

An Overview Of Pulse Production In The Central Dry Zone Of Myanmar, With Special Reference To Chickpea

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Abstract: 2016 has been declared as the 'International Year of Pulses' by the 68th UN General Assembly. This paper examines the trends in pulse production in the Central Dry Zone of Myanmar, with focus on chickpea. Various infrastructural, policy and technological bottlenecks faced in production and export of chickpea are discussed in detail. Recommendations to enhance the yield and marketability of chickpea are suggested, so as to ensure better livelihood and food security for the farmers.

Keywords: Bottlenecks, Food Security, International Year of Pulses, Marketability, Pulse Production, Chickpea, Central Dry Zone

ABBREVIATIONS:

ACIAR	Australian Center for International Agricultural Research
ADB	Asian Development Bank
AEC	ASEAN Economic Community
CDZ	Central Dry Zone
DAR	Department of Agricultural Research, Myanmar
FAO	Food and Agricultural Organization
ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, India
ICT	Information and Communication Technology
IYP	International Year of Pulses
LIFT	Livelihoods and Food Security Trust Fund
MOAI	Myanmar Agriculture Development Bank
MAPCO	Myanmar Agribusiness Public Corporation
MFPEA	Myanmar Food Processors and Exporters Association
MADB	Ministry of Agriculture and Irrigation, Myanmar
MOCO	Ministry of Co-operatives, Myanmar

MT	Metric Tonnes
PPP	Public-Private Partnership
R&D	Research and Development
SME	Small and Medium Enterprises
UMFCCI	Union of Myanmar Federation of Chambers of Commerce & Industry
UNDP	United Nations Development Programme

I. RELEVANCE OF THE STUDY

This paper will help in understanding the dynamics of pulse production in the Central Dry Zone of Myanmar, with special emphasis on chickpea. This study can act as a base for further research in the implementation of sector-specific LIFT projects in Myanmar.

II. OBJECTIVES OF THE STUDY

The basic objectives of this study are listed as follows:

- ✓ To understand the background of pulse production and to examine the potential for chickpea in Myanmar

- ✓ To analyze the bottlenecks and constraints faced by the farmers in the Dry Zone, right from procurement of the seeds to marketing and selling chickpea
- ✓ To provide suggestions to boost production of chickpea and thereon command a higher price for their produce, both in the local and international market with the overarching objective of ultimately achieving food security.

III. METHODOLOGY OF THE STUDY

For the purpose of the research, secondary data has been studied extensively and consultant reports pertaining to Myanmar-specific data have been referred to. Numerous articles, magazines, newspapers, journals and websites have been explored to collect information for the study.

IV. LIMITATIONS

Since secondary sources of information are used for the purpose of research, thus the findings might be subject to the inherent errors as reported in the newspaper articles, reports or magazines consulted. Also, finding Myanmar-specific data was a big challenge as most of the Ministry websites that provide statistical data are not updated regularly.

V. BACKGROUND

A. INTERNATIONAL YEAR OF PULSES

The 68th UN General Assembly has declared 2016 as the International Year of Pulses (IYP) and the Food and Agriculture Organization (FAO) of the United Nations has been nominated to facilitate the implementation of the year in collaboration with governments, relevant organizations, non-governmental organizations and all other relevant stakeholders.

The IYP 2016 aims to:

- ✓ Promote the value and utilization of pulses throughout the food system
- ✓ Raise awareness about the benefits of pulses, including sustainable agriculture and nutrition
- ✓ Encourage connections to further global production of pulses
- ✓ Foster enhanced research
- ✓ Advocate for better utilization of pulses in crop rotations
- ✓ Address the challenges in the trade of pulses.

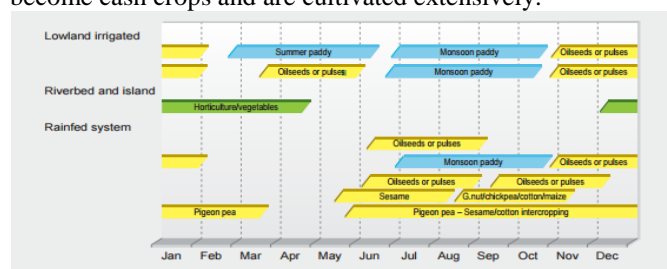
B. THE CENTRAL DRY ZONE IN MYANMAR

The Dry Zone in central Myanmar, covering large parts of the Magway, Mandalay and lower Sagaing Divisions, belongs to one of the most food insecure areas in the country. It is home to 34 percent of the country's total population and accounts for approximately 17 percent of the national territory. Annual rainfall is 29.5 inches in the normal period (19 inches – 40 inches) and in the monsoon period it ranges from 41-62

days per year. Irregular and scarce rainfall leads to water shortages and constitutes a regular threat to rural livelihoods. The Dry Zone is characterized by clay and sandy soils with are at high risk of water and wind erosion leading to land degradation and declining agricultural production.

