizer products (private sector and LUD) and in fertilizer regulations (LUD).
- c. Develop soil testing and agronomic advice services.

## 6. Farmer Level

- a. Education in crop nutrient requirements
- b. Education in price per unit of nutrients.

## **Objectives of Recommendations**

Myanmar has an open, well developed, unsubsidized, highly competitive private sector import fertilizer supply and distribution system but with low capacity at the retail level to improve services to farmers. No barriers for entry into the market nor considerations of subsidy should be made but the requirements to meet regulatory standards should be tightened. Improved regulations and much stricter enforcement of these regulations will ensure the continuation of a competitive market, increase efficiency in distribution and improved private sector services to retailers and farmers and improved capacity of retailers to provide services to farmers. Comprehensive fertilizer import and use statistics and need to be collected and made public. A competitive market cannot operate efficiently without adequate and accurate information.

The primary objectives of the aforementioned recommendations are:

1. Improved farmer access to high quality fertilizers.
2. Improved farmer access to sound advice on soil nutrient management.
3. Improved fertilizer sector efficiency.

# **Fertilizer Sector Improvement Project**

## **Myanmar Fertilizer Policy Evaluation**

### **Background**

Fertilizer policy includes instruments that governments can use to achieve economic outcomes that reduce fertilizer costs, guarantee product quality, improve availability and improve use by farmers. Government policies and actions are intended to change the behavior of traders and farmers with regard to fertilizer supply and use.

Policies can be considered at both the macro policy level and the micro policy level. Myanmar has an open and competitive, non-subsidized fertilizer market dependent on imports for over 80 percent the total market demand estimated at between 1.2 and 1.4 million product tons per annum. A rapid assessment of the fertilizer sector policy issues was requested by USAID, Myanmar in July 2014 and the International Fertilizer Development Center (IFDC) responded with a Scope of Work (SOW) detailed in Annex 1. The assessment was limited to micro policy issues affecting the operation of fertilizer production and supply and fertilizer use by farmers. Macro policy issues such as exchange rate, financial policies and trade policies were not considered.

The evaluation was conducted during a country assignment from July 29<sup>th</sup> to August 9<sup>th</sup>, 2014. In addition to the IFDC consultant two consultants from the Myanmar Agribusiness Research and Development Consultants (ARDC) conducted the evaluation. ARDC was responsible for arranging all meetings and provided translation services and expert local advice throughout the assignment. All scheduled meetings were made except for one with the Hmwin Urea factory, where the Ministry of Energy declined to respond to the visit request. Additional visits were made to the Ministry of Agriculture and Irrigation (MOAI) Center for Agriculture Research and Training Centre (CARTC) and Yezin Agricultural University in Naw Pyi Taw. A full itinerary is presented in Annex 2 and the 72 persons interviewed in Annex 3.

During the socialist regime (1962-1987) the State controlled the whole economy including agriculture but progressive liberalization since 2002 for the whole economy has led to a relaxation on the import and distribution of agricultural inputs such as fertilizers and pesticides, seeds and agricultural machinery and implements and subsidies and import tariffs on these items were removed to expand the role of private sector. The private sector responded quickly and today there are 270 registered fertilizer importers/distributors and almost 3,100 licensed fertilizer dealers.

The Government of the Union of Myanmar seeks an improvement in the productivity and profitability of agriculture and envisions a high level of agricultural productivity that will ensure equity in household food security, income and employment and sustainable utilization of natural resources.<sup>1</sup> The Ministry of Agriculture and Irrigation (MOAI) is implementing this mission for promoting the country's economic growth by raising farm incomes, employment and household food security through the development of partnerships and promotion of private sector investment for increased agricultural productivity, diversification, commercialization and sustainable use of natural resources.

However, fertilizer use in Myanmar is still low by South East Asian standards and very low by world standards. Together with improved seed, fertilizer use and adoption of modern technology by farmers are key to raising agricultural productivity and this evaluation concentrates on policy improvements that can improve the sector efficiency.

## **Study Method**

This was very much a scoping exercise given the limited time available but multiple visits were made in Yangon, Yangon Region, Bago Region, Ayerwaddy Region and Mandalay Region. In each location discussions were held with private and public sector actors within the fertilizer sector including importers, distributors, retailers, Land Use Division officials and Extension

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<sup>1</sup> AAPI GHG Quarterly Report January-March 2014.

Service officials of the MOAI as well as farmers. Additional meetings were held with staff from Yezin Agricultural University. In total 72 people were interviewed. The first meeting was with several members of the Fertilizer Seed and Pesticide Entrepreneurs Association in Yangon and it was at this meeting that views were expressed by senior representatives of major agro-input companies that price competition for fertilizers by general trading companies that import fertilizer on an opportunistic basis are unfair because the major companies carry high overhead costs associated with employment of numerous agronomic and sales field staff that support agro-input dealers and farmers. There was an implicit suggestion that general traders be denied fertilizer import licenses or that the requirements for company registration and import licenses be made more stringent. It was assumed that the current interest in fertilizer sector policy stemmed from these views.

Another initial meeting in Yangon was with the Deputy Director of the Land Use Division (LUD). The LUD, a branch of the MOAI is responsible for implementing fertilizer regulations in Myanmar and with the Extension Service operates at Regional or State level, district level and Township level. During the regional visits interviews were held with both LUD and Extension personnel as well as the private sector and individual farmers.

## **Domestic Fertilizer Production**

Myanmar has five ammonia urea plants using domestic natural gas as feedstock. Only three are currently operating, one in northern Magway Division, one in southern Rakhine State and one in Yangon Region as shown in Figure 1. Total annual production also shown in Figure 1 has fluctuated between 35,300mt urea and 208,600mt over the past four years. There are several reasons for this fluctuation. These include availability of natural gas, continuity of natural gas supply, age of plants with low energy efficiency and small design capacity. As shown in Table 1 two of the plants were commissioned in 1970 and 1971, one in mid-eighties and two within the last four years. The combined annual urea capacity of the three operating plants is 397,650mt. The maximum production achieved in 2013 was 208,614mt or 52.5 percent of design capacity. Apart from the Sale factory these plants must be carrying a high level of fixed costs (depreciation) per mt of production. Also such plants require continuous operation to achieve

optimum efficiency and final product quality. Government policy to export natural gas to China reduces the natural gas supply to these plants and impairs their operation efficiency.

Myanmar relies on urea imports for over 70 percent of the urea supply with the bulk of this coming from China. China operates 196 urea plants with a combined annual capacity of 88.4 million mt of urea of 111 plants have an annual capacity of more than 500,000mt urea of which 15 have over a million mt per year capacity. China exports more than 2 million mt urea annually at fob prices that are approximately 35 percent below prevailing international price levels. During peak domestic demand seasons an export tax on urea is imposed to discourage exports. In spite of this imposition considerable amounts of informal exports reportedly occur especially across common land borders.

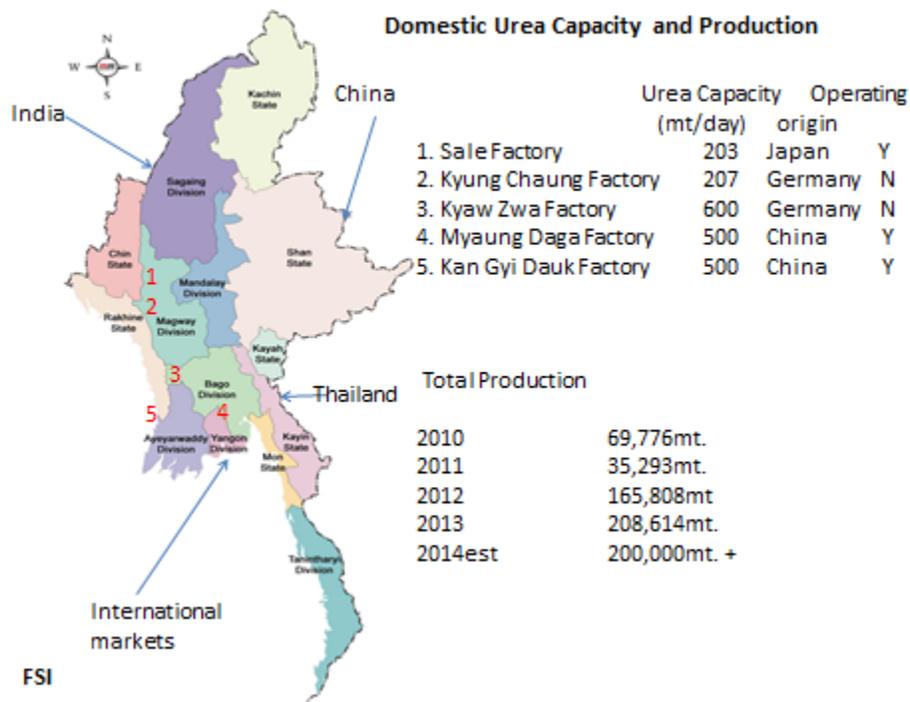
In spite of the considerable transportation costs from the Chinese border to the main markets in Myanmar Chinese urea is competitive with ocean imports through Yangon to within about 200 miles north of Yangon. Without a full analysis of domestic urea production and distribution costs or available natural gas supplies it would appear that Myanmar has no competitive advantage in producing urea when low cost imports are readily available from the huge Chinese industry.

Marketing of domestic urea is based on permit holders and it is not apparent how permits are granted. Reportedly some permit holders re-sell urea allocations to other distributors. Domestic urea finds its way into the hands of private sector distributors and dealers for sale to farmers generally at prices about ten percent below the price of imported urea. In the past allocations were made to Regions, States or districts. To some extent this practice may still continue and some product is also sold directly from the factories to farmer groups. Permit systems are subject to rent seeking and should be abandoned by the Ministry of Energy. All domestic urea production should be available for sale to the private sector at the determined ex-factory price.

