Food Security and Natural Disasters: Country Status Paper

Background
Myanmar has a total land area of 676,577 sq km with a population of 57.50 million. Total net sown area is 11.67 ml ha with the cropping intensity of 157.1%. Forest cover, 33.44 ml ha accounted for nearly half of Myanmar's land area. Presently, only 60% of the 17.19 ml ha classified for agricultural production is being exploited.

Myanmar has a predominantly agricultural economy and agriculture sector contributed 45% of GDP, 11% of export earning and employed 63% of its labour force.

Present Status of Food Crops Production
Among food crops in Myanmar, rice, oilseed crops and pulses play a dominant role. Myanmar has a sown acreage of more than 22 ml ha out of which more than 8.1 ml ha (41% of total sown areas) are under paddy, the major food crop of the nation. The paddy production is 30.9 ml MT in 2006-2007. Other major cereal crops include wheat, which accounted for 0.09 ml ha and maize 0.327 ml ha.

Pulses and beans rank as the third major crop under cultivation. The seventeen major species of peas and beans cultivated in 2006-2007 accounted for 4.0 ml ha. Major exportable species are green gram, black gram, pigeon pea, chickpea and soybean. The total production of pulses in Myanmar is 4.45 ml tons.

Next in importance to cereals, in terms of production and consumption, are oilseed crops which occupy 19% of total sown area. The major oil producing crops include sesame, groundnut, sunflower, and perennial oil palm. Total area under oilseed crops in 2006-2007 was 3.216 ml ha and total production of edible oilseed is 2.35 ml tons.

Livestock and Fishery
The livestock together with fishery sub sector's contribution to Myanmar's GDP was, 12.2% in 2006-2007. Livestock and fish production constitutes an important source of protein in Myanmar diet. In 2006-2007, livestock sub sector produced 1.269 ml MT of meat 4939 ml eggs and 1.082 ml MT of milk. During the same year, fish production, both fresh water and marine reached 1.335 ml MT and 1.525 ml MT respectively.

Food Sufficiency
Rice which constitutes more than half of the total sown acreage is growing in different climatic conditions and various topography of the country. Myanmar, at national level, is self-sufficient in rice and self-sufficiency ratio is 179.4 percent. The export volume was 0.36 ml MT in 2007. However, there are some pockets of rice deficit areas such as the
central dry zone and hilly regions. In those areas, rice is supplemented with maize or sorghum in order to meet their daily calorie uptake.

Pulses are the third most important crop in Myanmar. Due to high surplus in pulses productions over one million MT of pulses are exported annually.

In Myanmar, edible oil is always short of demand. Self-sufficiency rate is 67% and 0.283 ml MT was imported in 2007. There is less possibility of surplus edible oil from oilseed crops in the foreseeable future. Therefore the government is making great efforts to promote the cultivation of Oil Palm in Myanmar.

Potato, one of the secondary food crops of Myanmar in sown on 37,000 ha with a production of 522,000 MT. Myanmar is self-sufficient in potato.

Sugarcane production is being expanded primarily by horizontal expansion. In 2006-2007, sugarcane was sown on 149,000 ha with a total sugar production of 544,000 MT. Myanmar is also self-sufficient in sugar.

Most of the common livestock such as pigs, goats, sheep, and poultry are raised traditionally in small numbers. Most smallholder farm families depend on these to satisfy household consumption or for extra cash income. The commercial livestock production sector is relatively small and hence, meat and eggs at national level are not sufficient. Fish production, both marine and fresh water, because of Myanmar's rich fisheries resources, is self-sufficient.

Status of National Food Security

At national level, Myanmar accomplished surplus production of food. But due to the geographical differences, there are pockets of food deficit areas. The regional demand and supply analysis indicates the rice deficit areas in some parts of central dry zone and Shan state and Chin state.

Not much work has been done to access the level of food security in Myanmar with the exception of one undertaken by FAO and WFP for the FIVIMS program (UNOP-MYA, Report no. 03/059, 2003). The report indicated that out of the national total number of 324 townships, a total of 52 townships were classified as being very highly vulnerable, 49 highly vulnerable, 62 moderately vulnerable, and the remaining 122 having only a relatively low level of vulnerability. Twenty-nine of the 52 very highly vulnerable townships were located in Shan state alone. All townships in Chin and two-third of townships in Kachin are also reported to be highly vulnerable. Bago, Mon and Yangon Townships were reported to be least vulnerable of all townships. Townships which were well served in terms of infrastructures are less likely to be vulnerable compared with remote townships.
Improving National Food Security Status

Food security refers to 'food availability' and 'food accessibility'. Myanmar is a food surplus country, producing sufficient quantities of rice, pulses and a variety of other food commodities. Myanmar has great prospects for improving the status of national food security. The government is making great efforts to promote food crop production, and to alleviate poverty while enhancing rural incomes and food security and ensuring adequate low cost supplies for consumers.