C. SAMPLE CROPPING PATTERNS IN THE DRY ZONE

The primary crops grown in the Dry Zone are rice, oil crops and pulses. 93% of pigeon pea and 97% of chickpea of the national total are grown in the dry zone alone. Farmers in the dry zone areas grow many kinds of pulses and legumes because of the simple reason that pulses are more suited to grow in the hilly dry zone area where water is scarce. Pulses can endure a shorter wet period and can be harvested after just one month. Previously, they were grown just for household consumption and for animal feed, but nowadays, they have become cash crops and are cultivated extensively.



Source: *Improving water management in Myanmar's Dry Zone for food security, livelihoods and health, International Water Management Institute (IWMI)*

Figure 1 Cropping pattern in CDZ

In the dry zone, pulses are usually sown during the winter period beginning in November, making use of the residual moisture left in the soil after rice crops have been harvested

Dry Zone - Frequency and Average Sown Area of Major Dry Zone Crops

Crop	Monsoon		Post-Monsoon	
	% of growers	ave area	% of growers	ave area
Rice	20.4	2.6	5.9	1.4
Sesame	34.7	5.0		
Groundnut	19.7	5.9	28.0	3.6
Pigeon pea	17.5	3.3	9.9	3.6
Chil	3.2	2.2	2.0	2.1
Green Gram			13.5	5.0
Chickpea			11.2	2.4
Onion			12.2	1.2

Source: *Myanmar Dry Zone Development Programme Scoping Report, November 2014*

Table 1: Monsoon and post-monsoon sown area of crops

The Lift Baseline Survey, 2012 found that amongst the post-monsoon crops, groundnut was the most important (28%), followed by green gram, onion and chickpea.

PULSES PRODUCTION

Pulses are currently grown on 4,534,000 hectares (21.21% of sown area under various crops) with an annual production of 5,974,363 tonnes (MT). Myanmar accounts for 4.69% of the world area and 5.77% of the world production of pulses.¹³

The sown area of exported pulses grew rapidly by about 10% per annum over the decade 1990- 2000, from 1 million ha to 2.27 million ha, while production increased nearly

fourfold, from 596,000 MT to 2,263,000 MT during the same period. The area and yield of pulses has continued to grow steadily since then, backed by price incentives to farmers. Despite their growth, yields have remained low at less than 1.0 MT/ha since these crops are grown mostly under rain-fed conditions with generally poor seedling establishment and limited application of fertilizers, pesticides and insecticides. Pulses and beans have become important to the rural economy of Myanmar not only for their income earning potential, but also because of their dietary contribution.

Year	Sown ha ('000)	Prod (MT '000)
2006-07	4003	4522
2007-08	4232	5065
2008-09	4277	5363
2009-10	4383	5584
2010-11	4501	5896
2011-12	4417	5506
2012-13	4449	5800
2013-14	4534	6004

Source: Country Statement of Myanmar, November 2014, Ministry of Agriculture and Irrigation

Table 2: Sown area and production of pulses from 2006-2007 to 2013-2014 in Myanmar

The production of pulses has been increasing on an average of 5.89 % per year. Pulses security has risen up to 549 percent in Myanmar.

VI. CHICKPEA

Botanical Name	English Common Name	Myanmar Common Name
<i>Cicer arietinum</i>	Chick pea	Kalape

Chickpea grain is an excellent source of high-quality protein. The crop also fixes relatively large amounts of atmospheric nitrogen. By focusing on early maturity and high yield, researchers are helping transform what was once a subsistence crop into an internationally traded commodity and source of income for rural communities.