## **Import Fertilizer Supply**

Fertilizer is imported in two ways; overland by truck or by sea through Yangon port. The majority of overland imports consisting mainly of urea, triple superphosphate and NPK

compounds from China enter through the border crossing at Muse in Shan State. Products from Thailand are imported through Myadwaey in Kayin State and fertilizer from India through various border crossings in the northwest.



**Figure 1. Domestic Urea Production and Imported Fertilizer Sites for Myanmar**

There are no published data on imports by the Customs Department and total imports are estimated to be almost 900,000mt per annum. Approximately 700,000mt enter the country from China and small quantities from Thailand and India. Approximately 150,000mt are imported through Yangon port. Nearly all product is imported in bags although some container shipments of bulk product are occasionally imported.

Fertilizer supply constraints include; Yangon port vessel size restrictions and port congestion, high inland freight costs, international price volatility, variable quality of Chinese urea and NPK fertilizers, variable natural gas supply for domestic urea production and subsequently poor physical quality of this urea, trade credit availability and the absence of published customs data that creates uncertainty for importers.

Supply advantages for Myanmar include the access to Chinese urea at border prices below international norms, access to a wide range of products on the international market including imports from Thailand, Malaysia, Vietnam, the Arabian Gulf and India, and well established major importers.

## Total Fertilizer Supply and Demand

Official data published by the United Nations Food and Agricultural Organization<sup>2</sup> reported a total nutrient market of 129,585mt of nitrogen (N), phosphate (P<sub>2</sub>O<sub>5</sub>) and potash (K<sub>2</sub>O) for 2011-12 as shown in Table 1. Estimates made by Awba Group<sup>3</sup>, a leading Myanmar fertilizer importer, as shown in Table 1 place the total nutrient market at 337,000mt nutrients or 60 percent higher with a total product market of 790,000mt. However, the leading import company, Shu San Trading Enterprises Co. claimed their own company sales to vary between 400,000 and 600,000mt products.<sup>4</sup>

**Table 1. Estimates of Myanmar Fertilizer Market Demand 2011-2012**

Nutrients/Products	FAOSTAT 2011-12	Awba Group 2011-12	Shu San TE Co.
Nitrogen	84,130	212,000	
Phosphate	32,683	77,000	
Potash	12,772	48,000	
Total Nutrients	129,585	337,000	
Total Products	432,000	790,000	400,000-600,000

Sources: Official and unofficial reports and IFDC estimates.

As it is unlikely that one company accounts for between 50 to 75 percent of the total market careful estimates were made of the 2014 market based on information received from major importers during the assessment discussions. These estimates are presented in Table 2. The total market is estimated at 1.14 million product tons containing approximately 520,000mt of primary nutrients, a fourfold increase over the FAOSTAT for 2011-12. The data reported by the

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<sup>2</sup> FAOSTAT, 2012

<sup>3</sup> Awba 2013

<sup>4</sup> Personal Communication, Shu San Trading Enterprises, 2014.

government to FAO is grossly below the real market. This is probably due in part to the non-reporting of customs data and other deficiencies in market information reporting. Earlier estimates of fertilizer use based on official macro data<sup>5</sup> indicate nutrient applications per cultivated hectare at 4 to 5 kg. These current estimates indicate a much higher use of 23 kg per hectare. Compared to other south and southeast Asian countries this is still very low usage.

The estimated market for 2014 (Table 2) is dominated by urea which accounts for 61 percent of the total product, 87 percent of the total nitrogen and 62 percent of the total nutrients. In part this reflects the dominance of fertilizer use on rice and in part very unbalanced fertilizer applications by farmers. Due to documented evidence of traders mixing granulated single superphosphate (GSSP) containing 18 percent P<sub>2</sub>O<sub>5</sub> with granulated triple superphosphate (GTSP) containing 46 percent P<sub>2</sub>O<sub>5</sub> and selling as GTSP, the registration of GSSP was withdrawn in 2013 and its import and use prohibited.

**Table 2. Estimate 2014 Fertilizer Market in Myanmar**

Product	mt	Percent of Total
Domestic urea	200,000	17.5%
Imported urea	500,000	43.8%
Ammonium sulfate (AS)	1,750	0.15%
Calcium ammonium nitrate (CAN)	740	0.06%
NPK compounds	300,000	26.3%
Diammonium phosphate (DAP)	7,000	0.61%
Granular single superphosphate (GSSP)	— <sup>a</sup>	0%
Granular triple superphosphate (GTSP)	90,000	7.9%
Rock phosphate	7,500	0.7%
Muriate of potash (MOP)	20,000	1.75%
Foliar fertilizers	4,000	0.35%
Gypsum	5,000	0.44%
Organic fertilizers	5,000	0.44%
<b>Total product</b>	<b>1,140,990</b>	<b>100%</b>
Nitrogen	371,070	
Phosphate	91,345	
Potash	57,150	
<b>Total Nutrients</b>	<b>519,565</b>	

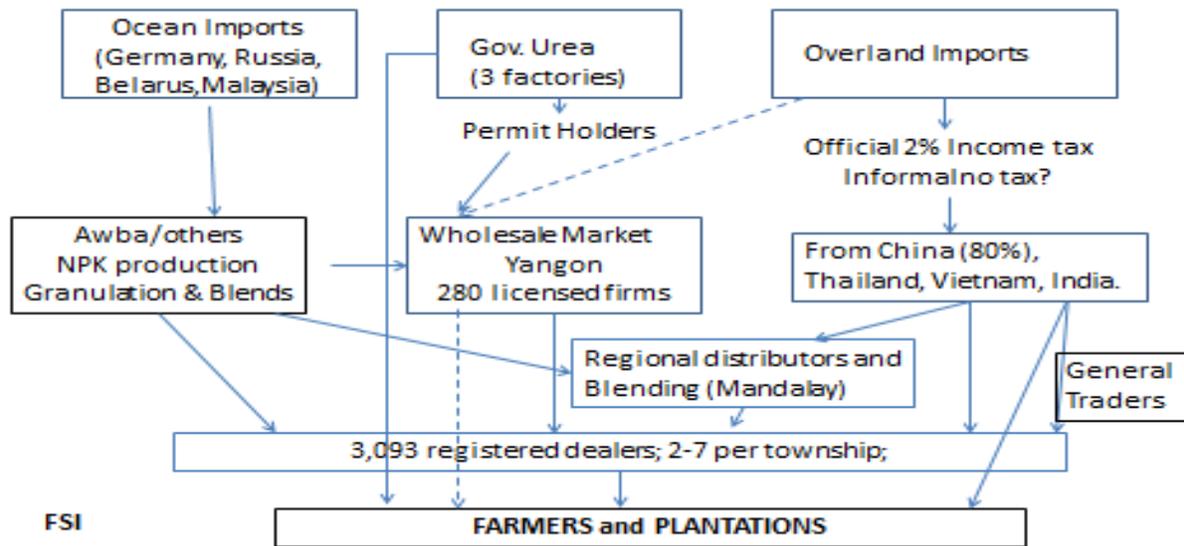
a. Product banned in 2014.

<sup>5</sup> Hnin Yu Lwin et al, op cit.

## Fertilizer Distribution

With the liberalization of markets from 2002 the private sector has taken over the importation, distribution and retailing of fertilizers. There are 270 registered fertilizer importers and manufacturers. Manufacturing is limited to only one company, Awba Group, granulating NPK compound fertilizers based on imported raw materials. Another company, Golden Lion, also used to granulate but ceased in 2008. Several companies blend NPK fertilizers using imported intermediate products. Approximately 80 of the registered importers are serious fertilizer suppliers ranging in annual turnover from 10,000mt to 400,000mt. The remainder is general trading companies importing fertilizer on an opportunistic basis or buying from other importers and distributing from the two main fertilizer wholesale markets located in Yangon and Mandalay. Less than 20 of the main fertilizer companies are also dealing in other agro-inputs, mainly pesticides and vegetable seed. These companies have dedicated agronomic and sales field staff operating in the main market areas supporting dealers and farmers and a few have their own retail stores.

Distribution operations are essentially partitioned between imports entering through Yangon port and imports entering from China through Muse from where product is distributed either directly to northern area districts or to Mandalay. Most transport is by truck and transport costs are relatively high. Some use of rail transport is made to move product from Muse to Yangon and river transport is low cost but slow from Yangon to the lower delta region. Figure 2 illustrates a schematic of the distribution networks.



