

# Background Paper No.4 Food and Nutrition Security in Burma<sup>1</sup>

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## Background Paper No.4 Food and Nutrition Security in Burma<sup>2</sup>

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## ACRONYMS & NOTES

Acronym	Full Name
ADB	Asian Development Bank
ADP	Agriculture Development Programme
CBM	Central Bank of Myanmar
CBO	Community-based organization
CESD	Centre for Economic and Social Development
DAR	Department of Agricultural Research
DfID	Department for International Development
FAO	Food and Agricultural Organization
FFP	Office of Food for Peace, United States Agency for International Development
FSWG	Food Security Working Group
GDP	Gross Domestic Product
GOB	Government of the Republic of the Union of Burma
IDP	Internally Displaced Person
IHLCA	Integrated Household Living Conditions Assessment
IMF	International Monetary Fund
INGO	International Non-Governmental Organization
IYCF	Infant and Young Child Feeding
JICA	Japan International Cooperation Agency
LIFT	Livelihoods and Food Security Trust Fund
LUD	Land Use Division of the Ministry of Agriculture and Irrigation
MADB	Myanmar Agriculture Development Bank
MDRI	Myanmar Development Resource Institute
MFI	Microfinance Institution
MICS	Multiple Indicator Cluster Survey
MOAI	Ministry of Agriculture and Irrigation
MOLF	Ministry of Livestock and Fisheries
MSU	Michigan State University
NGO	Non-Governmental Organization
SLRD	Settlement and Land Records Department
U1	Children under one year old
U5	Children under five years old
UMFCCI	Union of Myanmar Federation of Chambers of Commerce and Industry
UNDP	United Nations Development Programme
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
WB	World Bank
WFP	World Food Programme
YAU	Yezin Agricultural University

Exchange rate used throughout this report is US\$1.00 = 860 Kyats  
(average rate during October/November 2012 field visit)

For brevity, the name Burma is used throughout to refer to the Republic of the Union of Burma.

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## EXECUTIVE SUMMARY<sup>3</sup>

### Introduction and Methodology

This background paper was commissioned by USAID as part of a Strategic Agricultural Sector and Food Security Diagnostic for Burma, led by Michigan State University and in partnership with the Myanmar Development Resource Institute - Centre for Economic and Social Development (MDRI-CESD). The broad objectives of the Diagnostic are to improve USAID's understanding of the major constraints to agricultural sector performance and to food security of vulnerable households in Burma, and to outline core strategies USAID should consider as it designs policies and programs to stimulate broad-based agricultural growth and enhance food security. In support of these aims, this background paper synthesizes the best available data and information on poverty, nutrition, and vulnerability to food insecurity in Burma to identify key vulnerable populations, and outlines a set of strategic options to improve the food security of the most vulnerable households.

This synthesis is based on a rapid assessment conducted during a three-week field visit (October 28 to November 17, 2012), and pre- and post-field visit desk research. The research draws from three broad types of information: 1) national surveys on poverty, malnutrition, and health outcomes; 2) food security assessments conducted by UN agencies, donors, and Non-governmental Organizations (NGOs) in select geographic areas; 3) and semi-structured qualitative interviews with key stakeholders across seven of the 14 states/regions in Burma's Delta, Dry Zone, and hilly regions that the team accessed during the field visit.

Data availability and reliability are major constraints to proper assessment in Burma. The Government of Burma (GOB) has not conducted a population census since 1983 and this inaction casts doubt on all other survey work since. The world's longest running civil war and military-government policies have restricted surveyors' access to many parts of the country; even the two relatively reliable surveys intended to document poverty and nutrition conditions face these limitations. Very few surveys provide sex-disaggregated data, which limits analysis of gender aspects of poverty and vulnerability.

The authors fully recognize this obstacle and yet are in agreement with one long-time observer of Burma; the data may not be rigorous but are "good enough to program against." This synthesis therefore intends to provide a broad brush picture of the landscape of poverty, malnutrition, and vulnerability across Burma and focuses on providing a typology of vulnerability to inform USAID's initial dialogue about possible program and policy design to improve household food security.

### Who Are the Poor and Malnourished?

Burma is a resource rich country, with sufficient food availability at the national level, but a very uneven distribution of resources, lack of investment in key sectors (including water, sanitation and hygiene (WASH), health, education, and agricultural research and extension), and government policies that frustrate efforts to ensure household food security.

Official statistics suggest that one quarter of Burma's households live below the national poverty line, and that one in ten households lives below the official food poverty line. Other reports suggest poverty rates are much higher – on the order of a minimum of 50 percent of households. Most poverty and food

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<sup>3</sup> For brevity, citations have been deleted from the executive summary. All citations may be found in the body of the report.

poverty is concentrated in rural areas, where nearly 3/4 of the population lives, in geographic areas dominated by ethnic minorities, and among landless and functionally landless households.

The largest number of poor households is concentrated in Ayeyarwady, Mandalay, Rakhine and Shan; 2/3 of total food poverty and over half of total poverty are in these four regions/states. The highest percentages of poor households, however, are concentrated primarily in the ethnic states of Chin, Shan, and Rakhine.

The groups who are most vulnerable to food insecurity are landless and functionally landless smallholders, ethnic minorities, women (especially mothers), and young children. These groups are among the poorest, and with the highest rates of undernutrition, primarily because of a lack of physical, human and financial capital.

Other important vulnerable groups are orphans and vulnerable children, people living with HIV/AIDS, the physically and mentally disabled, the elderly, and persons persecuted for political affiliation or activity. This paper provides a brief overview of what we know about these groups because, even though these groups constitute smaller populations, there are very few social protections in place to support these vulnerable groups.

**Assets.** In a predominately agricultural country, some of the most important household assets are physical capital (including land, draft animals, mechanized power), human capital (including skilled and unskilled labor), financial capital (including savings and access to credit), and social capital (including social networks that enhance coping mechanisms available to households, such as borrowing from neighbors, or sharing food and water in lean times). All indicators of asset-ownership point to the vulnerability of the average rural household in Burma.

Access to land is a major constraint in Burma. Average landholding size is 6.22 acres but the distribution of landholdings is skewed. Nearly 50 percent of rural households are landless. There is some evidence that the rate of landlessness is increasing. There are four pathways to landlessness: population growth, indebtedness, confiscation, and continued or renewed conflict in some areas. Of those with land, more than 3/4 of all landholding hold fewer than five acres. While some landless and functionally landless households occasionally gain access to land for agricultural production, access appears most often to be through rental of land for cash, or on a sharecropping basis with payment in kind.

Livestock and fisheries play an important role in many rural livelihoods — together, they account for about 20 percent of total agricultural income — yet poor rural households typically own fewer livestock assets, and fishing licenses appear to be under oligopolistic control which prevents some landless from accessing this as an income source.

Largestock (cattle and buffalo) supply draught power and both large and small stock (especially pigs, chickens, and ducks) provide income generation and a source of protein in the household diet; they are important assets that households draw on in lean times. Most rural households own at least some livestock; cattle, pigs, and chicken are most commonly owned.

Decades of gross underinvestment in education combined with structural poverty have created a reversal of Burma's historical excellence in education. GOB spending on education fluctuated in the range of 0.57 to just over 3 percent of GDP between 1971 and 2001; at present, education spending represents just over 1 percent of GDP. Less than 50 percent of all household heads have completed

elementary school, and less than 5 percent have completed post-secondary education. Among rural heads of households, only 6.1 percent have completed at least secondary education. Education attendance and attainment are lowest in ethnic minority-dominated states, differences which partly reflect language barriers (since all instruction is in Burmese) and partly reflect relatively limited physical access in more remote ethnic areas. In Shan East, 41.3 percent of all household heads never attended formal schooling. Other states and regions with a high proportion of household heads who have never attended school include Shan North (22.7 percent), Kayah (20.2 percent), Kachin (18.5 percent), Rakhine (16.7 percent) and Chin (14 percent).

There is widespread and deep indebtedness of Burma's landless and smallholder farmers. Lack of access to credit at sustainable interest rates places many smallholder farmers at high risk of becoming landless. Even with collateral, interest rates of 5-10 percent per month are common; without collateral, interest rates are often 10-15 percent per month or higher. Farmers with small landholdings are less able to cope with poor harvests or other shocks to income, and appear especially likely to take on debt which they are unable to repay.

There are almost no financial institutions in Burma that permit households to save. Most households do not have sufficient income to save much, and often have to draw down on their savings when a shock hits. However, poor households in Burma do commonly save in the form of stored agricultural commodities, precious metals (especially gold jewelry), and livestock.

The social capital available to the average household in Burma is intimately tied to ethnic and village-level networks. Burma has no national social safety nets, with the exception of the formal social security system which covers a tiny fraction of the population. In some areas, UN agency and NGO programs act as *de facto* safety nets.

**Income and Expenditure.** Casual daily labor is the single largest income source for rural households across the country; field observations suggest average daily earnings range from about 1,500 (women) to 2,500 Kyat (men) per day, or approximately \$1.75 and \$2.90 per day, respectively. The seasonality of agricultural employment limits annual household income, and appears to drive consumer indebtedness to buy food.

National average household expenditures on food stand at an estimated 68 percent. One large-scale household survey finds that the average rural household lacks sufficient food two months of the year and that landless households lack sufficient food for nearly two and a half months of every year.

There is a heavy burden of infectious disease across the country, and very minimal Ministry of Health reach in the rural areas. Unsurprisingly, at the national level, an estimated 81 percent of health expenditures are made out-of-pocket.

**Food consumption.** Despite Burma's diverse agroecology, abundant and varied crops, and rich ethnic and cultural diversity, households across the country consider rice the heart of their diet. Consumers mostly eat plain white rice for almost every meal with various "curries" (side dishes), such as fish, meat, and soup, or they use it in fried rice, noodle, and other rice-flour based dishes. The FAO estimates carbohydrates make up 67 percent of the diet and rice contributes the majority share, at 55 percent of the diet. Total protein consumed is an estimated 11.4 percent (of which animal protein contributes 3.2 percent), and fat nearly 22 percent.

The most common protein sources are fish (in Ayeyarwady and Yangon Regions, and Rakhine State, especially), pulses (Dry Zone, Sagaing Region especially), and meat/eggs (pigs, chicken, and ducks especially). Although corroborative data are scarce, per capita daily consumption of micronutrient-rich vegetables and fruits appears moderately low, particularly given the availability of these items.

Overall, low dietary diversity appears to be at least as important a contributor to malnutrition as insufficient caloric intake. Unlike in many other food insecure countries, households report that they rarely reduce the size or number of meals when faced with household food shortages. Instead, as the multi-donor Livelihoods and Food Security Trust Fund (LIFT) baseline survey found, households more commonly switch to less expensive and less preferred foods, and/or eat more wild foods than usual. Among the poorest households, it seems common practice to take out consumer debt to finance food purchases. LIFT's baseline survey found that fully 58 percent of landless households reported using loan proceeds to purchase food. This practice contrasts with large landholders, who very occasionally reported doing so (5 percent), but instead 89 percent of large landholders surveyed used loans to finance agricultural inputs or other business investments.

One can reasonably assume that debt-financing of food purchases is more common during the lean season, when rice stocks are low and market prices are high, and whenever school fees are due. The practice of borrowing money to eat is both a sign of very severe access issues for the most vulnerable households, and points to an urgent need to stabilize market prices of staples while simultaneously increasing household incomes.

Compounding poor access to food are constraints to proper utilization because of poor infant and young child feeding practices (IYCF) and a high disease burden, both of which seriously affect health and nutrition outcomes.

**Nutrition.** Burma is suffering from five major undernutrition problems, according to the Ministry of Health's National Nutrition Centre, including protein energy malnutrition and micronutrient deficiencies (iodine, vitamin A, iron, and vitamin B1). The Ministry reports that hypertension and type 2 diabetes are emerging overnutrition/health problems.

Young children, especially those under two, who are in critical stages of development, are extremely vulnerable to poor health and nutrition outcomes in Burma. Well-established literature cites the long-term consequences of early childhood malnutrition, including poor cognitive outcomes, lower educational attainment, lower adult earnings, increases in chronic morbidity, and premature adult mortality. Yet, chronic undernutrition is widespread throughout the country, and likely much more common than official statistics suggests. According to UNICEF reports, nutritional status has improved since the early 1990s, when stunting in children under five years of age (U5s) was an alarming 59 percent. By the early 1990s, stunting in U5s had supposedly fallen to 41 percent. The latest survey, conducted in 2009-10, indicates stunting now stands at 35 percent. As with poverty incidence, stunting is more prevalent among rural children (38.4 percent) than among urban children (27.2 percent). Based on field observations, the team's educated observation is that there is widespread underreporting of stunting especially in rural areas.

There is little understanding of the underlying causes of malnutrition across Burma, especially the likely important role that poor IYCF practices have on nutrition outcomes. Poor nutrition outcomes are one result of the poor access and utilization. Poverty, poor IYCF practices, lack of education, and a high

disease burden due to lack of infrastructure and health care all appear to contribute to high levels of chronic undernutrition.