Chickpea is grown under residual soil moisture in both lowland and upland conditions. In lowland areas, it is grown as a relay or sequential crop after rice, while in upland areas it is grown mostly on fertile soil with good waterholding capacity after sesame, maize, mungbean or on fallowed land.¹⁸

Myanmar has been consistently ranked amongst the top 5 chickpea producing countries in the world.

As per FAO, Myanmar has been ranked amongst the top 5 chickpea producing countries since the year 2000.

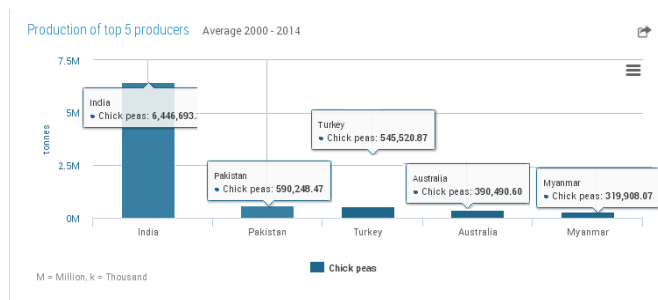


Figure 2: Production data of Top-5 Chickpea producing countries in the world (average basis: 2000-2014)

Chickpea has an 8.4% share in the total pulses' sown area in Myanmar, as shown in the following table:

Name of Crops	Sown Area(ha)	Yield (MT/ha)	Production(tonne)
Mungbean	1260361.13	1.11	1402892.67
Blackgram	1102500.81	1.41	1549293.20
Pigeonpea	638965.99	1.30	833482.99
Chickpea	384372.87	1.53	586526.37
Soybean	155181.78	1.49	231252.50
Cowpea	279916.59	1.25	349795.98
Others	713668.42	1.13	807407.49
TOTAL	4534967.61	1.32	5973130.55

Source: Kyaw Swar Win, Recent Achievement in research and development of pulses in Myanmar²⁰

Table 3: Sown Area and Production of Pulses in Myanmar

Sagaing (46%), Mandalay (26%) and Magway (24%) areas of the dry zone region contribute 96% to the total chickpea production in Myanmar.²¹

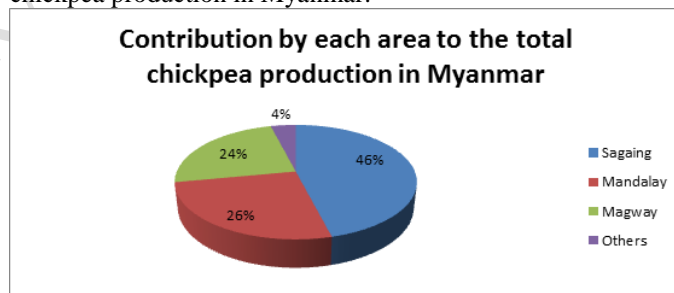


Figure 3: Share in total chickpea production, sorted according to areas of CDZ

Years	Sown Area('000 ha)	Harvested Area('000 ha)	Yield(M T/ha)	Product ion('000 MT)
1995-96	166	158	0.59	93
2000-01	166	164	0.73	119
2005-06	224	224	1.18	265
2010-11	332	332	1.41	467
2011-12	333	333	1.42	473
2012-13	362	362	1.45	525
2013-14	384	384	1.49	571
Increase in 2013-14 from 1995-96	218	226	0.90	478

Source: Settlement and Land Records Department, MOAI

Table 4: Sown area, Harvested area, Yield and Production of Chickpea (1995-96 to 2013-14)