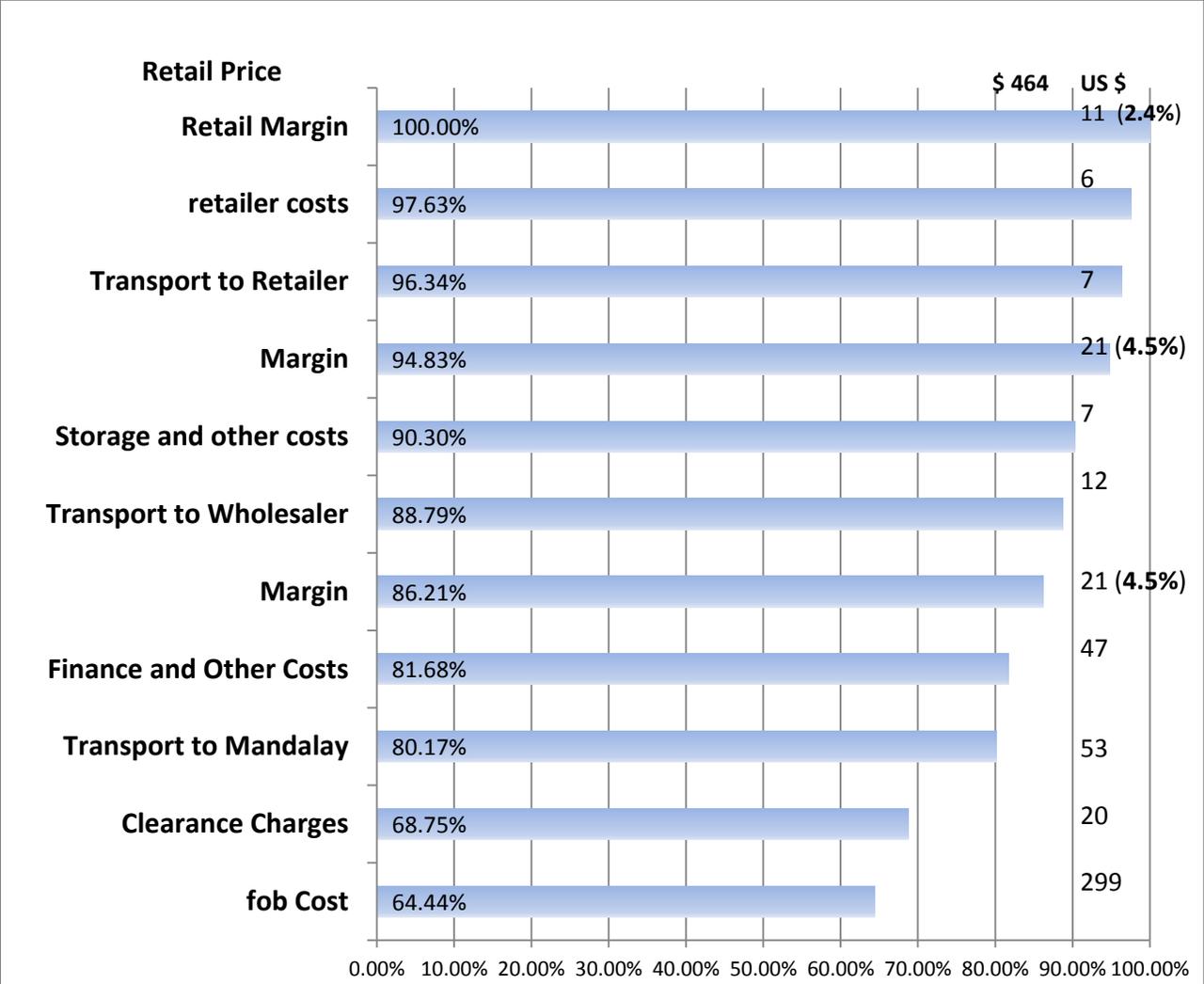
**Figure 2. Schematic of Myanmar Fertilizer Distribution Channels**

### The Fertilizer Value Chain

A recent survey<sup>6</sup> provided an average value chain for urea imported from China, transported to Mandalay and distributed to a dealer in the Mandalay region. This is presented in Figure 3. Total transport costs amount to \$60/mt or 13 percent of the retail price. More importantly are the margins or markups for importer, distributor and retailer. The importer and distributor each show a 4.5 percent markup which if combined by one importer/distributor amounts to 9 percent total markup. By comparison the retailer markup is only 2.4 percent. Given that the turnover for importers/distributors is vastly more than for a retail dealer this is regarded as excessive and illustrates why opportunistic general traders are attracted to fertilizer importation.

Multiple handling and storage of fertilizer imports cannot be avoided because stocks have to be built in advance to meet peak seasonal demand. However, economies of scale for the larger importer/distributors are available. For example one firm reduces the transport cost to Mandalay down to \$20/mt and rail freight (available because of the large tonnage shipped) to Yangon is achieved for less than the road freight from Muse to Mandalay.

<sup>6</sup> Et al op cit



**Figure 3. Chinese Urea Value Chain to Mandalay Region**

**Fertilizer Dealers**

The number of licensed fertilizer dealers (retailers) has doubled in the last four years from 1,600 to 3,093. The increase reflects a tightening up by the authorities on the operation of unlicensed dealers and an absolute increase in the number of dealers. Anyone selling more than 5 mt fertilizer per year has to be licensed. Most dealers are situated in Townships frequently with several in each Township. The distribution of dealers and farmers by Region and State is shown in Table 3. Only Chin State is unrepresented by dealers and the average number of farm households served by a fertilizer dealer is 1,271. The largest numbers of dealers are in Ayeyarwaddy, Mandalay, Bago regions and Shan State. Rakhine State and Sagaing Region are the most under-served areas.

Licensing requirements for dealers are not stringent. New applicants are required to attend a one day meeting organized by the Land Use Department (LUD) and the MOAI. Dealers can be classified into two groups; those supported by or linked to major importer/distributors and independent farm stores. The former group tends to be larger and more professional. The latter group is characterized by small stores with limited storage space, no formal training and with poor marketing capabilities. Most dealers are selling pesticides and vegetable seeds in addition to fertilizer. Fertilizer is sold in 50 kg bags and some small packs sold for home use. Because of the

**Table 3. Geographical Distribution of Fertilizer Dealers and Farm Households**

State/Region	Number of Dealers	Number of Farms Using Fertilizer	Number of Farms Using Fertilizer per Dealer
Katchin State	68	54,689	804
Kayah State	20	27,064	1,353
Kayin State	61	34,500	566
Chin State	0	1,350	0
Sagaing Region	231	579,131	2,507
Tanintharyi Region	36	61,730	1,715
Bago Region	421	475,838	1,130
East	233	210,640	904
West	188	265,198	1,411
Magway Region	358	525,221	1,467
Mandalay Region	474	597,009	1,260
Mandalay Region	428	539,071	1,260
NayPyiTaw	46	57,938	1,260
Mon State	206	144,554	702
Rakhine State	70	189,919	2,713
Yangon Region	178	195,688	1,099
Shan State	344	639,234	1,858
North	140	201,856	1,442
South	184	196,818	1,070
East	20	38,704	1,935
Ayeyarwaddy Region	634	606,299	956
Total	3,093	3,930,370	1,271

Seasonal demand pattern for agro-inputs and small annual turn-over it is common to see dealers selling non-agricultural products to maintain cash flow. Most re-sell from wholesale distributors without exclusive ties to major companies and just respond to farmer product requests. At least one of the major companies provide dealers with consignment stock and a commission on sales

but most have to purchase stock on a cash basis only. Sales to farmers are essentially cash only and the few credit sales incur 2 to 3 percent per month interest charges. Most dealers interviewed expressed the need for training on fertilizer products and use and recognized their need for improved credit access and the implied business training. The major fertilizer companies provide not only sales and agronomic advice but also organize field demonstrations and field days for farmers.

As presented earlier in a recent survey<sup>7</sup> by the Department of Agricultural Economics, Yezin Agricultural University, the average fertilizer retail markup was only 2 to 3 percent. These levels were confirmed in discussions with dealers during this assessment. Normally one would expect retail markups of 5 percent or more.

Fertilizer dealers are the interface between fertilizer suppliers and farmers. In Myanmar most are unable to operate as change agents; as true marketing agents to their farmer customers, identifying needs and striving to satisfy these. Because of the limited markups, intense competition at the Township level, sub-standard facilities and storage, expensive or inaccessible credit and lack of knowledge they are unable to break out of their re-seller role and provide true educational added-value service to farmers.

### **Farm Use of Fertilizer**

Although fertilizer use in total and per cultivated hectare is higher than previously reported it is still low and unbalanced at the macro level and at the individual farm and crop level compared to regional countries. Most farmers buy on the basis of price and not on the cost per kg of nutrient.

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<sup>7</sup> Et al. op cit

**Table 4. Summary of Crop Production Costs for Pan Ta Naw Township, Ayeyarwaddy Region**

Crop Year 2013-2014	Pan Ta Naw Township							
	Wet Season Rice	Dry Season Rice	Maize	Sunflower	Green Gram	Black Gram	Chickpea	Ground-nut
Baskets <sup>a</sup> per acre yield	75	105	80	28	12	14		52
Gross output (Ks)	300,000	367,500	400,000	224,000	252,000	224,000	NA	312,000
Total direct costs (Ks)	182,350	224,150	191,200	114,000	103,500	106,800	135,500	179,450
Gross margin	117,650	143,350	208,800	110,000	148,500	117,200	NA	132,550
Gross margin (%)	39.22%	39.01%	52.20%	49.11%	58.93%	52.32%		42.48%
Fertilizer cost as % of total costs	21.25%	8.92%	17.00%	19.74%	2.90%	5.62%	11.81%	16.02%
Other inputs as % total costs	10.34%	25.61%	36.19%	10.53%	24.64%	18.45%	27.31%	24.07%
Hired labor and contractors as % of total costs	39.07%	50.30%	38.18%	43.42%	38.16%	42.70%	55.35%	22.57%
Family labor as % of total costs	29.34%	15.17%	8.63%	15.35%	23.67%	22.94%	2.58%	14.49%

a. One basket is equivalent to approximately 25 kg.

Source: MOAI Department of Exxtension, Pan Ta Naw. Ks 971 = U.S. \$1.

Fertilizer costs account typically account for less than 20 percent of crop production costs as illustrated in Table 4. Seed costs are low, less than 5 percent of total costs for rice production. With low fertilizer use and use of unimproved seed, yields are low. A recent household survey in the Mandalay Region illustrated the low and imbalanced use of fertilizer by farmers with slightly higher application rates by larger farmers<sup>8</sup> as shown in Table 5.