### Why Are They Poor and Malnourished?

A complex set of factors are at the root of poverty and malnutrition in Burma: an uneven distribution of resources, many years of internal conflict, and long-term underinvestment in education, health, and agriculture. Compounding these issues are shocks that affect vulnerable households including price volatility, natural disaster, climate change, disease, and sudden loss of access to land. Many of the shocks that increase vulnerability to food security do so via loss of productive assets, including both physical and human capital, either through indebtedness, conflict, confiscation, or simply depletion of assets as a coping strategy. Many of these shocks (price volatility and natural disasters, for example) may negatively affect access to foods through downward pressure on wage rates.

Landless households — who make up about half of the rural population — are most vulnerable to wage and price shocks since they must depend entirely on market purchases. Other groups likely heavily dependent on markets to access food include small-scale farmers, and all others depending on marginal livelihoods, such as forest scavenging, wood cutting, and other activities.

Some 135 distinct ethnic groups who speak more than 100 languages or dialects reside within the borders of present day Burma. There are a handful of major recognized ethnic groups: Bamar (or Burmans, 68%), Shan (9%), Karen (7%), Rakhine (4%), Chinese (3%), Indian (2%),<sup>1</sup> and Mon (2%). Other groups constitute 5% or less each of the population; these groups include, among others, Kachin, Chin, Kayah, Danu, Akha, Kokang, Lahu, Naga, Palaung, Pao, Tavoyan, and Wa. A ninth group, the Rohingya, reside in Rakhine State but are stateless and unrecognized by GoB and are not counted in official statistics.

The largest group, the Bamar (or Burmans) and for which the country got its name, live mainly in the center of the country: the central plains and valleys of the dry zone and in the delta. Occupying the border states, which are generally named for the largest ethnic group residing in the state, are the “minority” ethnic groups. The Shan live mainly around the Shan plateau in the frontier states bordering Thailand, Lao PDR, and China; the Kayin live mainly in the southeast and Ayeyarwady Delta; the Rakhine people are found mainly in the western coastal region; the Mon live in the southern part of the country; the Chin live in the western mountainous regions; the Kachin in the upper north; and the Kayah live in the eastern hilly region.

The rich ethnic tapestry of Burma plays a crucial role in the nation’s history and is the source of many of its current crises. Ethnicity is an important correlate of poverty and food insecurity for a complex set of reasons.

The lands on which ethnic groups reside are among the most resource rich areas in the country. The major deposits of oil, jade and precious gems, hardwoods, and some of the richest soil for horticulture all lie within areas dominated by non-Burmese. As Burmese military and civilian counterparts have struggled to obtain and retain access to these resources, conflicts have taken on economic undertones. This tension is most prevalent around specific industries, including logging, mining, hydroelectricity, and large-scale agricultural schemes, according to studies and news articles. Thus, ethnicity appears tied to vulnerability because the ancestral lands of ethnic minorities contain highly-prized resources.

Many ethnic minority experience both physical isolation, particularly during conflict or post-conflict situations, and social and economic isolation because of language barriers. Curriculum at government schools is taught exclusively in Burmese, the official language, with little to no

support for bilingual education for young children who speak one of the 100+ other languages or dialects in the country.

In the border conflict areas, households have often been displaced from their home, which almost always translates into loss of access to land and disruption of livelihoods. The most significant populations of internally displaced persons (IDPs) are Kachin, Karen, and Rohingya. Estimates of IDPs in Burma range from about 340,000 to upwards of 500,000. According to United Nations High Commission on Refugees (UNHCR) estimates, there are nearly 1.15 million people displaced and/or stateless within the borders of Burma. On the other side of the border, in neighboring Thailand and Bangladesh, there are an estimated 150,000 million refugees, many of whom have been living in camps for generations.

At any given time, there are many IDPs who cannot be reached by humanitarian organizations either because of GOB restrictions on access or escalations in violence which drives INGOs/NGOs to withdraw staff for personal safety reasons. This physical isolation leaves IDPs in some areas especially vulnerable to food insecurity.

**Gender.** The relationship between gender and vulnerability is an especially difficult one to untangle in Burma because there are many seeming contradictions. Women have a number of rights which make Burma rather unique among developing countries, especially compared to its neighbors India, China, and Bangladesh. Women in Burma have had the right to vote since 1935, and women have the same rights as men to own property and to receive equal inheritance. However, there is reportedly a lower value placed on girls' education, presumably because men are considered the main "rice-winners." Yet, Burma has achieved parity of enrollment of girls and boys in both primary and secondary education. In fact, there are 1.11 girls for every one boy in primary school; that rate further increases in secondary school, where there are 1.26 girls for every one boy. At the university level, there are more women enrolled than men. For educated, urban women, their socioeconomic status in regards to home chores, private business, and joint-decision making, is reportedly almost equal to that of men. Rural women and ethnic minorities, however, do not appear to enjoy the same level of status as educated Bamar females living in urban areas. Nationally, nearly three times the number of females are illiterate compared to males. Just over 20 percent of all households are female-headed, and there appears to be an inverse relationship between poverty and gender; female-headed households are less likely to be poor than non-poor, though this may be because households headed by women are more common in urban areas, or are more likely reliant on remittances.

Despite signs of gender equality, there are clearly strong gender roles, and these roles place women in relatively more vulnerable positions. Women have primary responsibility for home and care of children, while still participating in the labor force, often even during pregnancy and nursing. This responsibility places woman, especially women of child-bearing years, in danger of poor health and nutrition outcomes. The gender division of labor, and difference in daily wages based on perceived (rather than real) differences in effort required, may be a symptom of gender-based status.

One of the few gender assessments available suggests that women are more affected by hunger and food insecurity because of women's relatively lower status as caregivers of other family members. Women are generally the first to sacrifice their own hunger and nourishment if the household does not have sufficient food.

The country's high maternal mortality ratio – 316 per 100,000 live births – underscores the vulnerability of woman of child-bearing years. A lack of adequate health services, including reproductive and MCH services, is compounded by high poverty rates and low quality of education. Despite official statistics

that indicate skilled professionals (i.e., Ministry of Health midwives) attend the majority of births, most births actually occur at home in rural areas and traditional birth attendants with limited formal training are more likely present.

**Young children.** Young children at critical stages of development are especially vulnerable in Burma because of poor household access and challenges to proper utilization. The high rates of stunting, officially at 35 percent nationally, are a result of the high levels of poverty, poor IYCF practices, lack of education, and a high disease burden due to lack of infrastructure and health care.

Children in rural areas, and ethnic states, are at greatest risk of undernutrition. Stunting in children under five in rural areas is more prevalent (38 percent) than among urban children (27 percent). Prevalence rates are highest in Chin State (58 percent), Rakhine (50 percent), regions within Shan State (ranging from 39 to 47 percent) and Kayah (42 percent) among the highest. Interestingly, prevalence rates of stunting in U5s indicate more favorable outcomes for girls than boys; whereas 36.7 percent of boys are stunted by age 5, 33.4 percent of girls are stunted by that same age. The reason for this difference is unclear.

Without interventions to address the underlying causes of chronic undernutrition in young mothers and children, the current and future generations of children will suffer many of the negative long-term consequences of undernutrition –poor cognitive outcomes, lower educational attainment, lower adult earnings, increases in chronic morbidity, and premature adult mortality.

### **Institutional Environment**

There are a number of institutions whose policies and actions affect food security and nutrition outcomes in Burma. The Ministry of Agriculture and Irrigation has perhaps the most complex and wide-sweeping effect on the agricultural sector and therefore rural life. Under the MoAI are all the research and extension support agencies including, among others, the Myanmar Agriculture Service, Settlement and Land Records, Department of Agricultural Research, Mechanization, and the country's only institution of higher learning in agriculture – Yezin Agricultural University.

The Department of Rural Development under The Ministry for Progress of Border Areas and National Races and Development Affairs, commonly referred to as the Ministry of Border Affairs, previously had the responsibility for rural infrastructure such as bridges and roads, as well as oversight of ethnic states. A recent reorganization now sees the Department of Rural Development charged with rural development more broadly, but with a self-identified lack of capacity to implement rural poverty reduction programs.

The Ministry of Social Welfare, Relief and Resettlement has primary responsibility for coordinating relief to those affected by disasters, including those suffering from acute food insecurity due to drought, flood, or civil conflict.

Many humanitarian actors, including WFP, have Memorandums of Understanding with either the Ministry of Social Welfare or the Ministry of Border Affairs.

Other key ministries and institutions include:

- The Ministry of Health, and the National Nutrition Centre which sits within the Ministry of Health

- The Myanmar Agricultural Development Bank, a state-owned bank and the main source of institutional credit for small-scale farmers.
- The Ministry of Education, charged with overseeing the public schools and universities.
- The Ministry of Livestock and Fisheries

Aside from the Ministries with specific influence on agriculture, marketing, health and nutrition, there are a host of other Ministries that influence the complex rural landscape affecting food security and livelihood opportunities: Ministry of National Planning and Economic Development, Ministry of Defense, Ministry of Mines, Ministry of Energy, Ministry of Labor, Employment, and Social Security, Ministry of Environmental Conservation and Forestry.

Among civil society actors, the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) is the largest and most influential commercial actor that influences the production and marketing of foodstuffs. Multiple UN agencies, including WFP, UNICEF, and FAO provide technical and humanitarian, including emergency food assistance, in many areas. There are several coordination and information sharing mechanisms in place, including the Myanmar Nutrition Technical Network (National Nutrition Centre and UNICEF), the Food Security Working Group (NGOs), and the Food Security and Agriculture Thematic Group (UN agencies and NGOs). Donors – primarily through the multi-donor trust fund LIFT, contribute to development and relief efforts to improve food security primarily in the Delta, Dry Zone and Shan State.

### **Targeting Vulnerable Households**

United States engagement in Burma is new, and while there is tremendous hope for broad-sweeping change, there is tremendous uncertainty about the reform process. Burma faces almost overwhelming challenges to institutional and policy reform, not least of which are entrenched interests in maintaining the status quo. As USAID contemplates expanding programming to support food security objectives, the agency would do well to develop strategic and agile programs that will support vulnerable populations even in the absence of the structural and institutional reforms necessary for longer term, sustainable improvements in the welfare of vulnerable households across the country.

This paper lays out a set of strategic options that should be considered in any short game, options that should form the foundation of any long-term investment strategy to improve food security for millions of poor people across Burma. Importantly, the strategic options in a short game are not meant to be exclusive to a short-game stance; rather, these options will help lay the groundwork for a long game. If well designed and implemented, the short-game options have potential to leave vulnerable households better off, even if the political will to make the more profound and long-reaching transformations is ultimately insufficient to enable deeper structural changes.

### **Short Game**

In the absence of institutional and structural reform, there are numerous strategic options available to donors to improve food security for vulnerable households. The primary objectives of all strategic options should be to:

- Lower staple food prices and reduce food price volatility through investments in improved food market performance
- Increase incomes through diversification away from casual labor and much less profitable crop production into more remunerative farm and non-farm activities

- Lay the groundwork for a long game by investing now in improvements in human capital for the next generation. Investments should include (1) improving basic nutrition and health outcomes through integration of nutrition and health into every strategic option to improve food utilization, and (2) improving attendance, attainment, and quality of rural education.

Other papers in this series focus on improving production, productivity, and marketing of agricultural crops. This paper therefore focuses more heavily on investments in human capital, with a few recommendations regarding income generating activities.

**Diversifying and raising incomes.** Interventions that support employment generation at the village or village tract level via microenterprise, especially microenterprise that improves dietary diversity/nutrition (e.g. poultry and horticultural crops that can be incorporated into the diet) are desperately needed. During site visits in the Delta, Dry Zone and hilly areas, the team interviewed many villagers and village leaders about livelihood options. While the majority of villagers earn income, at least part of the year, as daily agricultural laborers, there are a number of different types of entrepreneurial activity at the village level. Among the most common microenterprises were textile weaving, fishing, basket weaving, vending, and small-scale poultry operations. In a short game, these activities can and should be encouraged. Some of the activities are presently supported through donors and community based organizations, most notably under the multi-donor Livelihoods and Food Security Trust Fund (LIFT), but support needs to be vastly scaled up. An expansion of microfinance, village savings and loan schemes (VSLs), and other community-based self-help groups (such as rice banks and animal banks), would enable investment in improved production and micro-entrepreneurial activity.

**Basic health and nutrition.** Large scale donor-funded activities have focused on improving food availability and access (e.g., LIFT-funded programs), as well as other vitally important areas such as conflict resolution and peacebuilding. However, other equally essential areas – such as basic nutrition and health – have been virtually ignored by the donors and GOB.

Basic health and nutrition programs should be integrated into any new program aimed at improving agricultural sector growth and/or enhancing food security, and backwards-integrated into any existing programs. Aside from inherent health benefits, basic community-based healthcare and messaging about hygiene practices can increase household labor availability to earn income, and reduce the likelihood that households will need to borrow money to pay health expenses or forgo care altogether. Poverty and poor health are inextricably linked; investments in health should be seen as part of any poverty reduction strategy.