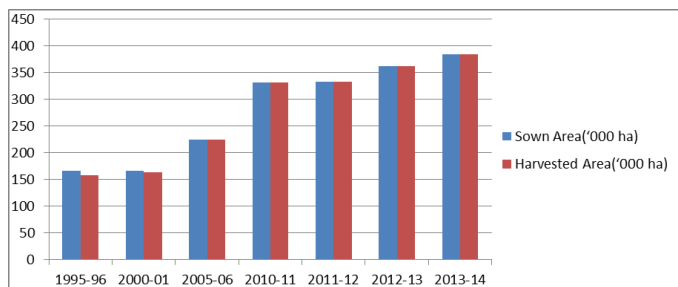


Figure 4: Sown and Harvested Area of Chickpea from 1995-96 to 2013-14

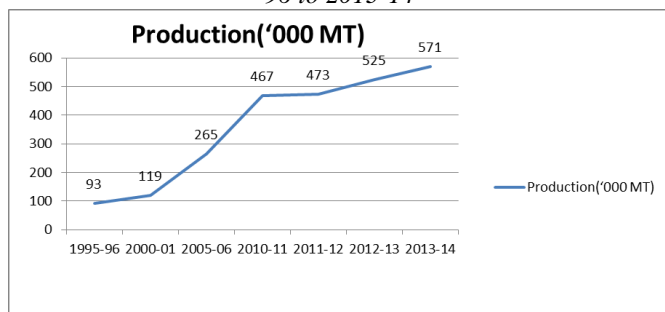
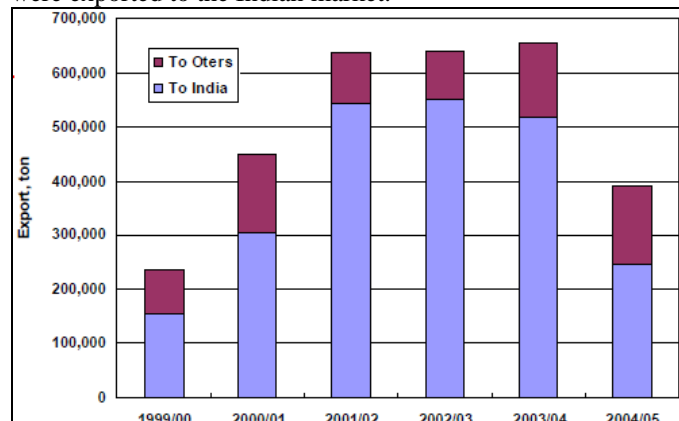


Figure 5: Production graph of chickpea in Myanmar (in '000 MT)

(154,172 tonnes), 93% of pigeon pea (275,395 tonnes) and 97% of chick pea (455,000 tonnes) produced in the dry zone were exported to the Indian market.



Source: Ms. Yee Yee Maw

Figure 6: Yearly export amount of Green gram, Pigeon pea and Chick pea from Myanmar

'In some years, when Chinese brokers come, the prices for things like chilli, green gram, chick pea and watermelon shoot up. But they don't come every year.' Department of Agriculture official, Mandalay region

A. EXPORT AND TRADE

After 1988, Myanmar's market economic policy allowed food legumes to be exported. Export of Myanmar's pulses rose drastically after 1996-97. It increased from 17 thousand metric tons in 1988-89 to one million metric tons in 2001-2002 due to the liberalization policy.

During 2009-10, India imported 3.5 million tons of pulses from countries like Australia, Canada and Myanmar. Thus, India forms a huge export market for Myanmar, in terms of export of pulses, especially chickpea.

During 2011-2012, Myanmar exported 78,702 MT chickpea. There is high demand for chickpea in India, Singapore and Pakistan. In upland area of Sagaing region, farmers are now keen to grow Kabuli chickpea as it fetches a higher market price. Desi-type is more dominant in rice-chickpea sequential cropping system.

From 2012 to 2013, Myanmar exported over 1.9 million tons of beans and pulses, with India as its predominant customer followed by UAE, Thailand, Bangladesh and Japan. India's growing population and increased cereal and oilseed production and consumption has resulted in the country regularly falling short of its beans and pulses demand. Thus, India has to import approximately 3 to 4 million tons of beans and pulses annually, and this number can also be exacerbated by unfavorable seasonal conditions. India purchases beans and pulses on an as-needed basis, as per their demand, making it currently Myanmar's largest export market. Taking on an almost monopsony role, India is able to highly influence prices of the trade as Myanmar is heavily dependent on the country's decisions to import.

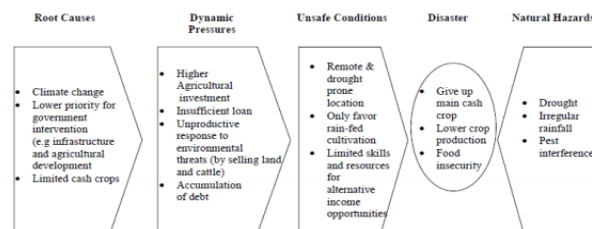
Export of pulses has increased by 1.30 million MT during 2013-2014. The export amount of green gram, pigeon pea and chick pea to India accounts for more than half of the yearly total export amount. About 60 to 85 percent of the pulses grown in CDZ are exported to India. 51% of green gram

a. WORKING OF EXPORT CHAIN

A primary collector works on a commission basis and transports the crop to the wholesalers from the farmers. These collectors make linkages with more than just one town wholesaler and also with many exporters during the peak harvest time. The town wholesaler then sells the crop in both Yangon and Mandalay wholesale markets, as per the export requirements faced by them. The commodities from Mandalay market pass through Muse and are finally exported to China.