**Table 5. Total Fertilizer Use per Farm in Mandalay Region, 2013**

Farm Size (ha)	Urea N	GTSP P <sub>2</sub> O <sub>5</sub>	MOP K <sub>2</sub> O	Compound NPK (15-15-15)		
				N	P <sub>2</sub> O <sub>5</sub>	K <sub>2</sub> O
	(kg nutrients/ha)					
0.2 - 2.02	55.8	6.2	5.5	10.7	10.7	10.7
2.14 - 4.05	55.5	7.5	7.4	9.8	9.8	9.8
4.17 - 6.07	71	5.9	0.5	10.5	10.5	10.5
6.48 - 17	68	12	12	9.6	9.6	9.6

Source: Household Survey, 2013, Department of Agricultural Economics, Yezin Agricultural University adapted by IFDC with an assumed compound analysis.

The MOAI Department of Extension provides generalized fertilizer recommendations by crop and this leads to the similarity in application rates tempered by cost considerations especially on

<sup>8</sup> Department of Agricultural Economics, Yezin Agricultural University, Household Survey, 2013.

smaller farms. Further constraints faced by farmers include a lack of extension support due more to inadequate funding than commitment by extension officers, misleading branding of fertilizers, fertilizer labels in foreign languages and the presence of “fake” fertilizer in the market.

Farmers in Myanmar make extensive use of organic manures and to a lesser extent composts. With the number of buffalos decreasing the amount and use of manure is also likely to decrease.

Increased and more efficient use of fertilizer combined with improved seed will raise yield levels and improved output marketing including improved rice milling efficiency will raise returns per output unit. Rural labor costs reportedly increased by about 50 percent in 2014 from Ks 2,000 per hour to Ks 3,000 per hour and now represent the most significant crop production cost. The combined cost of hired and family labor varies between 37 and 65 percent of total production costs. As a result there is an increasing trend towards mechanization particularly on the medium to large farms. Farmer education on best management practices and introduction of new technology for both seed and fertilizer and cultivation practices can bring about change. However, availability and access to crop production credit remains a constraint. Government credit programs for wet season rice production provide up to Ks 100,000 per acre, about half of the total production costs and increasing input costs will require a combination of improved access to credit and increased productivity and profit incentives. A holistic approach across the value chains including input supply, output marketing, affordable credit access, farmer and dealer education and adoption of improved technology is required to bring about positive improvements for farmers, economic development and food security. Initial emphasis on the more progressive farmers in the major agricultural regions will lead to faster improvements.

## **Fertilizer Legislation**

The fertilizer sector is regulated by the Fertilizer Law which was enacted on October 1, 2002, for the management of fertilizer utilization, production and distribution. The full original Law is presented in Annex 5. The Law established a Fertilizer Committee chaired by the Deputy Minister of the MOAI and with the Director General of MOAI as secretary. Committee members also include the heads of relevant government departments and organizations and experts. The

committee is responsible for product registration approval, registration of fertilizer business licenses and product import licenses, approval of brand and bag/label specifications and sampling and analysis of fertilizer imports and fertilizer in retail stores. A fertilizer Technical Committee was also established comprising senior staff from the MOAI, the Department of Agricultural Research (DAR), the Department of Agricultural Extension (DAE) and the Land Use Division (LUD). This committee is essentially responsible for recommending product registrations.

The objectives of the Fertilizer Law are as follows:

1. Supporting the development of the agriculture sector
2. To enable supervision and control of the fertilizer business systematically
3. To enable growers to use quality fertilizer in conformity with product specifications
4. To support the conservation of soil and the environment
5. To enable educative and research works for fertilizer
6. To cooperate with government departments and organizations, international organizations and local and foreign non-governmental organizations regarding fertilizer business.

The original Law provided for the Myanmar Agricultural Service (now the Department of Extension) to implement the regulations concerning fertilizer imports and sales including inspections and sampling and analysis of products. These responsibilities today are now with the LUD.

Under the Law there are three main requirements; registration of fertilizer products, registration of businesses importing, manufacturing or distributing fertilizer, and licensing of businesses mixing, packaging or selling fertilizer.

### **Product Registration**

Recommendations from the fertilizer technical committee appear to be straight forward and allow for small tolerances in specified nutrient content. However the specifications for organic fertilizers are not equivalent to international norms. The technical requirements for organic fertilizer are that the products must contain a minimum of 3 percent of each of the major nutrients (N, P<sub>2</sub>O<sub>5</sub>, and K<sub>2</sub>O) and must contain a minimum of 30 percent organic matter. This

definition leaves room for all kinds of adulteration such as adding chemical fertilizers to raise the nutrient content and adding inert material to make up volume. Additionally there are no restrictions implied for toxic material content. Organic and Natural Organic Fertilizer definitions are presented in Annex 2 and it is recommended that the Myanmar organic fertilizer definitions be amended. Allegations of adulterated organic fertilizer were common during the scoping evaluation and a more stringent product definition is required.

Constraints to product registration included delays in approval of new registrations and also with new applications for registration to import due to the infrequent meetings of the committees. Also complaints were made concerning the need to register each package size for every product. While this may be inconvenient it is both the product and package, including brand, label and instructions for use, that are registered and such requirements should continue.

### **Business Registration**

The application for business registration for fertilizer importing, manufacturing or distribution is simple and straightforward but the approval process is opaque. Also because the Fertilizer Committee meets infrequently new approvals may not be timely. The application forms for registration were not sighted but the fact that so many general trading businesses are registered implies that there are no specific requirements for registration related to fertilizer business. The call by the major companies seriously involved in fertilizer business to restrict the registration of general traders cannot be supported just on the grounds of price competition. The reforms made by the government to create a competitive market should not be undermined. However, determination of qualifications for registration could be tightened including, for example, warehousing assets and distribution arrangements for fertilizer products. Applications for registration and approval of registrations should be released by the government to ensure open decision making and provide market information. Removal of registration could be considered for businesses not being active in fertilizer import or distribution over a period of two years.

An example of the registration application form used by the Fertilizer and Pesticides Association in the Philippines is presented in Annex 3. Regulation in the Philippines as in most Asian countries mainly takes the form of licensing and product registration. Once a fertilizer importer secures an importer's license and registers the product, including trademark and specifications, importation can

proceed without need for a permit. (There are of course sundry papers needed such as certificate of value added tax exemption if one wants the VAT waived; certificate of origin if one wants to waive import duties from free trade partners, etc.)

Requirements for licensing and registration as detailed in the Philippine Citizen's Charter (a mandatory Primer from FPA under the national Anti-Red Tape Law.) are stringent as shown in Table 6. A similar set of conditions in Myanmar would still provide an open, competitive market but also ensure that fertilizer business operators are committed to serving farmers.

### **Import Applications**

Once a business is registered the fertilizer importation process is efficient taking only two days to obtain approval for registered products. A registered general trader wishing to import urea can easily do so as profit opportunities arise. A more thorough screening of importers could alleviate this sort of activity.

### **Fertilizer Dealer Applications**

A 3 year license for selling fertilizer is fairly straight forward to obtain as seen in Exhibit 1.

**Table 6. Philippine Fertilizer Business Registration Requirements**

**Requirements for Licensing of Fertilizer Handlers Philippines Fertilizer and Pesticide Authority**

Data Required	Importer End User	Importer	Distributor	Area Distributor	Bulk Handler	Exporter	Indentor	Repacker	Manufacturer Bulk Blender	Dealer	Dealer Repacker	Mango Contractor
1. Duly accomplished and notarized application form ✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2. For Corporation, SEC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cooperative – CDA	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Single – DTI registration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
3. Income Tax Return and Financial Statement	✓	✓	✓	✓	✓	✓	✓	✓	✓			
4. Product registration of all fertilizer grades to be manufactured/sold/exported/repacked	✓	✓	✓	✓		✓		a	✓	a	a	
5. Distributorship agreement/certificate from mother company/authority to repack	✓	✓	✓	✓	✓			✓				
6. Registration of fertilizer warehouse	✓	✓	✓	✓	b				✓	✓		
7. Filing fee (new)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
8. License fee (new/renewal)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
9. List of fertilizer products to be manufactured/repacked/sold		b	✓	✓	b	b	✓	✓	✓	✓	✓	
10. Inspection report and recommendation from FPA-PDO II / PDO IV, deputized provincial field officers of facilities and/or warehouse			✓	✓	✓			✓	✓	✓	✓	✓
11. List of bulk handling equipment owned/leased and port operation					✓							
12. Pre-licensing inspection report of plant site, laboratory facilities and manpower									✓			
13. Certificate from FPA licensed manufacturer/ processor as to its source and certified analysis of fertilizer products.						✓						
14. Copy of contract with manufacturer. For foreign suppliers, copy of BOI (Phil) and may set-up a Branch office or appoint local representative to handle their business on their behalf							✓					
15. Mining permit from Bureau of Mines and Geo-Sciences									✓			
16. Environmental compliance certificate (ECC) from DENR									✓			
17. Weighing scale at the repacking site at the point of sale								✓		✓	✓	
18. Certificate of membership for agro-dealer/mango contractor association										✓	✓	✓
19. Certificate of accredited safety dispenser training										✓		
20. Mango contractors Training	c	c										✓
21. Duration (year)	1	1	1	1	1	1	1	1	1	3	3	1

a. All fertilizers sold or repacked should be registered by the distributors, importers and manufacturers.

b. If applicable

c. For restricted fertilizer importers (Potassium nitrate and other nitrates), disposition should only be to licensed mango contractors.

Source: FPA Citizen's Charter.