USAID partners have learned many valuable lessons over decades of programming in health and nutrition. Among the set of evidence-based practices that can be implemented on a small-scale and in nearly any operational environment are:

- Kitchen gardens in which NGOs/Community-based organizations (CBOs) teach women to grow nutrient-dense crops (vegetables, fruits, legumes) for use in household meals, while providing basic nutrition education
- Mother's clubs, or other platforms where mothers and their families learn about optimal breastfeeding and complementary feeding practices, and continued feeding during child's illness
- "Training of trainers" nutrition education and healthy cooking demonstrations, one side benefit of which is that such programs can create jobs for female nutrition educators who teach family, neighbors and community members
- Hand-washing campaigns

- Campaigns to end open defecation (similar to Bangladesh’s Community-Led Total Sanitation approach)
- Increased access to safe drinking water, through WASH campaigns
- Regular growth monitoring (including weight and height) of children under five in targeted communities, and introduction of individual growth monitoring charts so mothers can see how their child’s growth compares to his/her healthy peers. Although these practices would have greatest impact at the national level, they can be implemented by NGOs with trained staff at more local levels, even without structural changes in national policies and institutions.

Finally, USAID should considering funding small-scale pilot efforts to link increased enrollment (through scholarships or Food for Education programs designed to cover the cash and opportunity costs of attracting landless children to schools) with expanded teacher staffing and supplementary curricular and extra-curricular learning opportunities aimed at improving the relevance and impact of rural education on the career trajectories of children of the rural poor.

### **Long Game**

Setting up a long game, especially starting out with a misaligned national budget, will require a shift in priorities and many difficult investment decisions. Like all long-term investments, however, the payoffs will be much larger (and for a much larger group of people) than if decision-makers keep fixated on short-term investments. The good news is that most of the recommendations presented here (education, jobs, and capacity building) were self-identified needs by nearly every interviewee, whether in villages or Ministry offices. Some of the recommendations will require educating stakeholders about why a particular investment is worthwhile, an undertaking that will mean breaking down a silo mentality and entrenched patterns of doing business. This is particularly true in the area of food security. Among GOB stakeholders, food security simply means food availability (or more precisely, *rice availability*) at the national level. The concepts of food access, utilization, and stability appear quite foreign in Burma.

Importantly, the long game should build on gains and lessons learned in the short game. The primary objectives of all strategic options in a long game should be to:

- Invest in human capital by:
  - Placing education at the center of a poverty reduction strategy
  - Incorporating nutrition into policies and programs to ensure the next generation reaches its full genetic potential
  - Developing a knowledge base through basic research topics with wide-ranging consequences for improved agricultural sector performance and enhanced food security
  - Building capacity within GOB and civil society
- Address land use in a way that respects the interests of all stakeholders
- Break down the existing silo mentality and encourage regular and meaningful coordination among stakeholders
- Design and support national safety nets

Investment in human capital must be at the center of any long game, both for GOB and the donor community eager to see Burma succeed. There is woefully inadequate government spending on health and education. Yet, education, and basic health and nutrition, must be at the center of any investment in human capital that hopes to reap meaningful payoffs at a population level.

**Education.** Education, especially rural education, needs to move to the center of discussions about inclusive economic growth. Attendance rates and educational attainment among vulnerable households

are low because the opportunity cost of sending rural children to schools is high, and there is no job market to act as an incentive to invest in education, especially given that school fees often create yet more indebtedness.

Burma's history of strong education dating to the British colonial era has been severely undermined by decades of neglect and entrenched structural poverty. In the short game, increasing attendance and attainment through Food for Education (and teaching the school community about nutrition through school gardens) are both worthy and important goals. In a long game, true progress in building human capital should be less focused on attendance rates and more focused on attainment rates and the quality of education, which are currently extremely low.

Addressing weaknesses in the educational system will require substantial fiscal and human resources devoted to tackling tough problems. The Ministry of Education needs an increase in its budget allocation so it can: 1) undertake curriculum reform to ensure education is relevant for a rural but transforming economy; 2) address the language barrier through creative solutions, perhaps adding government sponsored preschool focused on Burmese (or other) language acquisition; and 3) hire sufficient numbers of qualified and motivated teachers especially in more remote rural areas.

Fortunately, Burma has a history of strong education, and even today enjoys gender parity in attendance. Even more fortunate, education is a self-identified need. Indeed, everywhere the team went, regardless of whether the interviewees were villagers, village administrative officers, GOB Ministry staff, or local staff from CBOs, education topped their list of priorities areas in need of urgent investment.

**Nutrition.** The long-term consequences of early childhood malnutrition – poor cognitive outcomes, lower educational attainment, lower adult earnings, increases in chronic morbidity, and premature adult mortality – are widely recognized within the international community. As a result of the large evidence-base, many international organizations and bilateral donors are prioritizing improvements in early childhood nutrition with the goal of improving long-term human capital outcomes.

The multitude of benefits of investing in nutrition, however, is not well known in Burma. As a result, the GOB's commitment to nutrition is paper-thin. This lack of awareness is partly due to a silo mentality. Within GOB and civil society, nutrition is seen as a "health issue," somehow unlinked to economic issues or agricultural sector issues. There is very little understanding of IYCF practices and how they influence food security outcomes. There seems to be little appreciation for the link between infrastructure, disease burdens, and poverty and nutrition outcomes.

The Ministry of Health National Nutrition Centre is currently revising Burma's 5-year National Plan of Action for Food and Nutrition (NPAFN). An expatriate consultant, funded by the Food and Agriculture Organization, is currently revising the draft. As a donor agency with tremendous capacity in nutrition programming, USAID should be an active part of that conversation. The team was able to read an early draft of the plan. There were substantial operational gaps yet to be filled in the early draft. It will be critical for stakeholders to operationalize the NPAFN, in active consultation with all the key stakeholders involved in the agricultural sector, to increase the chances of effective application of food and nutrition policies under the new five-year NPAFN. The US should offer its considerable resources in nutrition research and programming as an evidence-base from which to inform the ongoing conversation about GOB priorities to support inclusive and sustainable economic growth.

Experience in many countries underscores the importance of integrated approaches to tackling poverty and food insecurity. Any solutions to improving nutrition outcomes, for example, will necessarily involve a multi-sectoral approach, including expertise and resources in agriculture, education, infrastructure, private agribusiness, and healthcare. Designing and implementing poverty reduction plans will require increased inter-ministerial coordination, and coordination and communication between GOB and civil society.

**Basic research.** Basic research is urgently needed to create a knowledge base to enable policy and program design, and to measure progress. To ensure inclusive growth, we need to better understand the constraints on improving agricultural sector performance and household food security. While other papers in this series focus on basic research needs within the agricultural sector, here, we highlight research needs specific to food security, especially those affecting household food consumption and nutrition outcomes including:

- Basic research on household decision-making patterns, including who controls expenditures and who controls food purchases, and whether and how these patterns differ among different ethnic groups
- Basic research on household consumption patterns, including intra-household allocation of food, and whether and how these patterns differ among different ethnic groups
- Basic research about the determinants of malnutrition, especially any determinants that are specific to cultural practices

**Capacity building.** There is a critical need for massive capacity building of technocrats within GOB who must design and implement GOB programs. Along with education, capacity building was the second-most common self-identified need, given top priority especially among government staff. From Union to township and down to the village level, there is widespread recognition that capacity is low because of the poor educational system, and yet there is an extremely strong desire among GOB staff to be at the center of problem-solving efforts. As one observer notes, “Burma’s citizens need demand-driven support, not supply-driven development.”

**Land use management.** Unequal access to resources and lack of popular voice in decisions about major infrastructure projects and resource extraction that affect rural populations, are at the heart of many conflicts between the Burmese government and ethnic minorities in ethnic states. But the GOB’s heavy-handed and widespread use of land laws has also stripped rural Burmese households of access to land.

Without reforms in land use management, there is risk of an ever growing landless population. Parliament’s establishment of a formal commission to investigate land confiscations in July 2012 shows a commitment to address this complex and difficult issue. The promise of reform, however, produces rising expectations among the populace that could lead to further civil unrest if there is insufficient follow-through. Global attention on Burma means there is perhaps greater incentive for the GOB to work towards a national resolution to the land issue that recognizes the explosiveness of battling entrenched interests and yet finds a way to extend access to the millions of vulnerable people who have been previously denied.

**National safety nets.** Industrialized countries long ago recognized that social protection programs are necessary to keep the most vulnerable households from sliding into destitution. Safety nets must be designed, properly funded, and monitored to ensure they adequately reach those who most need them. There are now many national safety nets in lower- and middle-income countries (e.g., Brazil, Mexico, and Bangladesh) which provide examples of design and implementation. At present, with the exception

of the formal social security system which covers a tiny fraction of the population, Burma has no national social safety nets. In many areas, UN agency and NGO programs act as *defacto* safety nets.

At a minimum, in support of investments in human capital and social protection of the most vulnerable groups in Burma, the team recommends USAID support a pilot safety net system. Even within a short time, design and testing of safety nets to target landless and functionally landless households can inform development of a national safety net program. USAID may also wish to consider piloting cash transfers or other in-kind support to the elderly, disabled, and households supporting orphans and vulnerable children.

## **Conclusion**

Burma has embarked on an unprecedented path to restructure its political, economic, and social institutions in an effort to realize its potential as a global agricultural power and reduce the rural poverty that has gripped its citizens for nearly half a century. In the process, Burma's leaders have opened up to the international community, seeking technical assistance to stimulate broad-based inclusive growth. As international donors contemplate new programming to stimulate agricultural growth and enhance food security in Burma, donors have the opportunity to support short-term gains while laying the foundation for long-term improvements in household welfare for the people of Burma.

Policies that encourage a more even distribution of resources, and strategic government and donor investment in physical, financial, and especially human capital, hold promise to improve household food security for millions of Burma's most vulnerable households.

## FOOD AND NUTRITION SECURITY IN BURMA

### 1.1. Introduction

This background paper was commissioned as part of an Agricultural Sector and Food Security Diagnostic, led by Michigan State University and in partnership with the Myanmar Development Resource Institute Centre for Economic and Social Development (MDRI-CESD). The Diagnostic was funded by the USAID Bureau of Food Security. This background paper was co-funded by the USAID Office of Food for Peace.

The broad objectives of the Diagnostic are to improve USAID's understanding of the major constraints to agricultural sector performance and to food security of vulnerable households in Burma, and to outline core strategies USAID should consider as it designs policies and programs to stimulate broad-based agricultural growth and enhance food security.

In support of these aims, this paper synthesizes the best available data and information on poverty, nutrition, and vulnerability to food insecurity in Burma to identify key vulnerable populations, and outlines a set of strategic options to improve the food security of the most vulnerable households.

### 1.2. Methodology

This synthesis is based on a rapid assessment conducted during a three-week field visit (October 28 to November 17, 2012), and pre- and post-field visit desk research. The research draws from three broad types of information: 1) "nationally-representative" surveys on poverty, malnutrition, and health outcomes; 2) food security assessments conducted by UN agencies, donors, and NGOs in select geographic areas; 3) and semi-structured qualitative interviews with key stakeholders across seven of the 14 states/regions<sup>4</sup> in Burma's Delta, Dry Zone, and hilly regions that the team accessed during the field visit. Stakeholders interviewed for this rapid assessment included officials from the Government of the Republic of the Union of Burma (GOB); commercial actors; staff from UN, INGO, NGO, and community-based organizations (CBOs); villagers; village administrative officers; donors; and other representatives from civil society. During village visits, well more than half of the food and nutrition security team's time was spent interviewing women of all ages. The list of field visit sites and groups interviewed are in Annex B of the main Diagnostic Report as well as a list of references cited and written work that informed this paper.

This synthesis intends to provide a 'broad brush' picture of the landscape of poverty, malnutrition, and vulnerability across Burma and focuses on providing a typology of vulnerability to inform USAID's initial dialogue about possible program and policy design to improve household food security.

Data availability and reliability are major constraints to proper assessment in Burma.<sup>5</sup> The GOB has not conducted a population census since 1983<sup>6</sup> and this inaction casts doubt on all other survey work since. As discussed in the Diagnostic report, the lack of a recent reliable population census "compromises every statistical sample survey conducted in Burma over the past several decades"; all surveys therefore are "subject to a cloud of uncertainty over possibly wide but unknown levels of bias and sampling error" (Haggblade et al. 2013, p.17.)

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<sup>4</sup> The 2008 constitution renamed administrative "divisions as "regions"

<sup>5</sup> Dapice, D., T. Vallely, and B. Wilkinson. 2009. Assessment of the Myanmar Agricultural Economy; Ware and Clark 2009.

<sup>6</sup> Some have argued that even the 1983 census was was deeply flawed, and that the most reliable census was conducted prior to independence.