VII. CONSTRAINTS / VULNERABILITIES IN CHICKPEA PRODUCTION IN THE CENTRAL DRY ZONE

The Progression of Vulnerability of Farmers in Mon Nyin Village, Dry Zone Area



Source: Khin Moe Kyi, Farmer Vulnerability Amidst Climate Variability: A case study of Dry Zone of Myanmar³²

Figure 7: Farmer Vulnerability Progression in CDZ

SEED

- ✓ Drought and heat stress are major stress in pulses production in Myanmar. Frequent heavy rain, off-season heavy rain and prolonged rains at some stage in the crop

life cause heavy losses to pulses crops. The need of the hour is drought-resistant and heat-resistant seeds.

- ✓ Current availability of improved seed to farmers is negligible and there is a perceived risk among farmers to changing from their traditional varieties, many of which have been grown for long periods without even basic purity checks, with a commensurate decline in yield and vigor
- ✓ Higher yielding varieties of chickpea, pigeon pea and groundnut could improve yields by as much as 35 percent over traditional varieties, but further research is needed, particularly on barriers to adoption.
- ✓ Dry Zone farmers are exposed to several types of plant diseases and pest infestations that can reduce or completely destroy a season's worth of income³⁶. In chickpea production in Myanmar, pod borer (*Helicoverpa armigera*) infestation occurs every year throughout the growing season. Root diseases include Collar rot (*Sclerotium rolfsii*) at seedling stage, Fusarium wilt (*Fusarium oxysporum*) at either early or late growth stage, Dry root rot (*Rhizoctonia bataticola*) at late growth stage.
- ✓ To counter the problem of infestations, farmers use pesticides and fertilizers, which are relatively high priced and difficult to access and thus reserved for rice or high value crops.

INFRASTRUCTURE

- ✓ Existing farmer seed bank has low coverage due to the constraints in seed multiplication system.
- ✓ Lack of storage knowhow and capability for chickpea grain also result in a low farm-gate price at the time of harvest with high seasonal fluctuations.
- ✓ Myanmar does not have adequate pulses processing facilities, and thereby it has to sell its export of pulses at a low price in the global market.

FINANCE

- ✓ Rich farmers store the pulses for round about 5 months to get a good price later on. However, small farmers cannot store the crop for such a long time because they do not have a stable financial position and they need investment for their next crop.
- ✓ As per a survey, there were three credit sources available in the dry zone area. The farmers received credit only for the purpose of producing rain-fed crops. The main source of credit was from the government institution- Myanmar Agriculture Development Bank (MADB), private money lenders and small microfinance association funded by Ministry of Co-operative. The farmers borrowed money from the MADB with an average amount of 100,000 kyats per year (9.29% of the total credit amount) with an interest rate of 1.5% per month. In addition, farmers borrowed an average of 885,000 kyats per year (82.49% of the total credit amount) from private money lenders such as shopkeepers in the villages, broker-men and village traders at an average interest rate of 2.7% per month. Some of the sample farmers borrowed an average amount 92,307 kyats (8.57% of the total credit amount)

per year from the micro-finances association with an interest rate of 2% per month.

- ✓ Farmers still take loan from private sector or the input supplier shop or procure and advance for selling their crop to traders for winter season. The interest rate of private sector is 8% which is distinctly high as compared with government and cooperatives. But most of the farmers end up borrowing at high rates as the winter crop has an assured outcome in some areas of dry zone like Chaung Oo.