**Exhibit 1. Myanmar Fertilizer Sellers Application Form**

**Republic of the Union of Myanmar**

**Ministry of Agriculture and Irrigation**

**Department of Agriculture**

**Application for Fertilizer Distribution and Marketing License**

Form (15)

Date: \_\_\_\_\_

To State/Regional Officer, Department of Agriculture, Ayeyarwaddy Region, Patheingyi

Subject: Application for Fertilizer distribution and marketing license

Applying to issue fertilizer distribution and marketing license

1. Applicant

(a) Name \_\_\_\_\_

(b) Name of shop \_\_\_\_\_

2. Identity Card No/ Passport No

3. Academic qualification

(a) Qualification \_\_\_\_\_

(b) Experience \_\_\_\_\_

4. Permanent Address \_\_\_\_\_

5. Address of building place where fertilizer will be distributed and marketing:

\_\_\_\_\_

(a) Type of building (Roof, Wall, Floor) \_\_\_\_\_

(b) Area \_\_\_\_\_

6. List of fertilizer on sale \_\_\_\_\_

No.	Name	Quality Standard	Type	Packaging Size	Net Weight
1.					
2.					
3.					

“Attachment”

Original Slip of license fees paid

Recommended

Signature of Applicant

The business inspection is carried out either by the district MOAI extension officer or the MOAI LUD officer and recommendations made by these officers or the district MOAI manager. The requirements are not onerous and once the application is approved a new dealer has to undertake a one day training provided by either the extension service or the LUD. For a pesticide license more comprehensive two day training is required.

Once the license is approved then the regulations guiding the dealers are not very specific as shown in Annex 4. In theory fertilizer retail shops should be inspected three times a year and product samples taken for analysis. A few dealers visited reported that this occurred but the majority reported only one inspection per year or less. Nearly all dealers interviewed expressed a requirement for more training on fertilizer products and their efficient use and for more training of farmers. The larger dealers reported that they were getting technical support from the larger fertilizer companies.

### **Fertilizer Quality**

There were frequent reports made concerning fertilizer quality. Complaints included the mixing of GTSP with GSSP, the use of improperly labeled bags especially Chinese imports without Myanmar language, the use of bags designed to imitate other brands (reportedly arising from small Chinese manufacturers), the re-use of branded bags such as the AMMO brand, adulteration of fertilizer with inert materials, especially for organic fertilizers and also for underweight bags.

The LUD is responsible for monitoring and regulating fertilizer quality through site inspections, product sampling and analysis. In 2013 only 10 cases of stop sales were ordered as a result of below specified nutrient content in addition to the recording of GTSP/GSSP blending. This may be more a result of the lack of sampling at the import, wholesale and retail levels than a measure of the frequency of product complaints. Farmer complaints on fertilizer product quality are difficult to verify because complaints are made after the fact when poor crop response is evident. At this stage poor crop response may be due to a myriad of causes other than poor quality fertilizer and the products may no longer be available for analysis.

When evidence reveals adulteration, as in the case with phosphate fertilizer, the Fertilizer Committee banned the importation of GSSP which implied that the adulteration was occurring in

the country. This may or may not have been true but banning the use of single superphosphate with its beneficial sulfur content could be detrimental to efficient balanced nutrient use. Such action reflects on the ability of the LUD to fulfill its duties because of a staffing shortage and analytical capacity.

The LUD only has sufficient field staff to operate at the district level but most dealers are located at the Township level. As a consequence the LUD has to call on the extension service to fulfill many dealer visits and product sampling. These activities are secondary to the extension service activities and are not given priority. Additionally, this practice utilizes extension agents to enforce regulatory aspects of the Fertilizer Law. The Deputy Director of the LUD reported that he needed a further 300 staff so that the Division could operate down to the Township level. While supporting the need for more staff the increases should be limited to those locations with the most fertilizer dealers and fertilizer use.

The dealer shops inspected were all on the small side with very limited storage and no indication that there was capacity for re-mixing (blending), adulterating or re-bagging fertilizer and any below standard specification fertilizer will almost certainly have originated from earlier stages of the supply chain, either importation or distribution.

The routine sampling and analysis of fertilizer prior to importation or at importation is standard practice world-wide. This is a protection for the buyer and seller. Several international firms such as SGS provide these services but the Myanmar Union Government does not recognize these services. This is a simple and straight forward change that can be implemented which would provide protection against sub-standard imports.

In theory all imports are supposed to be sampled and analyzed. This is not occurring. Products imported from China through Muse border crossing have to be analyzed in Mandalay at the LUD laboratory which is still undergoing capacity improvements. Even when these are completed the sampling and analyses can be circumvented because imported products are reportedly re-sold at the border and distributed directly to farmer groups or retailers. With annual imports around 700,000mt through Muse it is imperative that a laboratory be established there to effectively control quality standards at the border.

Another laboratory is located in Yangon and this can effectively analyze samples from imports through Yangon port. Yet another laboratory was established by the Kachin State Government at the Thai border.

If imports are sampled and analyzed at the border this is the first line of defense. That leaves the distribution channels and companies operating at the wholesale level especially in the Yangon and Mandalay wholesale markets. These firms have warehouses and space in which mal-practices can occur and in the assessment team's view are the most likely sites for re-mixing, adulteration and re-bagging to occur. It is recommended that in expanding the LUD staffing and laboratories a greater effort should be placed on regulating the wholesale firms.

The other areas of mal-practice occur at the product registration level by the Fertilizer Committee. Products that infringe trade mark and brand names, that package in misleading look-alike bags and fail to comply with the Fertilizer Law requirement for labeling and instructions to be in Myanmar language are being approved. More stringent controls are required.

## **Findings and Recommendations**

Myanmar has an open, well developed, highly competitive private sector import fertilizer supply and distribution system to meet an annual market demand currently at 1.2 to 1.4 million product tons but with low capacity at the retail level to improve services to farmers. No barriers for entry into the market should be made but the requirements to meet regulatory standards should be tightened. Improved regulations and much stricter enforcement of these regulations will ensure the continuation of a competitive market, increase efficiency in distribution and improve private sector services to retailers and farmers and improved capacity of retailers to provide services and not just be re-sellers. Farmer and dealer training are seen as essentials to supplement the efforts of the larger fertilizer companies.

Myanmar has no comparative advantage in fertilizer production despite having natural gas as a resource for ammonia production.

Fertilizer quality concerns were widely reported but appear to be falling as fertilizer prices have fallen. However, sampling at the importer and wholesale level at Muse, Yangon and Mandalay wholesale markets complemented by more intensive sampling at the retail level in the high fertilizer use regions is recommended with a new laboratory at Muse as a priority and acceptance of international analytical agency reports on imported fertilizer.

As the interface with farmers dealers should become marketers and not just resellers providing competent advice to farmers on products, product use, value of nutrients and be able to organize demonstrations and field days for farmers.

Farmer and dealer training on fertilizers and plant nutrition will greatly assist in more efficient fertilizer use by farmers.

The low crop value cost ratios that are common in Myanmar can be tackled in many ways but importantly by (a) improving fertilizer use efficiency, (b) increasing yield productivity through balanced fertilizer applications (inorganic and organic), improved cultural practices, and improved varieties, (c) reducing post-harvest losses, and (d) improved output marketing.

One significant improvement that can be made by the government is for the benefit of the whole fertilizer sector is to improve the collection of fertilizer import and use statistics and make this information publically available. A competitive market cannot operate efficiently without adequate and accurate information.

## **Annex 1. Scope of Work**

### **Fertilizer Sector Improvement (FSI) Myanmar**



### **Scope of Work**

### **Fertilizer Sector Policy Study**

**July-August 2014**

**Name: Ian Gregory**

**Duration: July 25 – August 9, 2014 (Total 11 work days plus 3 days for travel)**

**Reports to:** FSI Chief of Party (CoP) or his designee.

### **Background**

The USAID Mission in Yangon, Myanmar secured funding through a modification of the award number AID-OAA-10-11—00003-00 (IFDC Grant) for the Fertilizer Sector Improvement Project in April 2014. This project is essentially designed to introduce fertilizer deep placement technology into Myanmar for improved rice and vegetable production and profitability over a three year period. Trials have been established on rice in three regions for the 2014 monsoon season, namely Ayeyarwaddy, Bago and Yangon Regions. A fertilizer sector assessment is planned for October 2014. However, the USAID mission has requested an immediate fertilizer sector policy study and report following a request from the Presidential Advisor.

The Myanmar fertilizer market is very small by Asian standards at an estimated 800,000 mt of inorganic fertilizers annually comprised of mainly urea and a range of NPK compound and blended fertilizers. All fertilizer is imported, except for about 80,000 mt urea which are produced by 3 of 5 state owned urea plants operating on restricted supplies of natural gas. Most imports enter the country by road from China.

There are 280 registered private sector fertilizer importers/manufacturers and 1600 licensed private sector fertilizer retailers. However, it is reported that there is a large quantity of informal trade especially from China and also many reports of “fake” fertilizer. It is thought that official sampling and analysis of fertilizer only occurs with official fertilizer imports although there is provision in the fertilizer law to sample product at all levels in the manufacture and distribution chain.

The sector is regulated through the Fertilizer Law (The State Peace and Development Council Law No. 7/2002). This is fairly comprehensive but suffers from many deficiencies that need to be addressed including poor enforcement of quality standards and labeling.

Fertilizer use by farmers is insufficient for optimum yields and farmers generally have little knowledge of agricultural best practices and plant nutrition requirements.

### **Purpose**

The purpose of this study is to review the current policies impacting on the fertilizer sector in Myanmar and make recommendations that will be beneficial to farmers, private sector stakeholders and government regulation of the industry and result in improved fertilizer market performance.

### **Specific Tasks for the Consultant**

1. Quantify the supply side (products, quantities, costs and prices) for both domestic and imports and by region.
2. Quantify and review the demand side by major crop by region and by season including value cost ratios, accessibility and affordability.
3. Review the Fertilizer Law with emphasis on registration/licensing, quality control and labeling together with actual enforcement of regulations and the principle of “truth in labeling”.
4. Identify and quantify to the extent possible the amount of informal trade and deficiencies in official fertilizer trade and use statistics.
5. Identify financial constraints for importers, distributors, retailers and farmers.