The world's longest running "civil war" and military-government policies have restricted surveyors' access to many parts of the country; even the two relatively reliable surveys intended to document poverty and nutrition conditions<sup>7</sup> face these limitations. Very few surveys provide sex-disaggregated data, which limits analysis of gender aspects of poverty and vulnerability. The authors fully recognize this obstacle and yet are in agreement with one long-time observer of Burma that the data may not be rigorous but are "good enough to program against."<sup>8</sup> To address this dearth of reliable data, the authors have attempted to note discrepancies among the reported statistics, and inconsistencies between reported data and appeared based on observations during the field visit. Importantly, restrictions on access and time constraints prevented the necessary field assessments for a deeper understanding of conditions in the ethnic states. Secondary data suggest conditions in the ethnic states are worse than in in most of the center of the country. Therefore, the findings presented here should be viewed cautiously even though these results represent the best information presently available on food security conditions in the country.

### 1.3. Who Are the Poor and Malnourished?

#### 1.3.1. Overview

Burma is a resource rich country, with sufficient food availability at the national level, but a very uneven distribution of resources, lack of investment in key sectors (including water, sanitation and hygiene (WASH), health, education, and agricultural research and extension), and government policies that frustrate efforts to ensure household food security.

Poverty indicators from successive rounds of the Integrated Household Living Conditions ("IHLCA")<sup>9</sup> surveys provide the best available estimates of the incidence and distribution of poverty and food poverty in Burma. Here, poverty incidence represents the percentage of the population who are deemed poor, while food poverty incidence represents the percentage of the population who do not have sufficient income to purchase the local food basket at prevailing market prices.<sup>10</sup> The most recent IHLCA indicates an estimated 25.6 percent of Burma's households live below the national poverty line. The same survey indicates approximately 10 percent live below the official food poverty line.<sup>11</sup> Other reports suggest poverty rates are much higher – on the order of a minimum of 50 percent.<sup>12</sup>

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<sup>7</sup> The Integrated Household Living Conditions Survey (IHLCA), and the Myanmar Multiple Indicator Cluster Survey (MICS).

<sup>8</sup> Personal community with major donor representative, November 2012.

<sup>9</sup> The Integrated Household Living Conditions Survey in Myanmar (IHLCA) was conducted jointly by UNICEF/UNDP/Swedish International Development Agency/Ministry of National Planning and Economic Development.

<sup>10</sup> Importantly, in the IHLCA "the well-being metric used is consumption expenditure"(p. 5), but the way it is calculated, it does appear to account for consumption of own production. The food poverty line was determined by establishing food expenditures in Kyats necessary to pay for a local food basket that would satisfy each household member minimum caloric intake. To calculate food expenditures, IHLCA considered the amount and value of all food items purchased in cash, obtained as gift, loans, wage, and/or barter, and household own food production. To value food products which were not purchased, IHLCA used the median price for a specific food item at the Union level (IHLCA Project Technical Unit, 2011, Integrated Household Living Conditions Survey in Myanmar (2009-2010). The poverty line "represents a minimum of food and non-food expenditures based on the consumption patterns of the second quartile of the consumption distribution" (IHLCA, p6). More details are available at [http://www.mm.undp.org/ihlca/05\\_Technical/index.html](http://www.mm.undp.org/ihlca/05_Technical/index.html)

<sup>11</sup> IHLCA 2011.

<sup>12</sup> Ware and Clark. 2009. Consequences of Sanctions: Are the MDGs Relevant in Myanmar?; Dapice, D., T. Vallely, and B. Wilkinson. 2009. Assessment of the Myanmar Agricultural Economy. Dapice et al. (2009) note that their team's field observations over a three-year period are incongruent with the IHLCA's finding of falling poverty rates.

Regardless of whether the absolute percentages of households living in poverty and food poverty are accurate, there are clearly important differences in the distribution of poverty, food poverty, and other important food security indicators whether one examines secondary data or visits villages around the country. Most poverty and food poverty is concentrated in rural areas, where nearly 3/4 of the population lives,<sup>13</sup> in geographic areas dominated by ethnic minorities, and among households with certain characteristics (particularly households who are either landless or have very small landholdings).

At the national level, average landholdings are 6.22 acres per holding in rural areas.<sup>14</sup> The distribution of landholdings is skewed, however, with more than 3/4 of all landholding less than five acres, while landholdings larger than 20 acres constitute less than five percent of all holdings.<sup>15</sup>

Households across Burma source food from own production or market purchases; lack of data on the relative contribution of household production versus market purchases to household consumption hinders accurate assessment of household vulnerability to volatility in market food prices and labor demand. However, the 2003 Agricultural Census reveals that just over 28 percent of all agricultural households<sup>16</sup> surveyed reported using agricultural production mainly for “home consumption” as opposed to mainly for sale.<sup>17</sup> Exact data on the percentage of food sourced from markets are not available. The landless, who make up about half of the rural population, are most vulnerable to wage and price shocks since they must depend entirely on market purchases. Other groups likely heavily dependent on markets to access food include: small-scale farmers, and all others depending on marginal livelihoods, such as forest scavenging, wood cutting, and other activities.<sup>18</sup>

At the national level, livestock and fisheries play an important role in livelihoods; together, they account for about 20 percent of total agricultural income (see Table 2 in Haggblade et al. 2013). The nature of reporting from the 2003 Agricultural Census and IHCLAs make it impossible to understand the effect of more than one income source to overall household income. For example, although both paddy production and fishing appear important to household income in the Delta, it is unclear the proportion they contribute to each income stream.

The percentage of expenditures on food is an important indicator of a household’s ability to access food on the market and its vulnerability to food prices. National average household expenditures on food stand at an estimated 68 percent.<sup>19</sup>

Trends in poverty and food poverty suggest improvements in household welfare. A comparison of the most recent IHLCA indicates poverty has decreased, from 32.1 percent in 2004-05 to 25.6 percent in 2009-10.<sup>20</sup> Poverty has declined much more in urban areas (27 percent decline) than in rural areas (18

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<sup>13</sup> Population estimates vary widely, between 48.4 million and 58.8 million for 2008-09.

<sup>14</sup> U Aye Maun Sein, n.d., Rural Statistics from Agricultural Census (Based on Myanmar Census of Agriculture 2003).

<sup>15</sup> UNDP. 2004. Myanmar Agricultural Sector Review Investment Strategy Volume 1 – Sector Review.

<sup>16</sup> The 2003 Agricultural Census defined an agricultural holding thusly: “For the purpose of agricultural census, an agricultural holding should be engaged in raising of crops in at least 0.10 acres (about 400 square meters) of land or raising at least or 2 head of large livestock or 4 head of small livestock or a combination of the two, or at least 30 head of chickens or ducks, regardless of the area of land” (U Aye Maun Sein, n.d., Rural Statistics from Agricultural Census (Based on Myanmar Census of Agriculture 2003).

<sup>17</sup> U Aye Maun Sein, n.d., Rural Statistics from Agricultural Census (Based on Myanmar Census of Agriculture 2003). The 2003 Ag Census classified production as “mainly” home consumption (sale) if more than half of production of the agricultural holding was reportedly for home consumption (sale).

<sup>18</sup> World Food Programme/Food and Agriculture Organization. 2009. Crop and Food Security Assessment Mission; U Aye Maun Sein, n.d., Rural Statistics from Agricultural Census (Based on Myanmar Census of Agriculture 2003).

<sup>19</sup> IHLCA 2011.

<sup>20</sup> IHLCA 2011.

percent decline) during the five-year period between surveys. The national share of food in total expenditure declined slightly from 69.4 percent to 68 percent, but actually rose among the poorest 30 percent of households. This inconsistent finding drove the survey authors to urge caution in interpretation of results, especially regarding the magnitude of the apparent poverty decline.<sup>21</sup>

While the majority of poverty and food security assessments emphasize the importance of access (both physical and economic) as a constraint to household food security, few have emphasized the critical role of utilization (in terms of both feeding practices and disease burdens) as a vast constraint to improved food security. The international community recognizes that chronic undernutrition in early childhood has severe and negative long-term consequences for human capital development,<sup>22</sup> but this recognition is a long way off in Burma.

A series of nationally-representative surveys (the Multiple Indicator Cluster Surveys, MICS)<sup>23</sup> collect and report on important indicators to assess trends in important outcomes. According to WHO, the prevalence of stunting in children under five years of age (U5) declined from 46 percent in 2000 to 40.6 percent in 2003.<sup>24</sup> Using the new WHO standards, MICS3 found 35.1 percent of U5 nationally were stunted as of 2009-10, compared to the MICS2 stunting rates of 32 percent in 2005-06.<sup>25</sup> Based on field observations, the team's educated observation is that there is widespread underreporting of stunting.

The national prevalence of wasting – an indication of acute malnutrition – has reportedly declined from 13.1 percent in 1991 to 10.7 percent in 2000 and 7.9 percent in 2009-2010.<sup>26</sup> Trends in wasting are generally not an indicator of overall progress in national food security since improvements may simply reflect a temporary absence of acute shocks in surveyed communities. A better second indicator of underlying trends in nutrition outcomes is the prevalence of underweight, which captures both acute and chronic undernutrition. The MICS3 found 30 percent of sampled children (U5) were underweight in 2009-10, while the IHLCA 2011 reported underweight prevalence at 32 percent.

Other important vulnerable groups are orphans and vulnerable children, people living with HIV/AIDS, disabled children and adults, the elderly, and persons persecuted for political affiliation or activity. This paper provides a brief overview of what we know about these groups in Section 1.3.8 because, even though these groups constitute smaller populations, there are very few social protections in place to support these vulnerable groups.

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<sup>21</sup> IHLCA 2011. IHLCA used the food share of expenditures as one proxy for poverty. The results by decile produced findings that are inconsistent with general reduction in poverty. The survey authors argue that other proxy measures (small asset ownership and caloric intake) are broadly consistent with a reduction in poverty.

<sup>22</sup> The 2008 Lancet series documenting the long-term consequences of maternal and early childhood malnutrition created a foundation upon which many donor agencies, including USAID, have built platforms guiding food-based and health-based nutrition programs and policies. USAID

<sup>23</sup> Myanmar Multiple Indicator Cluster Survey (MICS). 2011. Myanmar Multiple Indicator Cluster Survey 2009-10. Yangon: UNICEF/Ministry of Planning and Development and Ministry of Health.

<sup>24</sup> World Health Organization. 2012. Global Database on Child Growth and Malnutrition-Myanmar. Stunting rate in 1991 was 46.0%, decreased to 40.8% in 2000, 40.6% in 2003, and 35.1 in 2009-10. Wasting rate in 1991 was 13.1%; in 2000 was 10.7%; in 2009-2010 it dropped to 7.9%.

<sup>25</sup> These stunting prevalence rates are based on the earlier NCHS growth standards. In 2006, WHO issues new international growth standards, internationally recognized as the gold standard for growth standards across the globe. For comparison, a stunting prevalence rate of 32% based on NCHS standards translates into a rate of 38.2% based on WHO standards.

<sup>26</sup> Using the old NCHS standards, MICS3 found 7.7% of U5 were wasted in 2009-10 (MICS3).

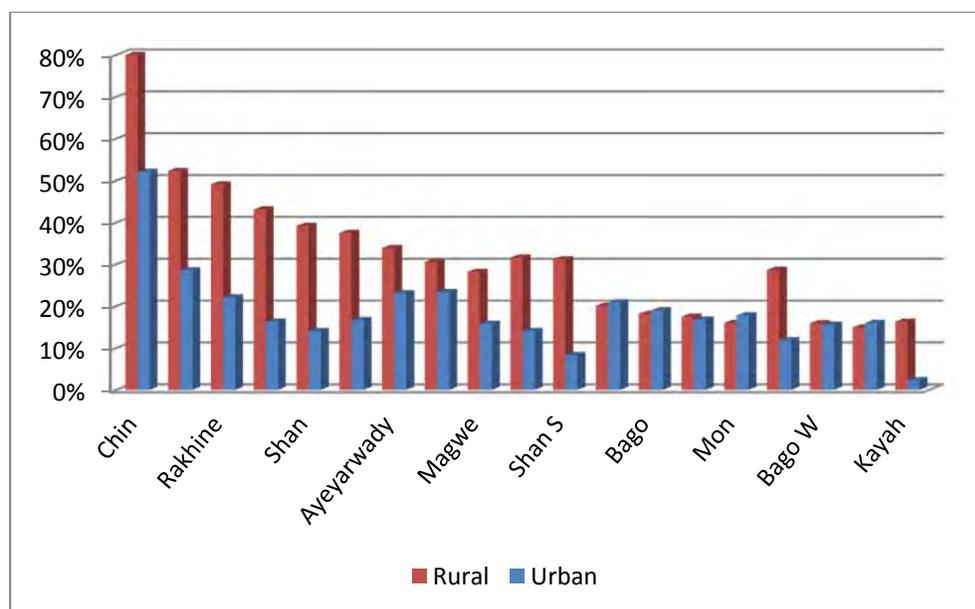
### 1.3.2. Poverty

Whether one-quarter or one-half (or more)<sup>27</sup> of all households are poor, it is clear that national figures grossly mask tremendous heterogeneity at the subnational level. The paper uses the most reliable secondary data to develop a picture of the relative distribution of important correlates of food security (i.e., poverty, food poverty, access to productive assets, and nutritional status).<sup>28</sup>

**Poverty line.** Using expenditure-based poverty lines, there is clearly a skewed distribution of poverty incidence towards states with a greater ethnic minority population (Chin, Shan, Rakhine, Tanintharyi, Kachin; some of which were in conflict/post-conflict), and also parts of the Dry Zone (Magwe, Mandalay) (see Figure 1 below).