POLICY SUPPORT

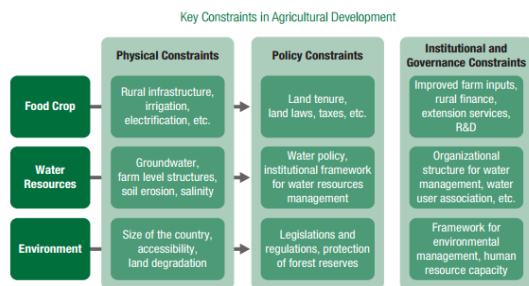
- ✓ In Myanmar, pulses are given less importance as compared to rice and maize. So farmers support pulses as secondary crops or cash crop. Therefore, the use of inputs is limited because the farmers give first priority to staple cereals.
- ✓ There is limited coverage and expertise of agricultural extension services. While the MOAI has field staff throughout the country, reports indicate that they are neither well trained nor well supported with funding, information, travel allowances, and equipment.
- ✓ There are no organized marketing channels or government support prices for chickpea. Low-income farmers bear most of the risks associated with chickpea production.
- ✓ In addition, there is lack of policy support and post-harvest innovations related to pulse crops.⁴⁶

PROBLEMS FACED BY THE PRIVATE SECTOR

- ✓ The private sector has to bear the brunt of uncertainty in the market demand for crops.
- ✓ There is lack of proper law enforcement to facilitate fair trading in the export process.

MARKET ACCESS

- ✓ The regulatory environment is overly cumbersome and in urgent need of simplification. There are only 2.6 registered SMEs in Myanmar per 1000 people, far lower than other developing nations.
- ✓ Lack of market intelligence, inability to network, lack of knowledge about new strategies and techniques like e-commerce and uncompetitive price/quality pose challenges to market access.
- ✓ Poor telecommunication and transportation facilities in Myanmar also hinder linkage to markets for selling of crops.



Source: J. H. Mi. 2013. Inclusive and Sustainable Agriculture Development in Myanmar: ADB's Perspective. Presentation at the Myanmar International Trade and Investment Summit, 4-5 March 2013, Myanmar, Yangon.

Figure 8: Constraints in Agriculture in CDZ, Myanmar

VIII. RECOMMENDATIONS/GUIDELINES

SEED:

- ✓ Seed is the most crucial determinant of crop production potential, on which efficiency and effectiveness of other agricultural inputs are dependent. Increased and sustained agricultural productivity is dependent mainly on development of new and improved crop varieties, efficiently seed distribution and proper utilization of seed. Utilization of good quality seed which is adapted to different agro-ecological zone is crucially important to increase yield as well as to improve quality of grain accessible to quality market.
- ✓ Varieties with built-in resistance or tolerance to biotic (pests and diseases) and abiotic stresses (heat and moisture deficit), must be developed in order to achieve stable yield.⁴⁹ Better varieties such as the wilt-resistant chickpea variety Karachi have been introduced as a step in this regard.
- ✓ Chickpea is sometimes intercropped with wheat or sunflower without any definite spatial arrangement as a trap crop to reduce podborer infestation.
- ✓ Moreover, research and development programs can enhance the participation of farmers to cooperate in improving pulse productivity. There are a few available technologies that can increase the productivity and production of pulses by using short duration- high yielding varieties with resistant to diseases and pest, improved varieties with drought tolerance, adoption of good cultural practices (pest and diseases management, weed control methods) and introduction of new adaptable crop varieties, new cropping pattern to fallow land area and supplies of quality seed and improved varieties to farmers.
- ✓ The establishment of village seed banks in Sagaing, Magway and Mandalay Regions can lead to widespread distribution of certified seeds of chick pea to the farmers. In this system launched in 2007-08, village-based seed bank committees were formed in the major pulses growing villages. These committees were responsible for growing certified varieties, controlling pests and diseases, cleaning, storing and selling of seeds in time for growing period. In 2014, in the dry zone, informal seed production (farmer-based seed bank) was well functioning in the villages, extending up to 38 townships. Key constraint

faced by them is the requirement of funds for carrying on purchasing, cleaning and storage processes. Therefore, finance should be made available at low costs to the seed banks and must be without unnecessary procedural delays.