Potential in Land Resources

Myanmar is rich in land resources for agriculture as well as water resources and agricultural labor. Only 60% of about 17 ml ha, classified as suitable for agricultural production is currently exploited. Over 6 ml ha of cultivable land is potentially available for expansion. The government is inviting local and foreign investors for investment on an extensive scale in the lands for boosting food production of the nation.

Land area up to 20000 ha can be granted for crop and plant production. Period of occupancy for cultivation and utilization of land has been allowed initially for (30) years and can be expandable upon negotiation. Types of foreign investments are 100 percent foreign own, joint venture with private sector and joint venture with public sector.

Water resources

The amount of water flow annually from the Myanmar rivers such as the Ayeyarwady, the Chindwin, the Sittaung and the Thanlwin is around 870 mil cu ft acre. At present only 6% of total water resources is utilized for agriculture purposes. Since 1988, after the dramatic economic changes were made, the Government put forward continuous efforts in the construction of dams and reservoirs and pump irrigation facilities throughout the country by utilizing large capital investment making use of the available domestic resources and expertise. Under the circumstances, it involves heavy investment burden on Government's budget, and therefore the Government is taking steps to secure long-term loans from International funding agencies.

Food Crop Production Potential

Myanmar has a great potential to boost its crop production in future. The productivity of major crops, when compared with that of neighboring countries are still low. The yield t/ha of paddy in Myanmar is 3.71 t/ha while Vietnam and Indonesia are enjoying 4.80 and 4.44 t/ha respectively. The same situation is true for other major crops like soybean and groundnut. The cause of low yields in major food crops may be attributed to lack of use of quality seeds, low inputs in chemical fertilizers and limited area under
irrigation. Most farmers in Myanmar are resource-poor and cannot afford to invest heavily in farming other than for their own livelihood as subsistence farming. Since 1988, the Government of Myanmar has been creating a favorable environment for investment by private sectors, both indigenous and foreign, in agriculture sector. Contract farming between local private companies and farmers has just been initiated in paddy cultivation, under the terms of agreement that private companies provide necessary farm inputs and guarantee price.

Under the Ayeyarwady-Chaophraya-Mekong Economics Cooperation Strategy (ACMECS), which involve Cambodia, Laos, Myanmar, Vietnam and Thailand, a framework agreement for contract farming to be implemented between Myanmar and Thailand has been reached and is expected to sign the agreement soon. Under the contract farming agreement, food crops such as maize, soybean, sugarcane and biofuel crops are also included to be in cooperated.

**Agricultural Policy Reforms and Impact**

Since 1988, Myanmar has adopted a series of policy reforms to liberalize its economy and the country changed from a centrally-planned economy to a market-oriented economy.

Significant reforms were introduced in 1988-89, including the lifting of controls over prices and domestic trade in rice and other major crops, the abolishment of subsidies on agricultural inputs, and the establishment of border trading.

In 2003, the Government abolished quota purchase system of rice and allowed firms to import agricultural inputs and export most agricultural commodities including rice.

The reforms led to favorable responses from the producers which resulted in boosting the overall production of agricultural commodities.

**Livestock and Fishery Production Potential**

Livestock and fishery sector continues to provide food security and essential domestic nutrition, while rapidly emerging as a source of employment, socioeconomic development and investment. This sub sector still remains potential and lucrative and the Government has invited local as well as foreign entrepreneurs to invest.

**Impact of Financial Crisis on Food Crop Production**

Currently, global community as a whole is facing financial crisis. Myanmar, like any other developed countries exporting agricultural commodities, has been effected by this global recession. The impact of global financial crisis, has created fall in agricultural commodity prices. At present, the price of rice is falling from 192 kyats/kg in 2007 to 129
kyats/kg in 2008. In 2008 the break-even price of rice is 107 kyats/kg, so this current price may lead to unfavorable conditions for rice growers. The financial crisis also caused less export demand which in turn, created unfavorable environment for producers. Under these circumstances, it is imminent that farmers will reduce the area under cultivation, use lesser amount of farm inputs, especially chemicals which generally are not affordable by resource-poor farmers and thus will eventually cause negative effect on overall food production and national food security.

Therefore, the Government of Myanmar is taking necessary measures to protect small farmers not to get affected seriously. In this regard, FAO member nations are urged to unanimously tackle this issue under the framework of the resolution of the High Level Food Conference in June this year.

**Natural Disaster**

**Historical Hazard Risk Profile of Myanmar**

Myanmar is exposed to a range of frequently occurring hydro-metrological and less frequent geophysical hazards. Its coastal regions are exposed to cyclones, tropical storms, storm surges, and tsunamis. Rain-fall induced flooding is a recurring phenomenon across the country. The whole country is at risk from earth quakes, droughts, and fires, while the country's hilly regions are also exposed to land slide risks. Less frequent events include tornadoes, thunderstorms and heat waves. Historical data indicates that between 1996 and 2005, urban fires constituted about 70% of disaster events, followed by floods (11%); storms (10%) and others (9%) including earthquakes, tsunamis, and landslides. In the 1910-2000 period, there were at least 14 major windstorms, 6 earthquakes, and 12 major floods.