The high incidence of poverty in Ayeyarwady region partly reflects the devastating effect of Cyclone Nargis. Not only did the cyclone kill an estimated 138,000 people, it also affected 2.4 million people<sup>29</sup> as it decimated the land and livestock upon which families depended for their livelihoods, including two million acres of paddy fields, and 85 percent of seed stocks.<sup>30</sup> Much of the Delta was destocked; livestock death estimates are 132,133 buffalos, 88,720 cattle, 1,112,194 chickens, and 502,686 ducks.<sup>31</sup> Other mass losses of capital critical for communities dependent on fishing included 2,000 off/in-shore fishing boats/vessels, more than 1,000 small boats, and more than 50 cold storage facilities.<sup>32</sup>

**Figure 1. Burma Poverty Incidence by State/Region and Strata (%), 2009-10**



Source: Adapted by authors using data from IHLCA 2011.

<sup>27</sup> Ware and Clark report poverty rates are likely a minimum 50 percent or more.

<sup>28</sup> These include the "nationally representative" IHLCA (2005 and 2011?), and the MICS2 and MICS3, along with several geographically limited but illuminating assessments including the LIFT baseline survey, JICA Central Dry Zone poverty profile, and Save the Children Foundation WASH assessment.

<sup>29</sup> World Food Programme. 2012. Protracted Recovery and Relief Operation – draft proposal.

<sup>30</sup> World Food Programme. 2009. A look back at Cyclone Nargis. Published on Monday May 04, 2009 available at <http://www.thestar.com/News/World/article/628628>

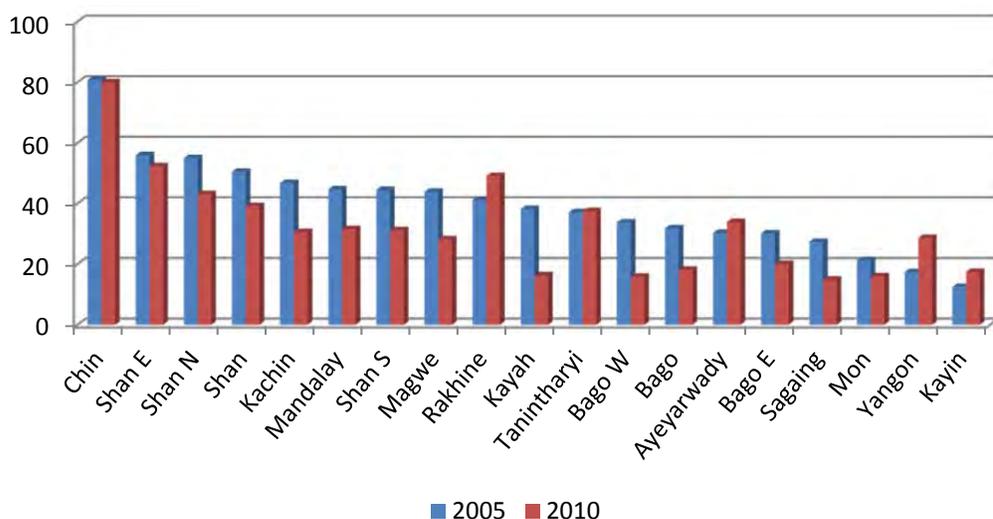
<sup>31</sup> World Food Programme/Food and Agriculture Organization. 2009. Crop and Food Security Assessment Mission.

<sup>32</sup> World Food Programme/Food and Agriculture Organization. 2009. Crop and Food Security Assessment Mission.

Within rural areas only, the distribution of poverty incidence generally reflects the relative distribution of poverty across states/regions, with the notable exception of quite high poverty incidence among rural residents within Yangon Region (29 percent) relative to their urban peers (16 percent) (see Figure 1 above). Given the population density in Yangon Region, this number represents a very large impoverished population.

As one indication of the persistence of poverty at the state/region level, the chart below illustrates a comparison of poverty incidence by state/region as reported in the last two IHCLA rounds.

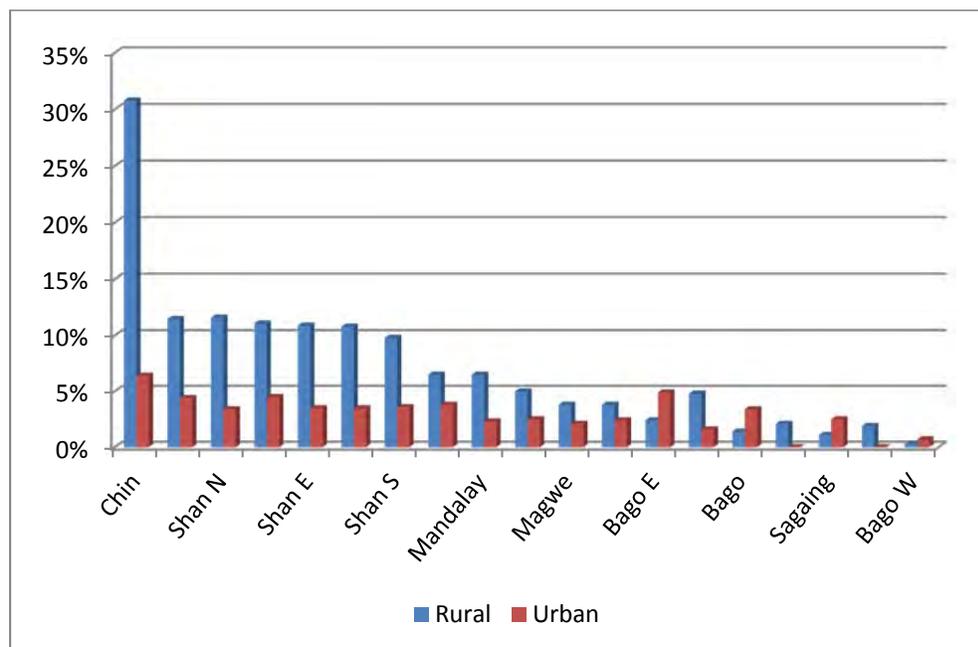
**Figure 2. Rural Poverty Incidence by State/Region, 2005-06 vs. 2009-10**



Source: Adapted by authors using data from IHLCA 2011.

**Food poverty line.** The national average incidence of food poverty (10 percent) masks the same important heterogeneity across states/regions, and in roughly the same manner as the national poverty incidence. Eleven of the 17 states/regions experience less than half the national food poverty incidence, while one (Chin state) experiences two and one half times that average (or 25 percent poverty incidence) (see Figure 2 below).

**Figure 3. Burma Food Poverty Incidence by State/Region and Strata, 2009-10**



Source: Adapted by authors using data from IHLCA 2011.

Food poverty incidence is higher in rural (5.6 percent) than in urban (2.5 percent) areas, which probably reflects overall levels of poverty. Food poverty is generally higher in ethnic minority-dominated states than Burmese-majority dominated regions.<sup>33</sup> Averages at state/region level, however, also mask heterogeneity, with “poverty pockets” reported even in many very geographically-limited food security assessments.<sup>34</sup> These findings suggest a critical need to develop something of a typology of vulnerability.

Although the 2009-10 ILHCA figures for Chin state may have reflected an acute food security crisis,<sup>35</sup> the 2005-06 IHLCA figures reported 73.3 percent poverty incidence in Chin State, which suggests underlying chronic food poverty conditions.<sup>36</sup> A Solidarites International survey<sup>37</sup> found crop losses due to rat infestation in 2011 and 2010 were similar to the magnitude of crop loss due to rat infestation in 2008. A December 2012 assessment by the local NGO “Health and Hope” found similar levels of food insecurity.<sup>38</sup>

<sup>33</sup> IHLCA 2011.

<sup>34</sup> See, for example, Japan International Cooperation Agency. 2010. The Development Study on Sustainable Agricultural and Rural Development for Poverty Reduction Programme in the Central Dry Zone of The Union Of Myanmar; Mercy Corps. 2012. Livelihood and Water, Sanitation and Hygiene (WASH) Assessment Summary Report; World Food Programme. 2012. Emergency Food Security Assessment: Southern Shan State; World Food Programme. 2012. Emergency Food Security Assessment: Southern Chin State.

<sup>35</sup> The 2009-10 IHLCA survey work in Chin State corresponded with an unusual event that occurs twice in a century (the bamboo flower bloom, which brings with it an invasion of crop-destroying rats).

<sup>36</sup> The 2005-06 IHLCA reported a 73.3% poverty incidence in Chin, while the Union average poverty incidence was 32.1% that same year.

<sup>37</sup> Solidarites International. January 2012. Food Security Surveillance survey: Comparative Report Southern Chin State, Kanpetlet Township, June and October 2011. Available via [http://www.burmalibrary.org/docs13/SI\\_Comparative\\_food\\_security\\_monitoring\\_report\\_CHIN\\_Kanpetlet\\_14\\_Jan\\_2012-red.pdf](http://www.burmalibrary.org/docs13/SI_Comparative_food_security_monitoring_report_CHIN_Kanpetlet_14_Jan_2012-red.pdf).

<sup>38</sup> Health and Hope. 2012. Health And Hope” Report On Food Shortages In Southern Chin State, Burma/Myanmar

### 1.3.3. Assets

This section explores household assets in Burma, including land, livestock, adult labor, education, and financial savings.

**Land.** All land in Burma is owned by the Government. Agricultural households retain tilling rights which, in theory, may not be mortgaged, transferred or used as collateral for obtaining loans.<sup>39</sup> However, tilling rights are inheritable by family members and must be documented by registering the transfer of rights with the Land Records Office. In practice, transfer of rights appears commonplace, and the practice of transferring land rights to non-family members is made easier by the lack of surnames in Burma.

The percentage of the population with access to land is a matter of considerable debate, both because data quality is so abysmal and because land tenure (or more precisely, changes in land access) is such a politically sensitive subject. The IHLCA reports that, at the national level, only three quarters of all households who rely on agriculture as their primary economic activity have access to land, and that this percentage remained stable between 2005 and 2010 (26 percent and 24 percent, respectively).

When poverty is taken into account, the differences are starker, with 34 percent of poor agricultural households lacking land and only 20 percent of non-poor agricultural households lacking land. There are important geographic differences as well; IHLCA reports the highest rates of landlessness are in Bago (41 percent), Yangon (39 percent), and Ayeyarwady (33 percent). Even among rural households in Yangon, IHLCA reports a landless rate of 39 percent.

Other researchers have reported much higher landlessness rates. The World Bank estimates more than 55 percent of Burma's population is landless, compared to just over 45 percent in Thailand and approximately five percent in Vietnam.<sup>40</sup> The baseline survey conducted for the Livelihoods and Food Security Trust Fund (LIFT), which covered 252 villages across the Dry Zone, Delta, and certain hilly areas found that nearly 3/4 of rural households in the Delta/coastal areas are landless, and 43 percent are landless in the Dry Zone (see table below). The lower levels of landlessness in hilly areas (26 percent average among sampled households) may reflect lower population density, difference in cultivation and/or inheritance practices, or other unexplored factors.

**Table 1. Percentage of Landless Rural Households, by Zone, per LIFT**

Percent of Rural households			
Land owned (acres)	Delta/Coastal	Dry Zone	Hilly Areas
0	72	43	26
<5	7	37	63
5 – 10	9	12	9
>10	12	8	2
<b>Total</b>	100	100	100

Source: LIFT Baseline (2012), Table 54.

<sup>39</sup> FAO. 2012. Country Programming Framework 2012-2015; WFP/FAO. 2009. Crop and Food Security Assessment Mission.

<sup>40</sup> Personal communication, through MSU team lead Steve Haggblade, with Paavo Eliste of World Bank, December 2012.

Outside of LIFT surveyed area, other assessments report similarly high access to land among rural households in hilly areas. In southern Chin State, for example, one assessment found 99 percent of households have access to an average of 3 acres per household.<sup>41</sup>

Interviews in nearly three dozen villages during the MSU team's field visit suggest the higher rates may be a more reliable estimate. Our team found the percentage of landless households in the villages we visited was 50 percent – 90 percent in the Delta, 25 percent and 58 percent in the Dry Zone, and between zero percent and 40 percent in hilly areas. Dapice *et al* (2009) reported similar estimates based on field visits: 50 percent to 70 percent in the Delta, and 25 percent to 40 percent in the Dry Zone. As discussed more fully in "Typology of Vulnerability" below, landlessness rates upwards of 50 percent of the rural population seem highly probable.