6. Identify knowledge constraints in the market chain and for farmers and recommend actions to alleviate deficiencies.

**Method:** The consultant will interview a sample of stakeholders in Yangon, Bago and Mandalay after reviewing relevant reports and the Fertilizer Law. Stakeholders to include:

- The Fertilizer and Seed Association of Myanmar
- Government officials of the Myanmar Agricultural Service in Yangon and regions.
- One operating government urea factory
- Three fertilizer importers in Yangon and 3 distributors
- Two fertilizer importers in Mandalay and one distributor
- Two retailers and two farmers in Yangon Bago, Mandalay and Ayeyarwaddy Regions
- 

**Timing:** Field visits will be made between July 26 and August 7, 2014.

**Output:** Recommendations on policy improvements will be made through:

- a. A verbal presentation to USAID on August 8, 2014
- b. A draft report submitted on August 9, 2014
- c. A final report submitted by August 31<sup>st</sup>, 2014.

## Annex 2. Tentative Itinerary for the Visit of Fertilizer Policy in Myanmar

<b>28.7.2014 (Monday)</b>	
<i>09:00 AM</i>	Discussion at Fertilizer Association
<i>01:00 PM</i>	Discussion at Myanma Awaba Co. (TBC)
<i>15:00 PM</i>	Discussion at Diamond Star Co.Ltd
<b>29.7.2014 (Tuesday)</b>	
<i>09:30 AM</i>	Discussion at Golden Lion Co. Ltd
<i>13:00 AM</i>	Discussion at Land Use Division, Gyogone, Yangon
<b>30.7.2014 (Wednesday)</b>	
<i>09:30 AM</i>	Discussion at Golden Gey Co.Ltd (TBC)
<i>13:30 PM</i>	Discussion at Taung Paw Thar Yeshin Co. Ltd
<i>15:00 PM</i>	Discussion at Shu San Industry Co.Ltd
<b>31.7.2014 (Thursday)</b>	
<i>09:30 AM</i>	Visit Department of Agriculture, Thanlyin township
<i>10:00 AM</i>	Visit two fertilizer retail shops at Thanlyin township
<i>11:00 AM</i>	Visit two farmers at Thanlyin township
<i>13:00 PM</i>	Visit Department of Agriculture, Kyauktan township
<i>13:30 PM</i>	Visit two fertilizer retail shops at Kyauktan township
<i>14:30 PM</i>	Visit two farmers at Kyauktan township
<b>1.8.2014 (Friday)</b>	
<i>10:00 AM</i>	Visit Department of Agriculture, Bago township
<i>10:30 AM</i>	Visit two fertilizer retail shops at Bago township
<i>11:30 AM</i>	Visit two farmers at Bago township
<i>13:30 PM</i>	Visit two fertilizer retail shops at Phayargyi
<i>14:30 PM</i>	Visit two farmers at Phayargyi
<b>2.8.2014 (Saturday)</b>	
<i>10:00 AM</i>	Visit Department of Agriculture, Pantanaw township

<i>10:30 AM</i>	Visit two fertilizer retail shops at Pantanaw township
<i>13:00 AM</i>	Visit three farmers at Pantanaw township
<b>3.8.2014 (Sunday)</b>	
<i>Morning</i>	Leave for Mandalay
<b>4.8.2014 (Monday)</b>	
<i>09:00 AM</i>	Discuss with two Fertilizer Importers in Mandalay
<i>11:00 AM</i>	Discuss at Land Use Division, Mandalay
<i>13:00 PM</i>	Visit two fertilizer retail shops at Patheingyi township
<i>15:00 PM</i>	Visit two farmers at Patheingyi township
<b>5.8.2014 (Tuesday)</b>	
<i>Morning</i>	Travel back to NawpyiTaw
<i>10.30AM</i>	Yezin Agricultural University
<i>2.00PM</i>	Travel Back to Yangon
<b>6.8.2014 Wednesday</b>	Prepare Draft Report
<b>7.8.2014 (Thursday)</b>	Present Drat Report to USAID

### Annex 3. People Met for Fertilizer Policy in Myanmar

<b>Date</b>	<b>Person Met</b>	<b>Company/Association</b>	<b>Meeting Township</b>
28.7.2014	U Thadoe Hein	President of the Myanmar Fertilizer, Seed and Pesticide Entrepreneurs Association and Managing Director of Myanma Awaba Group	Yangon 1
	U Thawta Htun	Joint Secretary of the Myanmar Fertilizer, Seed and Pesticide Entrepreneurs Association and Chief Executive Officer of Marlarmyaing Company Ltd.	Yangon 2
	U Kyaw Tin Myint	Vice Chairman of the Myanmar Fertilizer, Seed and Pesticide Entrepreneurs Association and Director of Golden Land East Asia Development Limited	Yangon 3
	U Ye Mun Htun	General Manager, Marlarmyaing Company Ltd	Yangon 4
	Daw Aye Sandar Lwin	Director, Import Division, Diamond Star Co.Ltd	Yangon 5
	Daw Htay Htay Yee	Deputy General Manager, Agribusiness Division, Diamond Star Co.Ltd	Yangon 6
	U Aung Min Htut	Director, Shwe Arkar Moe Co.Ltd	Yangon 7
29.7.2014	U Sai Aung Tun	Managing Director, Golden Lion Group	Yangon 8
	U Sai Aung Moe	Business Development Director, Golden Lion Agricultural Resources Co.Ltd	Yangon 9
	U Aung Hein	Executive Director, Golden Lion Agricultural Resources Co.Ltd	Yangon 10
	U Khin Maung Myint	Deputy Director, Land Use Division, Department of Agriculture, Ministry of Agriculture and Irrigation	Yangon 11
	Daw Tin Htay Win	Assistant Director, Land Use Division, Department of Agriculture, Ministry of Agriculture and Irrigation	Yangon 12
30.7.2014	Prof. Myint Thaug	Golden Key Co., Ltd	Yangon13
	U Khaing Min Oo (or) Mr. Peter Khaing	General Manager, Golden Key Co., Ltd	Yangon 14
	Daw Chaw Su Wai	Purchasing of Agro-Chemical Department, Golden Key Co., Ltd	Yangon 15
	Daw Nan Phyu Phyu Than	Golden Key Co., Ltd	Yangon 16
	U Mya Win	Deputy general Manager, Agro Chemical Department, Taung Paw Tharr Yee Shin Co., Ltd	Yangon 17

<b>Date</b>	<b>Person Met</b>	<b>Company/Association</b>	<b>Meeting Township</b>
	U Zaw Win Myint	Manager, Agro Chemical Department, Taung Paw Tharr Yee Shin Co., Ltd	Yangon 18
	Daw Su Wai San	Director, Shu San Trading Enterprise Co., Ltd	Yangon 19
	Daw Ai Khine	Su San Trading Enterprise Co., Ltd	Yangon 20
31.7.2014	U Htun Myint	District Officer, Yangon South District, Department of Agriculture (DoA)	Thanlyin 21
	Daw Win Win Moe	Land Use Officer (Yangon Region)	Thanlyin 22
	Daw Zin Maw Aung	Land Use Officer (Yangon South District)	Thanlyin 23
	U Saw Aung	Township Officer, Thanlyin township, DoA	Thanlyin 24
	Daw Khin Swe Myint	Extension Staff, Department of Agriculture	Thanlyin 25
	U Tin Soe	Farmer	Thanlyin 26
	Daw San San Maw	Farmer	Thanlyin 27
	U Inn Hoke and Sons	Fertilizer retail shop	Thanlyin 28
	???	Fertilizer retail shop	Thanlyin 29
	U Htay Aung	Township Officer, Kyauktan tsp, DoA	Kyauktan 30
	U Kyaw Thaug	Deputy Township Officer, Kyauktan tsp, DoA	Kyauktan 31
	U Win Myint	Farmer	Kyauktan 32
	U Aung Myo	Farmer	Kyauktan 33
	U Kyi Myint	Farmer	Kyauktan 34
	Daw Myint Myint Win	Fertilizer retail shop	Kyauktan 35
	U Lwin Myo Aung	Fertilizer retail shop	Kyauktann 36
1.8.2014	U Hla Myint	Regional Officer, Bago Region, DoA	Bago 37
	U Htay Win	Deputy Regional Officer, Bago Region, DoA	Bago 38
	U Zaw Lin	Township Officer, Bago Township, DoA	Bago 39
	U Lay Myint	District Officer, Bago District, DoA	Bago 40
	Daw Nyunt Nyunt Hlaing	Staff Officer, Bago Regional Office, DoA	Bago41
	Daw San Nwe	Staff Officer, Bago Regional Office, DoA	Bago 42
	Zaw Ti Ka	Fertilizer retail shop	Bago 43
	Brothers	Fertilizer retail shop	Bago 44
	Ko San Ni+Ma Lay, Swan Arr	Fertilizer retail shop	Phayargyi, Bago 45
	Daw Nay Nay Htun, Dana	Fertilizer retail shop	Phayargyi, Bago 46
	U Soe Win	Farmer	Phayargyi, Bago 47
	U Zaw Lwin Oo	Farmer	Phayargyi, Bago 48