INSTITUTIONAL R&D

- ✓ DAR is cooperating with Australian Center for International Agricultural Research (ACIAR) in testing varietal trial on chick pea in the dry zone area to demonstrate the farmers which variety is locally most adaptable and acceptable to the farmers. Under this 5 years project evaluation activities of economic viability of the selected varieties will be conducted by the Agriculture Economic Department of Yezin Agricultural University.
- ✓ DAR has a strong collaboration with ICRISAT which supplies breeding materials, provides training to researchers and provides technical guidance in the research program and conduct of farmer-participatory varietal selection trials for identification of suitable chickpea cultivars. Current research priorities include development/identification of high yielding desi and kabuli varieties with early maturity, grain quality preferred by export market, tolerance to drought and heat stresses, and resistance to root diseases (mainly fusarium wilt, collar rot and dry root rot) and pod borer for upland and rice-based ecosystem. Agronomic research is being carried out on sowing time, spacing (seed rate and plant population), nutrient management and cropping systems.
- ✓ DAR has released 5 Desi chickpea types (Yezin 1, Yezin 2, Yezin 4, Yezin 6 and Shwenilonegyi) and 3 kabuli chickpea types (Yezin 3, Yezin 5 and Yezin 8) which have good export quality, high yield potential and wide adaptation. All released varieties, except Shwenilonegi (national breeding line) are supplied by ICRISAT. Among them, Yezin 3, Yezin 4 and Yezin 8 are early maturing varieties and Yezin 6 is heat tolerance. Shwenilonegyi has attractive grains with high recovery of split grains.

MODERN VARIETY OF SEED- CHICKPEA

Sr. No.	Name of Variety	Line No/Original Name	Released Year
1	Ayekari	CA 25-23/Karachi (India)	1975
2	Shwe Kyay Hmone	CA 75-18/8503/27 S (India)	1975
3	Yezin-1	CA 75-9P 436 (India)	1975
4	Sin Kalarpe-1	ICCV 2	2001
5	Sin Kalarpe-2	ICCV 88202	-
6	Yezin-5	CA-85-125 ICCV-3	2000
7	Yezin-6	CA-94-10 ICCV-92944	2000

8	Yezin-8	(ICCL-81001 x ICCC-32) x (ICCC-49 x Flip- 82-IC) x ICCV-3 (or) CA-03-35 Yezin-8	-
9	Shwe Ni Lone Gyi	ZCHL-2014 Shwe Ni Lone Gyi	2009
10	Yezin-11	CA-02-25 ICCV 01309	2010

Source: Tin Maung Shwe, *Policies-Institutions-Processes (PIP) Consultant*

Table 5: Modern Varieties of Chickpea

FINANCE

- ✓ Rural finance needs to be available in an efficient, timely, and sustainable manner. While legislation has been passed concerning regulation of microfinance activities, the overall financial system must be sound. Restructuring of the Myanmar Agricultural Development Bank (MADB) will need to be undertaken, in the context of a strengthened overall regulatory system for the finance sector.
- ✓ Another option would be to initiate activities on a small scale through nongovernment and local government channels, so that a better understanding is gained of the rural finance situation in Myanmar. The UNDP and a multi-donor fund (LIFT) are engaged in such operations and could be an important coordinating point for initial investments.

GOVERNANCE

- ✓ To facilitate efficiency in operations, international standards must be established for certification and quality testing in labs and guidelines for assessment of export quality sesame and pulses should be framed.
- ✓ A bottom-up approach of Public-Private Partnership model (PPP) will help in improving the quality of seeds.
- ✓ Good governance and transparent trading procedures of the private sector will enhance the seed development for sesame, groundnut and pulses.

MARKET LINKAGES

- ✓ Myanmar's National Export Strategy (NES) is helping foster sustainable, inclusive and export-led growth, with pulses being identified as part of the priority sector. It aims to activate the latent value chains to create effective market linkages.
- ✓ Myanmar has begun to develop producer associations and these need to be encouraged as they help in building important social capital and finding a collective solution to the problems. The Myanmar Farmers Association could serve as an umbrella organization for a variety of producer's organizations. Industry associations involving all stages of the value chain should be fostered since they stimulate collaborations that can tap nascent market

opportunities and help build value chain clusters. Myanmar Agribusiness Public Corporation (MAPCO) can provide technical assistance, market information and training to incentivize market oriented behaviors, with the support of Myanmar Food Processors and Exporters Association, and Myanmar Pulses, Beans and Sesame Seeds Merchants Association.