There is little information about landholdings by gender of household head. The 2003 Agricultural Census found that 15 percent of agricultural households are headed by females.<sup>42</sup> An estimated 20 percent of all households are female-headed.

Size of landholding also differs by wealth group and geography. Average landholdings are 6.7 acres per household, though poor households have significantly smaller average holdings (4.4 acres) compared to non-poor households (with 7.3 acres).<sup>43</sup> Among the share of rural households with access to land, the distribution of landholding size varies considerably across states and regions. In the lowlands and central plains of Burmese dominated regions, the topography of the land, cultivation practices, and cultural reliance on commons for needs such as livestock grazing and firewood collection increase landholding compared to the ethnic states.

Landless and functionally landless households do sometimes gain access to land for agricultural production. Based on LIFT's findings and field observations, this access appears most often to be through rental of land for cash, or on a sharecropping basis with payment in kind. During the field visit, the team heard of a small number of cases where landless households had access to small plots for high value horticulture production on a share cropping basis, with the payment one-tenth of the harvest. LIFT reports that, in addition to rental for cash or in kind, landless households are sometimes allowed to share land with other farmers, or to borrow land for cultivation without payment (usually from relatives). LIFT found 10 percent of landless households were able to gain access to land through one of these four channels.<sup>44</sup>

**Livestock.** Livestock are a critical asset for rural households across the country. Largestock (cattle and buffalo) supply draught power and both large and small stock (especially pigs, chickens, and ducks) provide income generation and a source of protein in the household diet; they are important assets that households draw on in lean times. Most rural households own at least some livestock.<sup>45</sup> Cattle, pigs, and chicken are most commonly owned (see table below).

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<sup>41</sup> Solidarites International. January 2012. Food Security Surveillance survey: Comparative Report Southern Chin State, Kanpetlet Township, June and October 2011. Available via

[http://www.burmalibrary.org/docs13/SI\\_Comparative\\_food\\_security\\_monitoring\\_report\\_CHIN\\_Kanpetlet\\_14\\_Jan\\_2012-red.pdf](http://www.burmalibrary.org/docs13/SI_Comparative_food_security_monitoring_report_CHIN_Kanpetlet_14_Jan_2012-red.pdf).

<sup>42</sup> U Aye Maun Sein, n.d., Rural Statistics from Agricultural Census (Based on Myanmar Census of Agriculture 2003).

<sup>43</sup> IHLCA 2011.

<sup>44</sup> LIFT 2012. Baseline Survey Results.

<sup>45</sup> Because of the way in which the 2003 Agricultural Census defines agricultural households, all holdings in Burma reported having at least one type of livestock in their premises (Sein, 2003). The authors have not found data on livestock holdings among landless households.

**Table 2. Burma – Number of Livestock, 2003-2011**

Livestock Type	2003	2007/2008*	2010/2011
Buffalo	1,063,030	2,840,000	2,976,000
Cattle	6,400,892	12,630,000	13,567,000
Sheep	131,249	470,000	663,000
Goats	409,799	2,380,000	3,312,000
Pigs	1,842,474	6,950,000	9,254,000
Poultry**	25,687,027	119,650,000	153,047,000
Chicken	20,755,117	107,240,000	
Ducks	4,754,046	11,110,000	
Quails	29,368	300,000	
Other birds	148,496	1,000,000	

Sources: Sein n.d.; FAO/WFP 2009; Hlaing 2011.

\*Numbers for 2007/08 do not account for lost livestock due to Cyclone Nargis.

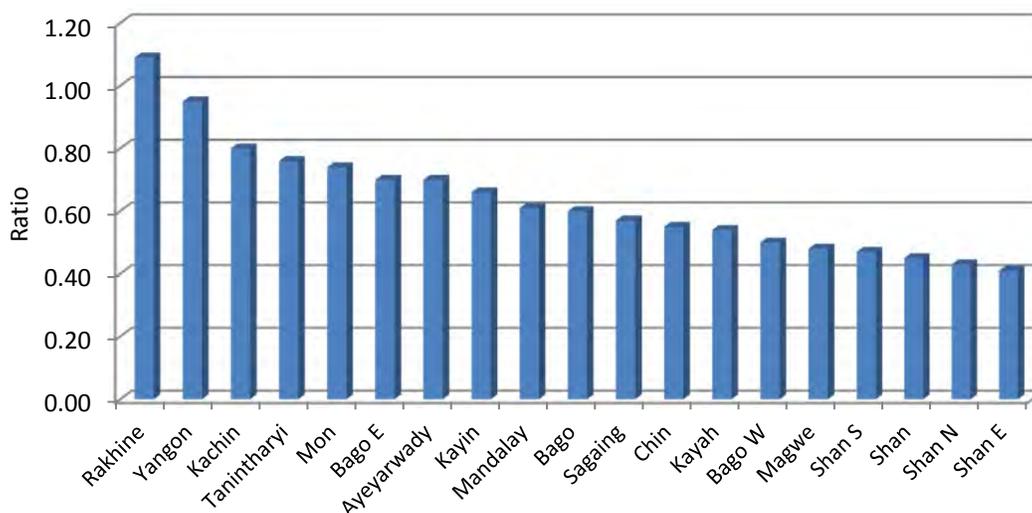
\*\*According to data from the Myanmar Livestock Federation (MLF), approximately 3,000 commercial farms currently handle 4.9 million broilers, and more than 2,000 commercial farms handle around 2.6 million layers. In addition, the MLF estimates that more than 270,000 farms around the country handle 15.6 million chickens, ducks and other birds (Hlaing 2011).

**Adult labor.** In 2010, the economic dependency ratio<sup>46</sup> was 67 percent for the Union, 88 percent in urban areas and 60 percent in rural areas.<sup>47</sup> As illustrated in the chart below, the demographic situation at the state/region level varies considerably.

<sup>46</sup> The economic dependency ratio compares the number of economically inactive household members (“dependents”) to active household members aged 15-59.

<sup>47</sup> IHCLA 2011.

## Economic Dependency Ratio by State/Region, 2009-10



Source: Adapted by authors using data from IHLCA 2011.  
Notes: Data are available for 19 states/divisions (or portions thereof).

These dependency ratios are roughly in line with the ratios found by LIFT in its survey areas, though with a slightly different geographic distribution. LIFT found an overall dependency ratio of 69.8 percent for all surveyed areas, with the highest dependency ratios in the hilly areas (78.4 percent) and lowest ratios in the Dry Zone (60.2 percent).<sup>48</sup>

**Knowledge gaps.** The explanation for major differences in age structure/dependency ratio in different states/regions remains unclear. Donors and the GOB should consider the underlying factors behind this situation when designing agricultural and food security programming.

**Education.** An indispensable asset, especially for landless households, educational attainment levels are low across the country. Decades of gross underinvestment in education combined with structural poverty have created a reversal of Burma's historical excellence in education.<sup>49</sup> GOB spending on education fluctuated in the range of 0.57 to just over 3 percent of GDP between 1971 and 2001;<sup>50</sup> at present, education spending represents just over 1 percent of GDP.

According to IHLCA 2011, across the Union in 2009-10, 7.1 percent of all household heads never attended school, 48.1 percent completed elementary school, 20.3 percent completed middle school, and 10.9 percent completed secondary school (high school). Only 4.1 percent of all heads of household reported completing post-secondary education.<sup>51</sup>

Urban heads of households were more likely to have completed at least secondary education (24.2 percent) compared to rural heads of household (only 6.1 percent completed at least secondary education). Less than 18 percent of rural heads of household completed middle school, compared to

<sup>48</sup> LIFT. 2012. LIFT Baseline Survey Report.

<sup>49</sup> During the field visit, many people remarked that those 55 and older were among the best educated in Asia, but that anyone younger has grown up under a rapidly deteriorating (and now broken) education system.

<sup>50</sup> South-East Asian Ministers of Education Organization, citing UNESCO Institute of Statistics, accessible via [http://www.seameo.org/images/stories/SEAMEO\\_General/SEAMEO\\_Statistics/Education\\_Histogram/ED\\_Histogram.htm](http://www.seameo.org/images/stories/SEAMEO_General/SEAMEO_Statistics/Education_Histogram/ED_Histogram.htm)

<sup>51</sup> IHLCA 2011.

more than 27 percent of urban heads of household. Rural heads of households were also more likely to have never attended school (7.8 percent). Poor heads of households were also more likely to have never attended school (12.5 percent) compared to non-poor head of households (5.6 percent).<sup>52</sup>

Education attendance and attainment are lowest in ethnic minority-dominated states. This is not surprising given that non-Burmese speaking students struggle to understand even the basics of a GOB curriculum taught in Burmese. Indeed, the differences are striking when compared by state/region (see select outliers in red in table below). As noted, these differences partly reflect language barriers (since all instruction is in Burmese) and partly reflect the relatively limited physical access. In Shan East, 41.3 percent of all household heads never attended formal schooling. Other states and regions with a high proportion of household heads who have never attended school include Shan North (22.7 percent), Kayah (20.2 percent), Kachin (18.5 percent), Rakhine (16.7 percent) and Chin (14 percent).<sup>53</sup>

**Table 3. Completed Educational Level of the Household Head (%), 2009-10**

Area	Never attended school/KG or 1st standard	Monastic School	Primary School (2nd to 4th std)	Middle School (5th to 8th std)	Secondary School (9th to 10th std)	Post-Secondary Education
Kachin	18.5	7.9	35.7	23.4	10.4	4.1
Kayah	20.2	3.6	34.1	29.9	8.6	3.6
Kayin	10.8	8.2	49.9	20.8	8.2	2.2
Chin	14.0	0.0	46.3	23.5	12.5	3.7
Sagaing	3.2	11.8	59.6	15.7	6.4	3.2
Tanintharyi	8.9	15.4	48.2	17.4	8.4	1.7
Bago	3.0	5.9	60.4	20.3	7.8	2.6
Bago E	4.9	7.1	54.2	22.3	8.1	3.3
Bago W	0.9	4.6	67.0	18.1	7.5	1.9
Magwe	4.2	12.2	59.3	15.6	6.1	2.5
Mandalay	6.7	13.2	46.1	20.8	9.3	4.0
Mon	6.9	6.4	47.3	22.8	12.4	4.1
Rakhine	16.7	14.4	37.0	17.5	10.7	3.7
Yangon	4.0	4.0	27.2	27.6	26.4	10.7
Shan	23.0	17.1	36.6	16.3	5.8	1.3
Shan S	18.3	8.9	42.7	22.5	6.6	1.0
Shan N	22.7	24.5	33.7	11.2	5.8	2.1
Shan E	41.3	21.1	23.9	11.2	2.4	0.0
Ayeyarwady	2.4	5.6	58.3	20.9	9.4	3.4
Urban	4.9	3.8	28.4	27.1	24.2	11.6
Rural	7.8	11.5	55.3	17.8	6.1	1.4
Poor	12.5	13.3	52.8	15.9	4.7	0.7
Non-Poor	5.6	8.4	46.9	21.5	12.6	5.1

<sup>52</sup> IHCLA 2011.

<sup>53</sup> IHCLA 2011.

<b>Union 2010</b>	7.1	9.5	48.1	20.3	10.9	4.1
<b>Union 2005</b>	11.9	19.8	34.8	19.4	10.0	4.1
<b>Change 2005 to 2010 (%)</b>	-40.7	-52.1	38.3	4.4	9.0	1.6

Source: IHLCA 2011.

National literacy rates are reportedly 95 percent (females) and 96 percent (males) for the age group 15-24.<sup>54</sup> No information is available on literacy rates at the state/region level, or by ethnic group.

At the university level, there have been frequent disruptions as the GOB clamped down on institutions during past periods of civil unrest. At the primary and secondary levels, government schools are overcrowded, understaffed, and many of the teachers under-qualified and/or poorly supported. Children, if they attend, memorize facts and figures that have little consequence for their lives.<sup>55</sup>

**Knowledge gaps.** The barriers to education attendance and attainment are unknown, as are the degree to which such barriers may differ across different ethnic groups and/or geographic areas.

Whether Burma's official literacy rates translates into functional literacy, or high literacy rates mean most people are also numerate is unclear. Variation in literacy or numeracy by ethnic group is important to understand before designing programs intending to target those populations.

**Financial Savings.** There are almost no financial institutions in Burma that permit households to save (see Turnell 2012 and Kloepfinger-Todd 2012 for a discussion of the financial sector). Most households do not have sufficient income to save much, and often have to draw down on their savings when a shock hits. However, poor households in Burma do commonly save in the form of stored agricultural commodities, precious metals (especially gold jewelry), and livestock.

#### 1.3.4. Income

Nationally, more than 65 percent of households rely on income from the agricultural sector. Not surprisingly, at the national level and especially for rural households, the most important sources of income are either through production and sale of agricultural commodities or work as daily laborers.