<b>Date</b>	<b>Person Met</b>	<b>Company/Association</b>	<b>Meeting Township</b>
2.8.2014	Daw Htay Win	Land Use Officer (Ayeyarwaddy Region)	Pantanaw 49
	Daw Htay Win	Land Use Officer (Maubin District)	Pantanaw 50
	U Win Nyunt	Township Officer, Pantanaw tsp, DoA	Pantanaw 51
	???	Farmer	Pantanaw 52
	???	Farmer	Pantanaw 53
	U Thein Nyunt & Family	Fertilizer retail shop	Pantanaw 54
	Su Su San	Fertilizer retail shop	Pantanaw 55
4.8.2014	Daw Wah Wah Thein	Land Use Officer (Mandalay Region)	Mandalay 56
	U Myo Naing	Township Officer, Mandalay tsp, DoA	Mandalay 57
	Dr. San Hla Htwe	Land Use Officer (Mandalay District)	Mandalay 58
	Daw Yin Yin Kyaw	Staff Officer, Land Use Office in Mandalay	Mandalay 59
	U San Win	Managing Director, Su San Trading Enterprise Co., Ltd	Mandalay 60
		Managing Director, Soe Moe Mine Company	Mandalay 61
	Daw Thida Aung	Township Officer, Pathein gyi tsp, DoA	Pathein gyi, Mandalay 62
	U Maung Win	Farmer	Pathein gyi, Mandalay 63
	U Htay Hla	Farmer	Pathein gyi, Mandalay 64
	U Khin Mg Htwe	Farmer	Pathein gyi, Mandalay 65
	Zun	Fertilizer retail shop	Pathein gyi, Mandalay 66
	Daw Min Min Thant, Shwe La Min	Fertilizer retail shop	Pathein gyi, 67Mandalay
5.8.2014	Dr. Tin Htut	Rector, Yezin Agricultural University	Nay Pyi Taw 68
	Dr. Theingi Myint	Associate Professor, Agriculture Economic Department, Yezin Agricultural University	Nay Pyi Taw 69
	Dr. Hnin Yuu Lwin	Lecturer, Agriculture Economic Department, Yezin Agricultural University	Nay Pyi Taw 70
	Dr. Soe Soe Thein	Professor, Department of Soil and Water science, Yezin Agricultural University	Nay Pyi Taw 71
	Dr. Aung Naing Oo	Lecturer, Department of Soil and Water science, Yezin Agricultural University	Nay Pyi Taw 72

## Annex 4. Regulations for License Holders

1. License must be kept at visible place.
2. License Holder has to do the blending, mixing, repackaging or distributing and marketing as mentioned only in the license.
3. Regarding the health of workers, the license holder has to follow the existing laws and regulations when re-blending , mixing, repackaging, and storing locally .
4. License holder must be responsible for the quality standard of the fertilizer from re-blending, mixing and re-packaging.
5. License holder has to handle, supply and store in a safe manner.
6. It is not allowed to store the fertilizer in the household.
7. The following items must be mentioned in Myanmar Language on fertilizer bag.
  - (1) Trade Mark
  - (2) Net weight of the fertilizer
  - (3) Guarantee of the quality
  - (4) Nutrient percentage in the fertilizer
  - (5) Name and proportion of the blended materials in the fertilizer
  - (6) Without containing of materials which are harmful to human beings and environments
  - (7) Direction
  - (8) Include manufacturing date and lot Number.
8. If the whole sale amount and weight exceeds the amount defined by the fertilizer committee, the fertilizer can be sold to those who have a license and recorded in the register book.
9. License holder has to assist when State/Region Managers or lab technician who come to examine the fertilizer.
10. Examination according to paragraph (12), license holder has to allow respective Manager or lab technician to take samples or specified weight of the fertilizer free of charge when coming for quality control examination. License holder has to keep the sample form (12) from the respective Manager or lab technician.
11. License holder has to apply form (11) for the examination of the quality standard of the fertilizer.

12. Advertising and selling without correct information is not allowed regarding the quality standard of the fertilizer.
13. Fertilizer must be packed safely. Torn bags can be sold only after safely repacking.

## **Annex 5. The Fertilizer Law**

### **The Fertilizer Law**

(The State Peace and Development Council Law No. 7/2002)

The 10th Waning Day of Tawt/ialln, 1364 M.E.

(1 st October, 2002 )

Unofficial Translation

The State Peace and Development Council hereby enacts the following Law: -

### **Chapter I**

#### **Title and Definition**

1. This Law shall be called the Fertilizer Law.

2. The following expressions contained in this Law shall have the meanings given hereunder:

(a) Fertilizer means chemical fertilizer, bio-fertilizer or natural fertilizer which consists of the material that can assist to cause chemical change in the soil or by other means for plant nutrition for the growth of fruits, flowers, crops and plants. The said expression does not include any natural fertilizer made by any grower for use in his own farm;

(b) Chemical fertilizer means the fertilizer prepared with chemicals by using any means and not being naturally made or composed. The said expression also includes mineral fertilizer or organic and inorganic chemical fertilizer produced by a factory;

(c) Bio-fertilizer means the fertilizer produced by multiplying beneficial organisms such as bacteria, fungi etc. for the growth of plants;

(d) Natural fertilizer means the remains, wastes or by-products of fauna and flora, obtained and prepared by decomposing thereof;

(e) Specifications mean prescribed standards by the Fertilizer Committee in plant nutrients ratio or quality of other necessary materials to be included in fertilizer;

(f) Toxic substance means any chemical which is hazardous or poisonous to living animal or plant;

(g) Quality assurance means the warranty of the fertilizer producer for consistency with specifications and warranty of importer or exporter for consistency with specifications contained in agreement executed with foreign counterpart;

(h) Label means printed mark which is affixed or attached to the package or bag of the fertilizer;

(i) Fertilizer business means the business of producing, compounding, mixing, repackaging, storing, distributing, importing ~and exporting of fertilizer for commercial purpose;

(j) Storage means storing the fertilizer to carry out the business of distribution and sale;

- (k) Distribution and sale means the distribution and sale in excess of the weight and volume of fertilizer prescribed by the Fertilizer Committee to obtain the licence;
- (l) Registration certificate means a permit issued under this Law for permitting fertilizer production, importing or exporting for commercial purpose;
- (m) Licence means a permit issued under this Law permitting compounding, mixing, repackaging, storing or distribution and sale of fertilizer for commercial purpose;
- (n) Manager means person in charge of the Myanmar Agriculture Service serving at the different States, Divisions, Districts and Townships;
- (o) Inspector means a person assigned duty by Myanmar Agriculture Service as an inspector under section 22 of this Law
- (p) Minister means Minister for the Ministry of Agriculture and Irrigation;
- (q) Ministry means the Ministry of Agriculture and Irrigation.

## **Chapter II**

### **Objectives**

3. The objectives of this Law are as follows: -

- (a) to enable supporting the development of agricultural sector which is the basic economy of the State;
- (b) to enable supervision and control the fertilizer business systematically;
- (c) to enable growers to use fertilizer of quality in conformity with the specifications;
- (d) to support the conservation of soil and environment by utilizing suitable fertilizer;
- (e) to enable carrying out of educative and research works extensively for the systematic utilization of fertilizer by the agriculturalist;
- (f) to cooperate with government departments and organizations, international organizations and local and foreign non-governmental organizations regarding fertilizer business.

### **Chapter III**

#### **Formation of the Fertilizer Committee**

#### **4. The Ministry, with the approval of the Government: -**

- (a) shall form the Fertilizer Committee comprising Deputy Minister for the Ministry of Agriculture and Irrigation as Chairman, Managing Director of Myanmar Agriculture

Service as Secretary, heads of the relevant government departments and organizations and experts as members;

(b) may reorganize from time to time the Fertilizer Committee formed under sub-section (a).

## **Chapter IV**

### **Functions and the Duties of the Fertilizer Committee**

5. The functions and duties of the Fertilizer Committee are as follows

- (a) laying down the policy and giving guidance relating to the fertilizer business;
- (b) stipulating the specifications of the fertilizer;
- (c) stipulating weight and volume of fertilizer required to obtain a licence for distribution and sale;
- (d) issuing necessary directives to prevent environmental pollution and hazard to human beings and animals in respect of fertilizer business;
- (e) granting or refusing to issue the registration certificate after scrutinizing according to the stipulations the application to obtain the registration certificate;

- (f) suspending subject to a time limit or canceling and renewal of the registration certificate;
- (g) stipulating the tenure of registration certificate
- (h) causing research work relating to fertilizer to be conducted;
- (i) carrying out educative works for the systematic utilization of fertilizer by growers;
- (j) cooperating with the government departments and organizations, international organizations, local and foreign non-governmental organizations regarding fertilizer business.

**6.** The Fertilizer Committee shall, for enabling to carry out its functions and duties effectively:

- (a) form a Fertilizer Technical Body with suitable experts and the Secretary of the Fertilizer Committee as the leader of the Body and determine the duties thereof;
- (b) form the sub-committees relating to work with suitable persons, and determine the duties of the said sub-committees.

## **Chapter V**

### **Registration Certificate**

7. A person desirous of carrying out production, import or export of fertilizer for commercial purpose shall apply to the Fertilizer Committee in accordance with the stipulations in order to obtain the registration certificate.

8. The Fertilizer Committee:

(a) shall cause the Fertilizer Technical Body to examine the application made under section 7 as to whether or not it is in accordance with the stipulations and submit thereof;

(b) may grant or refuse to issue certificate after scrutinizing the submission made under sub-section (a). If granted, the registration certificate shall be issued to the applicant after prescribing conditions.

9. The registration certificate holder shall :

(a) abide by this Law and the rules, procedures, notifications, orders and directives issued hereunder;

(b) abide by the conditions contained in the registration certificate;

(c) shall perform in accordance with the stipulations the quality assurance, label, and specifications

(d) shall submit to the inspection of the relevant manager and inspectors when they come for inspection.

10. The registration certificate holder shall, if desirous of continuing the business, apply for its renewal to the Fertilizer Committee in accordance with the stipulations at least 30 days prior to the expiry of the tenure.