- ✓ The clustering of value chains will allow firms to exploit synergies and linkages, both vertically and horizontally. This proximity can initiate dialogue and collaboration to improve market information and access.
- ✓ Agricultural cooperatives can help the farmers in gaining better access to marketing channels and negotiating a higher price for their crop. MOCO plans to expand the network of rural cooperative societies in Myanmar to help the farmers efficiently sell their produce.
- ✓ Contract farming can provide assistance to farmers and a guaranteed price at harvest, thus helping them integrate economically to exporters as well as agri-food processors who are aiming to expand markets. Strategies such as collective marketing organizations, contract farming, agro-food clusters as well as large vertically integrated operations will promote modernization and inclusiveness rather than unorganized market participation.
- ✓ The SME Development Central Committee has drafted a new SME law in 2015 to help overcome obstacles such as overly complex tax procedures, labour regulations and collateral requirements. Notified agencies under SME Act are planning to establish local and international market advisory centers and provide information on market, technology and investment through the network systems and spread it across through the media channels. An incubation program or a full-fledged SME Development Centre will also be established to provide assistance and disseminate market information.
- ✓ It is crucial to create a business enabling environment for competitiveness, growth of individual enterprises and development of SMEs. This can include market-orienting efforts such as providing information and related incentives.
- ✓ Proactive exhibitions, trade promotion activities, workshops, seminars, fairs, trade missions can help enhance awareness and spread information relating to market access. There is an urgent need to foster export oriented agri-business through conducting trade promotion measures like foreign missions and trade fairs.
- ✓ The forging of closer regional integration with the ASEAN Economic Community (AEC) will offer greater market access opportunities for agro-food exports.
- ✓ Also, the use of ICT is an important tool for wide dissemination of market information to small agricultural producers so that they can improve their decision-making capacity as regards to where to sell and when to sell.
- ✓ Myanmar could try piloting a few successful initiatives such as the Samridhi project of Kaushalya Foundation in Bihar that focuses on developing an integrated supply chain model. This is an innovative integrated vegetable supply chain model to bypass intermediaries and establish direct linkage between farmers and vendors. On the principle of collective action and economies of scale,

farmers were grouped together in clusters and were federated to form producer institutions. This model has been successfully deployed through National Vegetable Initiative for Urban Clusters project of Government of India in all the 28 states. In Myanmar, lack of such market linkages is the main cause of farmers getting very low returns on their produce due to their dependence on intermediaries and thus they lose a significant share of their profit to these intermediaries.

IX. CONCLUSION

The area, production and yield of pulses in Myanmar had increased from 2000 to 2014. However, there are more productive constraints like biotic and abiotic constraints of pulses production in Myanmar. Therefore, it is needed to improve agricultural productivity and maximize the scale of production of pulses by using improved varieties which are resistant to diseases and pests as well as varieties that are tolerant to climatic stress, adoption of good cultural practices (pest and diseases management, weed control methods) and good quality seed. This is important not only for farmers for increasing income, providing food and nutritional security, but also for the country for getting much foreign exchange through exports.

X. THE WAY FORWARD

Apart from R&D required for drought-resistant seed multiplication on a large scale, there is also a dire need for establishing market linkages through the support of The Republic of Union of Myanmar Federation of Chambers of Commerce & Industry (U.M.F.C.C.I.) and Myanmar Food Processors and Exporters Association (MFPEA).

- ✓ The Livelihoods and Food Security Trust fund (LIFT) can help in strategic intervention in the future:
 - LIFT will support economic activities at the township and regional levels to improve the overall environment of the rural economy (e.g., value chain and rural finance interventions).
 - LIFT will harvest lessons and generate evidence to inform the formulation of better policies and public expenditure decisions.
- ✓ From July 15- 18, 2016, there will be a Myanmar International Agriculture Techniques & Equipment Exhibition in Yangon with the support of UMFCCI and MFPEA⁸¹. This exhibition can provide an opportunity to exchange relevant knowhow, new agro-technologies and processes, help in interacting on an economic, social and scientific level and serve as a platform for local and international dialogue on the subject.

Global Coverage, Pulse Pricing Data- DIDIA is the world's only interactive online tool with quick and easy-to-view data on dry peas, lentils, chickpeas and dry beans with fast, accurate and interactive data charts. IFT Online provides a fresh perspective by publishing daily specialty crop news

from all over the world! This can be immensely helpful for obtaining chickpea and Myanmar specific data.

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