Among those without access to land, casual labor constitutes the most important income source. In LIFT surveyed areas, nearly half of landless households depend primarily on farm labor as their primary source of income. Importantly, without access to land, many landless households rely almost entirely on casual labor to earn the income necessary to access food from the market. The strong seasonality of agricultural employment, very low wage rates (many under \$2 per day) for that agricultural employment, and seasonal underemployment severely limits annual incomes of landless households.

Microenterprise activities, such as textile-weaving, basket weaving, small-scale trading, and fishing provide some supplementary income; these types of small business activities provide primary income support for 15 percent of landless households. Some of these microenterprises are possible through

<sup>54</sup> UNICEF. Myanmar basic statistics, accessed January 17, 2013, via [http://www.unicef.org/infobycountry/myanmar\\_statistics.html](http://www.unicef.org/infobycountry/myanmar_statistics.html)

<sup>55</sup> During village visits in Shwebo, the team met a fourth standard (equivalent to 4<sup>th</sup> grade in the US) class and their teacher. Like most schools across the country, this school lacked partitions between classes, and so teachers must shout over the din of three other classes (each with about 30 kids) to recite lessons. When asked their favorite subject, many kids shouted out, "Englitch." Though their teacher was responsible for teaching English, she herself did not speak English so, unsurprisingly, neither did any of the kids. Poor quality education is a waste of precious resources and does little to inspire parents to send children to school.

access to rented or borrowed land. Within LIFT surveyed areas, 10 percent of landless households were able to gain access to land through rental for cash, sharecropping, sharing land with other farmers, or borrowing land for cultivation free of charge (usually from relatives).<sup>56</sup> Finally, some landless household rely at least partially on remittances, or “safety nets” provided by community, or NGO/CBO, but the relative contribution of these income sources to household income is very poorly documented.

The percentage of rural households relying on casual labor appears to be growing. IHLCA reports that 21 percent of rural households relied on casual labor in 2009-10, but the percentage of poor rural households relying on casual labor increased from 23 percent to 28 percent in the preceding five-year period. Strong evidence indicates that these numbers have very likely increased much more (for the reasons why, see the section on landlessness in “Typology of Vulnerability” below). This trend has worrying consequences for household food security as well as the stability of civil society in the near term.

In lowlands and along rivers, fisheries play a role in income generation and offer a source of protein for household nutrition. According to a 2003 FAO study, fisheries (marine, inland and aquaculture) directly employ more than three million people, and some 12 to 15 million people indirectly benefit from this sector. Postharvest fish preparation, including drying, smoking, salting, and fermentation reportedly provides an important income source, particularly for women.<sup>57</sup> For the landless, fishing represents an important alternative employment which does not require large up-front investment. Secondary research and field visits suggest there is oligopolistic control of fishing licenses, which prevent some landless from accessing this as an income source.<sup>58</sup>

In hilly areas and some upland areas, timber and non-timber forest products also contribute to income generation.<sup>59</sup> Collecting wood (legally or illegally) provides job opportunities particularly in rural areas. Wood and charcoal represent alternative energy sources in a country with insufficient and limited provision of gas and electric power. According to Htun (2009), total fuel wood consumption in 2005 was around 45 million cubic meters. Charcoal production is also an important income source around the country. For rural people, extracting products such as wild fruits, latex, essential oils, wax, medicinal wood provide additional income. In deep rural areas, forests also act as shelters for some landless and extreme poor. In urban areas, in Yangon and Mandalay, more than 100 wood export industries provide employment for skilled and unskilled labor.<sup>60</sup>

Neither IHCLA nor the last agricultural census provides sufficient data on income sources to obtain an understanding of how income sources varies across the country, or by any other important disaggregation (for example, ethnicity gender of head of household, or size of household). The LIFT baseline survey collected information on income sources in the Delta, Dry Zone, and hilly regions. As the table below indicates, casual labor is the most important income source for landless households.

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<sup>56</sup> LIFT 2012. Baseline Survey Results.

<sup>57</sup> FAO. 2012. Country Programming Framework 2012-2015.

<sup>58</sup> Rahman, Shafique (of UNDP). 2010. “Economic Overview, Challenges, Opportunities, and Programmatic Responses.”, PowerPoint presentation (no audience indicated).

<sup>59</sup> Htun, Khin, 2009, Myanmar Forestry Outlook Study. FAO Working Paper No APFSOS II/WP/2009/07

<sup>60</sup> Htun, Khin, 2009, Myanmar Forestry Outlook Study. FAO Working Paper No APFSOS II/WP/2009/07

**Table 4. Income Sources in Rural Burma, 2011**

	Some income	Most important source for all households	Most important source for landless
<b>Casual labor</b>	54	31	50
agriculture	39	17	28
fishing	17	8	14
forest products	8	3	3
other	11	4	5
<b>Crop production</b>	46	37	2
pulses	19	9	
maize, wheat, barley, sorghum	16	8	
paddy	13	9	
vegetables	10	4	2
other	15	7	
<b>Livestock production</b>	8	3	2
<b>Fish production</b>	12	9	11
<b>Forest and wild food products</b>	3	2	
<b>Small businesses</b>	21	11	15
trading	8	5	7
manufacturing	7	4	5
services	6	3	4
<b>Regular full-time employment</b>	5	2	4
<b>Regular part-time employment</b>	2	1	
<b>Remittances</b>	6	3	3
<b>Other</b>	5	2	12
<b>Total</b>	161	100	100

*\*Multiple responses allowed.*

*Source: LIFT 2012 (Tables 14-16)*

Sources and levels of income are influenced by a gender division of labor which appears to dictate specific manual labor tasks, including agricultural tasks, to men or women. The gender division of labor is not reported in the 2003 Agricultural Census. However, LIFT surveyed households to ascertain the number of agricultural wage labor days worked, broken down by gender. Overall, women account for just under half (45 percent) of all agricultural wage labor days.<sup>61</sup>

Daily wage rates reflect a real or perceived difference in the effort necessary for tasks. In agriculture, men are generally relatively more responsible for land preparation including plowing and planting;<sup>62</sup> women are generally relatively more responsible for weeding and other activities. Harvesting appears to be shared more equally among men and women, though men work slightly more in harvest of monsoon crop whereas women work more harvesting summer crops. Preparation of food crops for home

<sup>61</sup> See Table 25 in LIFT. 2012. Baseline Survey Report.

<sup>62</sup> Whether there are real or perceived differences in gender division of skills is unclear. During the field visit, more than one interviewee reported that women did not have the skills necessary to broadcast seeds, a claim for which the team found no evidence.

consumption appears to fall largely within the domain of females. During the diagnostic field visit, the team most commonly heard wage rates of 1,500 khats for females and 2,000 khats for males.<sup>63</sup> For higher value horticulture, the rates for weeding and tending to crops rose to 1,800 khats for females.

Non-farm labor follows a similar pattern of task-based wage rates, which appear tied to gender. Throughout the field visit, the team witnessed many groups of villagers performing manual labor to repair and/or maintain roads. Interviews revealed that men received 2,000 khats per day for breaking up boulders into tiny rocks, while women were paid 1,500 khats per day to carry baskets of rocks from roadside to the road to fill in holes.

According to the LIFT survey, there are gender differences in time devoted to casual labor, and these differences vary by location. Overall, men spend more days as casual laborers than women (66 percent, and 44 percent, respectively). However, women more frequently work as casual laborers in the Dry Zone but much less frequently in the Delta.<sup>64</sup>

In the home, women are responsible for the unremunerated tasks of rearing children, cooking, cleaning, fetching firewood and water, laundry, and cleaning house.

In one region of the Ayeyarwady Delta, a gender assessment revealed that fishing and farming typically fall within the male domain, livestock breeding within the domain of women; grocery shops typically fall within the domain of both men and women, though women outnumber men; and that both men and women engage in daily labor, but most are men.<sup>65</sup> This set of findings is grossly representative of the gender division the team witnessed during site visits, with the important caveat that livestock breeding appeared to fall within the male domain – ownership, breeding, and tending to livestock all appeared to fall within the domain of males.

Remittances are an important income source for some families since an estimated seven million Burmese live abroad. Some assessments have asked about migration of household members. In Chin State, nearly 15% of respondents reported that a maximum of one household member, on average, have migrated either to another township or to neighboring Malaysia, Thailand or India, to seek work.<sup>66</sup> Since most of the remittances go through the informal *hundi* system it is unclear the amount remitted. One estimate from 2009 places Burma's total remittances at US\$137 million.<sup>67</sup> Relaxation of sanctions and improvements in banking systems will likely lead to more remittances in the future.

Based on field observations, domestic migration to towns within Burma appears to be especially important as a source of casual employment for older teenagers and young adults who often send money back to their home villages through informal means. In about one-third of the villages our team visited, an estimated one-third of all young adults had migrated to larger towns or abroad to work in tea shops, domestic help, and other service jobs.

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<sup>63</sup> During pre-diagnostic field work, a team heard wage rates of up to 2,500 khats for men in a rain-fed rice/pulse production area not far from Yangon.

<sup>64</sup> LIFT. 2012. Baseline Survey Report.

<sup>65</sup> Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeyarwady Delta.

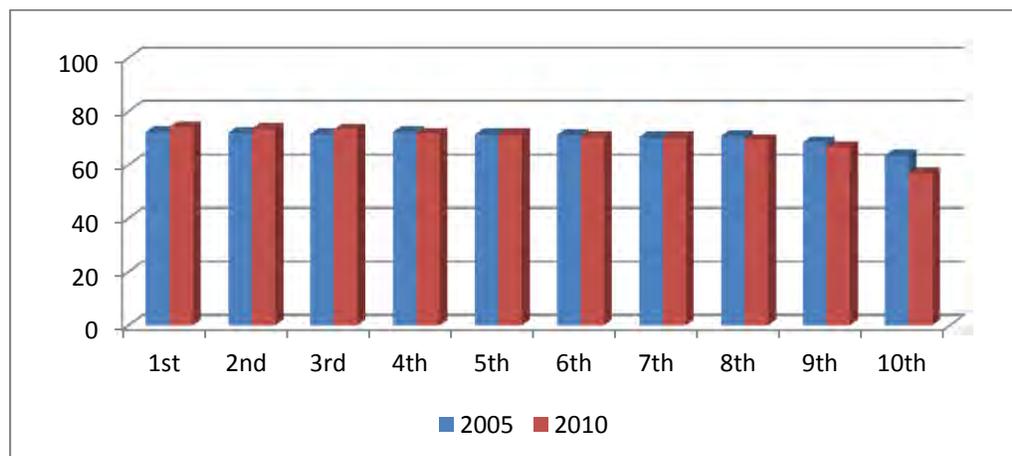
<sup>66</sup> Solidarites International. January 2012. Food Security Surveillance survey: Comparative Report Southern Chin State, Kanpetlet Township, June and October 2011. Available via [http://www.burmalibrary.org/docs13/SI\\_Comparative\\_food\\_security\\_monitoring\\_report\\_CHIN\\_Kanpetlet\\_14\\_Jan\\_2012-red.pdf](http://www.burmalibrary.org/docs13/SI_Comparative_food_security_monitoring_report_CHIN_Kanpetlet_14_Jan_2012-red.pdf).

<sup>67</sup> Ratha, D., S. Mohapatra, and A. Silwal, 2011, The Migration and Remittances Factbook. Migration and remittances Unit, World Bank available at <http://siteresources.worldbank.org/INTPROSPECTS/Resources/334934-1199807908806/Myanmar.pdf>

### 1.3.5. Expenditures

Even at the national level, average household expenditures on food are an estimated 68 percent. Notably, although the food as a share of expenditures drops for the richest households (which we would expect), even for the wealthiest 10 percent of households, food constitutes more than half (56 percent) of household expenditures (see chart below).

**Figure 4. Food Share by Expenditure Decile (including Health Expenditures)**



Source: Adapted by authors using data from IHLCA 2011.

Note: Consumer durables and housing are included in total expenditures. Details appear on p.46 of the IHCLA technical report.