11. The Fertilizer Committee: -

(a) may, after scrutiny of the application made under section 10 permit or refuse the renewal;

(b) shall, if permitted under sub-section (a), renew the registration certificate.

12. The registration certificate holder shall subscribe the registration fees, renewal fees for registration certificate and laboratory analysis fees to the Myanmar Agriculture Service in the prescribed manner.

## **Chapter VI**

### **License**

13. (a) A person desirous of doing the compounding, mixing, repackaging or storing business of fertilizer for commercial purpose shall, in accordance with the stipulations, apply to the Myanmar Agriculture Service to obtain the business licence.

(b) The Myanmar Agriculture Service may, after scrutiny of the application made under sub-section (a), grant or refuse to issue the licence. If granted, the licence shall be issued to the applicant after prescribing conditions.

14. (a) A person desirous of distribution and sale of fertilizer in excess of the weight and volume of fertilizer prescribed by the Fertilizer Committee shall, in accordance with the stipulations, apply to the State and Divisional Manager to obtain the business licence.

(b) The State and Divisional Manager may, after scrutiny of the application made under sub-section (a), grant or refuse to issue the licence. If granted, licence shall be issued to the applicant after prescribing conditions.

15. A licence holder shall :

(a) abide by this Law and the rules, procedures, notifications, orders and directives issued hereunder;

(b) abide by the conditions contained in the licence;

(c) shall submit to the inspection of the relevant manager and inspectors when they come for inspection.

16. A person holding the business licence of compounding, mixing or repackaging of fertilizer shall mention the following particulars on the package or bag of the fertilizer: -

(a) label,

(b) net weight of the fertilizer,

(c) quality assurance,

- (d) percentage of plant nutrient contained in the fertilizer,
- (e) ingredients and ratio of ingredients compounded or mixed in the fertilizer,
- (f) prescription for use.

17. A business licence holder for storage or distribution and sale of fertilizer shall store or distribute and sell only the fertilizer on which the particulars contained in section 16 are mentioned.

18. The Myanmar Agriculture Service shall stipulate the tenure of the licences authorized to be issued by itself and the licence by the State and Divisional Manager.

19. (a) If a business licence holder for compounding, mixing, repackaging or storing of fertilizer is desirous of continuing the business, application shall be submitted to the Myanmar Agriculture Service in accordance with the stipulations for renewal of licence at least 30 days prior to the expiry of the tenure.

(b) The Myanmar Agriculture Service may, after scrutiny of the application made under sub-section (a), permit or refuse the renewal of the licence.

20. (a) If a business licence holder for distribution and sale of fertilizer is desirous of continuing the business, application shall be submitted to the relevant State and Divisional Manager in accordance with the stipulations for the renewal of the licence at least 30 days prior to the expiry of the tenure.

(b) The relevant State and Divisional Manager may, after scrutiny of the application made under sub-section (a), permit or refuse the renewal of the licence.

21. A fertilizer business licence holder shall subscribe the licence fees, renewal licence fees and laboratory analysis fees to the Myanmar Agriculture Service or relevant State and Divisional Office in the prescribed manner.

## **Chapter VII**

### **Assignment of Duty as the Inspector**

22. The Myanmar Agriculture Service may assign duty to any suitable officer as inspector.

23. The duties of the Inspector are as follows

(a) inspecting the fertilizer business in the area to which he has been assigned;

(b) obtaining the sample of the fertilizer to test as to whether or not the fertilizer conforms to the specifications, making laboratory analysis thereof, and submitting the result of its findings to the Myanmar Agriculture Service;

(c) inspecting as to whether or not the fertilizer is used only in agriculture;

(d) if it is found that any prohibition contained in this Law has been violated, submitting to the Myanmar Agriculture Service in the prescribed manner;

(e) performing other duties as are assigned by the Myanmar Agriculture Service.

## Chapter VIII

### Taking Action by Administrative Means

24. The penalties of administrative action are as follows

- (a) temporary suspension of the fertilizer business that has been granted;
- (b) permitting to continue the fertilizer business after causing payment of fine and requirement to be made;
- (c) suspending of registration certificate or licence subject to a time limit;
- (d) cancellation of the registration certificate or licence.

25. The Fertilizer Committee shall impose the administrative penalty contained in section 24 on the registration certificate holder who fails to comply with any duty contained in section 9. In doing so, one or more of the administrative penalties may be imposed.

26. The Myanmar Agriculture Service shall, on finding out any of the following facts during inspection. Impose the administrative penalty contained in section

24. on the relevant business licence holder. In doing so, one or more of the administrative penalties may be imposed -

- (a) failing to comply with any duty contained in section 15 by the licence holder of compounding, mixing, repackaging or storing business of fertilizer;

(b) failing to comply with any duty contained in section 16 the licence holder of compounding, mixing or repackaging business of fertilizer;

(c) failing to comply with any provisions contained in section 17 by the licence holder of storage business of fertilizer.

27. The relevant State and Divisional Manager shall impose the administrative penalty contained in section 24 on the licence holder of distribution and sale business of fertilizer who fails to comply with any duty contained in sections 15 and 17. In doing so, one or more of the administrative penalties may be imposed.

## **Chapter IX**

### **Appeals**

28. (a) A person dissatisfied with the order or decision made by the relevant State and Divisional Manager in respect of the distribution and sale of fertilizer business licence may appeal, in accordance with the stipulations, to the Myanmar Agriculture Service within 30 days from the date of the receipt of such order or decision;

(b) Myanmar Agriculture Service may confirm, cancel or revise the order or decision made by the relevant State and Divisional Manager in respect of the appeal made under subsection (a);

(c) The decision of the Myanmar Agriculture Service under sub-section (b) shall be final and conclusive.

**29.** (a) A person dissatisfied with the order or decision made by the Myanmar Agriculture Service in respect of the business licence of compounding, mixing, repackaging or storing of fertilizer may appeal, in accordance with the stipulations, to the Fertilizer Committee within 30 days from the date of receipt of such order or decision;

(b) The Fertilizer Committee may confirm, cancel or revise the order or decision made by the Myanmar Agriculture Service in respect of the appeal made under sub-section (a);

(c) The decision of the Fertilizer Committee under sub-section (b) shall be final and conclusive.

**30.** (a) A person dissatisfied with the order or decision made by the Fertilizer Committee in respect of the registration certificate may appeal, in accordance with the stipulations, to the Minister within 30 days from the date of the receipt of such order or decision.

(b) The Minister may confirm, cancel or revise the order or decision made by the Fertilizer Committee in respect of the appeal made under sub-section (a);

(c) The decision of the Minister under sub-section (b) shall be final and conclusive.

## **Chapter X**

### **Prohibitions**

31. No one shall, without the registration certificate, produce, import or export fertilizer for commercial purpose.

32. No one shall, without licence, do compounding, mixing, repackaging or storing of fertilizer for commercial purpose.

33. No one shall produce, store or distribute and sell fake fertilizer or fertilizer not in conformity with original specifications.

34. No one shall produce, store or distribute and sell of fertilizer mixed with toxic substances.

35. No one shall use the fertilizer in purposes other than agriculture.

## **Chapter XI**

### **Offences and Penalties**

36. Whoever violates any prohibition contained in sections 31, 32, 33 or 34 shall, on conviction, be punished with imprisonment for a term which may extend to 3 years or with fine which may extend to kyats 150,000 or with both. In addition, order shall be passed to confiscate the exhibits involved in the offence.

37. Whoever violates the prohibition contained in section 35 shall, on conviction, be punished with imprisonment for a term which may extend to one year or with fine which may extend to kyats 50,000 or with both. In addition, order shall be passed to confiscate the exhibits involved in the offence.

38. The Court shall transfer for disposal the fertilizer which is confiscated to Myanmar Agriculture Service.

## **Chapter XII**

### **Miscellaneous**

39. If a person doing any fertilizer business on the date of promulgation of this Law is desirous of continuing the said business, he shall apply in accordance with the stipulations within 90 days from the date of promulgation of this Law to obtain the necessary registration certificate or licence.

40. The Ministry shall prescribe the registration fees, the licence fees, the renewal fees and the laboratory analysis fees.

41. The Ministry may exempt any government department or organization in respect of the application of registration certificate, application of licence and subscription of fees for the use of fertilizer or any fertilizer business.

42. The Myanmar Agriculture Services shall assign duty to any relevant Manager to recover the said fine and fees from the person who fails to subscribe the same as if they were arrears of land revenue.

43. A person whose registration certificate or licence has been suspended subject to a time limit or cancelled, shall comply with the directives of the Fertilizer Committee or the Myanma Agriculture Service in respect of the fertilizer in his possession.

44. If application is made to issue permit or licence to import or export fertilizer, the government department or organization authorized to issue such permit or licence may issue the permit or licence only to the person who submits the recommendation of the Myanmar Agriculture Service attached to the application.

45. With regard to fertilizer in the offences prosecuted under this Law, the report of the findings of the laboratory analysis conducted by the Myanmar Agriculture Service shall be final and conclusive evidence for the said offence.

46. The offence prosecuted under section 37 of this Law is prescribed as the cognizable offence by Myanmar Police Force.

47. If an exhibit involved in any offence prosecuted under this Law is not easily produce able before the court, such exhibit need not be produced before the Court. However, a report or other relevant documentary evidence as to the manner of custody of the same may be submitted. Such submission shall be deemed as if it were a submission of the

exhibit before the Court and the relevant Court may dispose of the same in accordance with law.

48. In implementing the provisions contained in this Law -

(a) The Ministry may, with the approval of the Government issue such rules and procedures as may be necessary.

(b) The Ministry, the Fertilizer Committee and the Myanmar Agriculture Service may issue such notification orders and directives, as may be necessary.