More recent major disasters have included the 2004 tsunamis, the 2005 landslides in the mountainous region, and Cyclone Mala in 2006. However, Cyclone Nargis is by far the most devastating natural disaster in the country's history, and has brought to fore the extreme vulnerability, in particular of the country's coastal regions, to such low-frequency but high impact natural hazards.

**Cyclone Nargis**

Cyclone Nargis struck Myanmar on 2nd and 3rd May 2008, sweeping through the Ayeyarwady delta region and some townships in Yangon Division including Yangon City with winds up to 200 km per hour. Almost 7.1 million people were affected. It had taken its toll of household and farm assets and certain human lives, with a total of (77,738) casualties, (55,917) still missing and (19,359) injured in the major rice and livestock farming and fishing communities, residing in the fertile delta region depending on agriculture as their main livelihood.
Damage and Losses

A total area of (783,000) ha including (543,000) ha of paddy land were inundated with sea water due to high tidal waves of 4 meters. Embankments with the total length of (1014 km), protecting paddy land from tide along the coastal areas were largely breached.

The cyclone also caused heavy damages to draught cattle, livestock and poultry, aquaculture farms and farm implements and machineries. This included an estimated total number of (173) thousand livestock including (148) thousand draught cattle, (2.28) million poultry and (456) thousand farm implements and machineries. Moreover, altogether (15,668) hectares of aquaculture ponds and about (9900) hectares salt farm and (30,000) metric tons of salts were destroyed by the floods.

The immediate losses of paddy including standing crop of summer paddy and stored paddy caused by cyclone is estimated at (331,000) metric tons which amount to (2.45) percent of last year's total rice production. Myanmar fortunately has sufficient rice for its domestic consumption. However, it will have negative impact to regional food security as Myanmar is sharing its surplus mainly with its needy neighbors.

Rehabilitation

Rehabilitation tasks in storm-stricken regions met with success in a short period of time with the assistance provided by national, ASEAN and other countries, UN organizations, INGO, NGO, Private Organization and individuals. Million baskets of paddy seeds were sent to the region, fertilizers, farm machineries, fuel, draught cattle, chicken, and duck were distributed to the farmers of the storm-hit regions. As a result, farmers are now in a position to grow paddy on all farmlands of 98 percent in Ayeyarwady and 99 percent in Yangon divisions which are storm-hit regions. Also quite a large number of fishing boats and fishing nets were provided to fishermen and their business has returned to normal.

Rehabilitating and upgrading of coastal embankments which is (1014) km miles long, and about (600) km damaged, has been completed.

Key lessons learnt from Nargis

Some of the key lessons learnt from the post-Nargis emergency response, in the context of disaster risk reduction and prevention, include the following:

1. The national forecasting and early warning systems.

The post Nargis joint assessment by Asian Disaster Preparedness Center (ADPC) concluded that lack of risk communication infrastructure beyond the township level resulted in a devastating impact on those communities who did not receive advance warning of the crisis.
2. Community Response:
   Communities tended to underestimate the intensity of the impending cyclone, and were slow to react with most believing that staying indoors would offer enough protection from the winds, flooding and surge.

3. Lack of evacuation facilities and protocols
   In the absence of protective shelters and evacuation protocols and procedures, the community had nowhere to take refuge or reach safety.

4. Lack of cyclone resistant infrastructure
   Most housing stock and community buildings in the coastal areas were not designed or constructed to disaster resistant standards.

5. Lack of preparedness and poor coping mechanism
   Although some of the communities had undertaken disaster preparedness planning in the context of other hazards (such as fires and floods), most communities were completely unprepared.

6. Inefficient Communication and Transport
   Lack of risk communication infrastructure beyond the township level resulted in a devastating impact on those communities who did not receive advanced warning of the crisis. The physical means and transport infrastructure were also short of what was urgently needed.

Protection and Adaptation to Natural Hazards
   Myanmar is not the first and sadly may not be the last to face such a catastrophic natural calamities. Mitigation of climate change will be a key policy in all the agricultural plans and policies of Myanmar. The Government of Myanmar has established institutional arrangements for dealing with disaster and has systems and practices for disaster prevention and preparedness.

   Mainstreaming disaster risk reduction and mitigation across sectors include reforestation measures with emphasis on mangrove forests and associated ecosystem. A total of 65,108 ha plantation forests, including mangrove and other species have been established in both the Ayeyarwady and Yangon Divisions to increase forest cover. Community forestry is being promoted by the government to manage remaining stands of reserve forests on a sustainable basis.
Adaptation is necessary because climate change and natural disaster could not be completely avoided through mitigation. Adaptation efforts could reduce the negative impacts caused by climate change. Department of Agricultural Research, under MOAI, has been involved in the development of rice varieties tolerant to unfavorable environment in collaboration with International Rice Research Institute, Philippines and Bio-tech, Gene Discovery Unit of Kasetsart University, Thailand.