At the national level, an estimated 81 percent of health expenditures are out-of-pocket.<sup>68</sup>

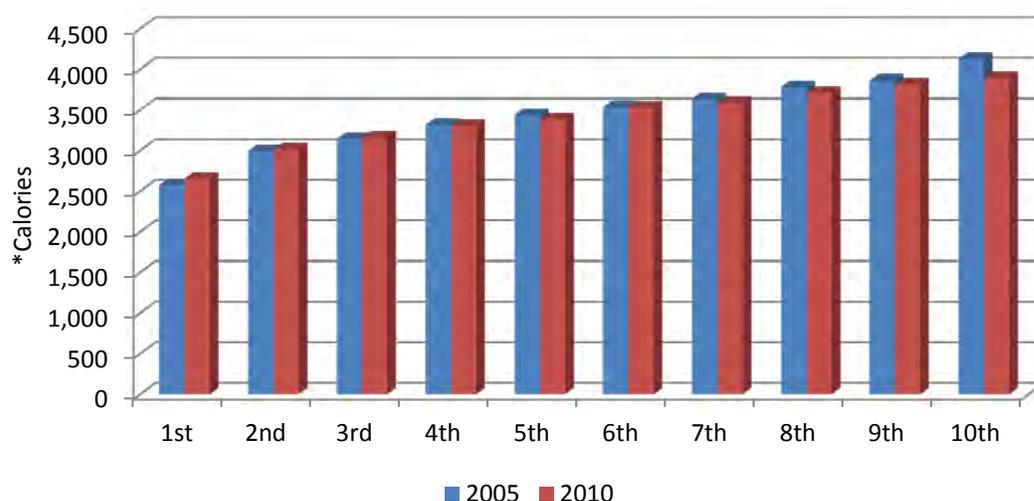
### 1.3.6. Food Consumption

Despite some important exceptions, quantity of calories seems less of a concern for food security than quality of calories (or proper biological utilization of calories, as discussed below) *at the national scale*. The following chart provides an assessment of caloric intake by expenditure decile and suggests a generally adequate quantity of calories among the poor (and perhaps overnutrition among wealthier households). The average caloric intake among the poorest 10 percent of households (2,656 kcal) is more than the daily minimum 2,100 kcal per person estimated as a minimum energy requirement for an active lifestyle.<sup>69</sup>

<sup>68</sup> ICHLA 2011.

<sup>69</sup> IHLCA 2011; FAO guidelines.

**Figure 5. Caloric Intake by Expenditure Decile, 2005-2010**



Source: Adapted by authors using data from IHLCA 2011.

Notes: \*Calories represent the daily caloric intake per adult equivalent.

At the household level, there is substantial variation in food consumption. Unfortunately, the national surveys lack direct evidence of differences in food consumption at the State/Region level. Outcomes related to food consumption, such as nutritional status (discussed in the next section), provide some indirect evidence of differences in food consumption at the state/region level. However, a review of many recent food security assessments conducted in limited geographic areas provide some indication of the range of household food consumption experiences at the State/Region level.

Although IHLCA only provides estimates of caloric intake by expenditure decile, and not by landholding, it is safe to assume that the landless, who are among the poorest, also consume the lowest number of calories. The LIFT survey supports this assumption. Among LIFT surveyed households, the average rural household reports adequate food supplies for only 10 months per year, leaving a two month deficit. For landless households, the average food deficit increases to 2.4 months per year.<sup>70</sup> There are, of course, exceptions. In Chin State, where there are a relatively low percentage of landless households, a recent food security assessment by Solidarities International in southern Chin State found more than 96% of sampled households reported facing food shortages in the previous 12 months.<sup>71</sup>

Despite Burma's diverse agroecology, abundant and varied crops, and rich ethnic and cultural diversity, households across the country consider rice the heart of their diet. Consumers mostly eat plain white rice for almost every meal with various "curries" (side dishes), such as fish, meat, and soup, or they use it in fried rice, noodle, and other rice-flour based dishes. The FAO estimates carbohydrates make up 67 percent of the diet and rice contributes the majority share, at 55 percent of the diet. Total protein

<sup>70</sup> See Table 43 in LIFT. 2012. LIFT Baseline Survey Report.

<sup>71</sup> Solidarities International. January 2012. Food Security Surveillance survey: Comparative Report Southern Chin State, Kanpetlet Township, June and October 2011. Available via [http://www.burmalibrary.org/docs13/SI\\_Comparative\\_food\\_security\\_monitoring\\_report\\_CHIN\\_Kanpetlet\\_14\\_Jan\\_2012-red.pdf](http://www.burmalibrary.org/docs13/SI_Comparative_food_security_monitoring_report_CHIN_Kanpetlet_14_Jan_2012-red.pdf).

consumed is an estimated 11.4 percent (of which animal protein contributes 3.2 percent), and fat nearly 22 percent.<sup>72</sup>

The most common protein sources are fish (in Ayeyarwady and Yangon Regions, and Rakhine State, especially), pulses (Dry Zone, Sagaing Region especially), and meat/eggs (pigs, chicken, and ducks especially). One survey reported that average monthly consumption of fish/crustaceans is nearly four times higher than meat consumption (at 1.35 kg and 0.35 kg per month, respectively) at the national level.<sup>73</sup>

The availability of ingredients and food preferences vary across the country. While rice dominates the meal in most households, there are different preparation practices and common accompanying dishes across the country.<sup>74</sup>

Per capita fish consumption is around 23 kg per year, and fishing contributes to more than 60 percent of animal protein in the diet of the people in Burma.<sup>75</sup>

Although corroborative data are scarce, per capita daily consumption of micronutrient-rich vegetables and fruits appears moderately low, particularly given the availability of these items.

Cereals represent the largest share of household expenditure (15.8 percent), followed by edible oils (8.3 percent), fruits and vegetables (7.2 percent), spices and condiments (3.8 percent), and pulses (2.1 percent).<sup>76</sup> Caution in interpreting these numbers is warranted, of course, since expenditure patterns may not accurately reflect consumption patterns given the importance of own production as a source of household consumption.

**Table 5. Percentage Household Monthly Expenditure on Different Food Groups**

Food Group	Percentage
Cereal	15.8
Oil	8.3
Fruits and vegetables	7.2
Spices and condiments	3.8
Pulses	2.1
Other foods	34.8
Total food and beverage expenditure	72.0
<i>Total household expenditure</i>	<i>100.0</i>

Source: Favre and Myint 2009, based on estimations from Burma Central Statistics Organization, *Statistical Yearbook, 2001*.

**Seasonal food shortages.** As noted above, LIFT found that the average rural household reports adequate food supplies for only 10 months per year, leaving a two month deficit. The deficit among landless households averages 2.4 months per year.<sup>77</sup>

<sup>72</sup> Food and Agriculture Organization. 2010. Food Security Indicators, Food Composition Table.

<sup>73</sup> World Food Programme/Food and Agriculture Organization. 2009. Crop and Food Security Assessment Mission.

<sup>74</sup> For a deep appreciation of the richness of local cuisines, readers are encouraged to consult Naomi Duguid's recently published cookbook entitled *Myanmar: River of Flavors* (Artisan press, 2012).

<sup>75</sup> Food and Agriculture Organization, 2003, Myanmar: Agricultural Sector Review and Investment Strategy Volume 1 – Sector Review.

<sup>76</sup> Favre, Raphy; Myint, U Kyaw, 2009. An Analysis of Myanmar Edible Oil Crops Sub-Sector.

<sup>77</sup> See Table 43 in LIFT. 2012. LIFT Baseline Survey Report.

**Dietary diversity.** Dietary diversity is an important indicator of household food access; a diverse diet is strongly positively correlated with income, as well as improved health and nutrition outcomes such as higher birth weight and lower prevalence of stunting and micronutrient deficiencies.

LIFT collected data on household dietary diversity using the FANTA Dietary Diversity Score (DDS) method. As illustrated in the table below, reproduced from LIFT’s baseline survey, household dietary diversity increases across all regions with increasing average monthly income. The table also illustrates LIFT’s findings that households in hilly regions have relatively less diverse diets than households in dry and Delta/coastal areas.

**Table 6. Average household dietary diversity score by household average monthly income and region**

	Hilly	Dry	Delta/Coastal	LIFT villages	Control	Giri	Total
Less than Ks 25,000	3.99	5.84	4.97	4.88	4.82	4.38	4.73
Ks 25,001 - Ks 50,000	4.59	6.03	5.18	5.20	5.21	4.75	5.11
Ks 50,001 - Ks 75,000	5.04	6.32	5.58	5.67	5.49	4.82	5.47
Ks 75,001 to Ks 100,000	5.18	6.35	5.66	5.83	5.93	4.84	5.62
Ks 100,001 - Ks 150,000	5.33	6.93	5.92	6.08	6.02	5.04	5.89
Ks 150,001 - Ks 200,000	5.43	7.27	6.36	6.41	6.25	5.50	6.34
Ks 200,001 - Ks 250,000	5.55	7.30	5.50	6.10	5.14	5.33	5.88
Ks 250,001 - Ks 300,000	6.30	6.55	5.67	6.20	6.40		6.23
Over 300,000	6.22	6.75	6.89	6.70	6.36	5.33	6.57

Source: LIFT Baseline (2012), Table 40

**Coping strategies.** Unlike in many other food insecure countries, households report that they rarely reduce the size or number of meals when faced with household food shortages. Instead, as LIFT found, households more commonly switch to less expensive and less preferred foods, and/or eat more wild foods than usual. Among the poorest households, it seems common practice to take out consumer debt to finance food purchases.

One can reasonably assume that debt-financing of food purchases is more common during the lean season, when rice stocks are low and market prices are high, and whenever school fees are due. LIFT’s baseline survey found that fully 58 percent of landless households reported using loan proceeds to purchase food. This practice contrasts with large landholders, who very occasionally reported doing so (5 percent), but instead 89 percent of large landholders surveyed used loans to finance agricultural inputs or other business investments (see table below). The practice of borrowing money to eat is both a sign of very severe access issues for the most vulnerable households, and points to an urgent need to stabilize market prices of staples while simultaneously increasing household incomes.

**Table 7. Most Important Use of Loans Taken Out Over the Past 12 Months (%)**

	Landholding Size(acres)			
	Zero	<5	5-20	>20
<b>Food purchases</b>	<b>58</b>	<b>36</b>	20	5
<b>Purchase agricultural inputs</b>	3	26	<b>48</b>	<b>48</b>
<b>Business investments</b>	13	14	20	41
<b>Other</b>	26	23	12	7
<b>Total</b>	100	100	100	100

Source: LIFT Baseline (2012), Table 107

Food security assessments outside of LIFT coverage areas support the very high reliance on consumer debt to finance food purchases. In Chin State, for example, a recent report noted that more than 95 percent of surveyed households are in debt, primarily to purchase food.<sup>78</sup>

**Summary.** Overall, low dietary diversity appears to be at least as important a contributor to malnutrition as insufficient caloric intake. However, households are clearly financing caloric intake by entering into high-interest debt. These facts combined suggest that both quantity and quality of the average diet is poor. Compounding poor access to food are constraints to proper utilization because of poor infant and young child feeding practices (IYCF) and a high disease burden, both of which seriously affect health and nutrition outcomes.

### 1.3.7. Nutrition Outcomes

Broadly speaking, a combination of low purchasing power, inappropriate IYCF, poor hygiene practices at the household level; poor water/sanitation infrastructure at the community level; and lack of government commitment to sufficient resources for public health campaigns/food processing regulations at national level contribute to chronic malnutrition in Burma.. In sum, early children malnutrition is a complex result of undernutrition because of inadequate intake (both in terms of quantity and quality of calories), and loss of nutrients because of disease, especially at critically developmental stages.

There are five major undernutrition problems, according to the Ministry of Health’s National Nutrition Centre, including:

1. Protein energy malnutrition (PEM)
2. Iodine Deficiency Disorders (IDD),
3. Vitamin A Deficiency (VAD)
4. Iron Deficiency Anemia (IDA)
5. Vitamin B1 Deficiency (VBD)

The last four of the five major undernutrition problems reflect pervasive micronutrient deficiencies in the Burmese diet.

There are two emerging overnutrition/health problems:

<sup>78</sup> Solidarites International. January 2012. Food Security Surveillance survey: Comparative Report Southern Chin State, Kanpetlet Township, June and October 2011. Available via [http://www.burmalibrary.org/docs13/SI\\_Comparative\\_food\\_security\\_monitoring\\_report\\_CHIN\\_Kanpetlet\\_14\\_Jan\\_2012-red.pdf](http://www.burmalibrary.org/docs13/SI_Comparative_food_security_monitoring_report_CHIN_Kanpetlet_14_Jan_2012-red.pdf).

1. Hypertension (indicating a shift towards an increasingly sedentary lifestyle, combined with a diet high in sodium)
2. Type 2 diabetes (indicating a shift towards an increasingly sedentary lifestyle, combined with a heavily carbohydrate-based diet)

**Undernutrition.** Chronic undernutrition is widespread throughout the country, and likely much more common than official statistics suggests. According to UNICEF reports, nutritional status has improved since the early 1990s, when stunting in U5s was an alarming 59 percent. By the early 1990s, stunting in U5s had supposedly fallen to 41 percent. The latest survey, conducted in 2009-10, indicates stunting now stands at 35 percent.<sup>79</sup> As with poverty incidence, stunting is more prevalent among rural children (38.4 percent) than among urban children (27.2 percent).

The Myanmar Multiple Indicator Cluster Survey (MICS) 2009-2010 collected and published data based on World Health Organization (WHO) Nutrition Standards and National Center for Health Statistics (NCHS) standards. All anthropometric surveys prior to the release of the new WHO growth standards<sup>80</sup> in 2006 must use the older NCHS standards to assess trends. For that reason, we report prevalence rates using both the old NCHS and new WHO growth standards.

There are three primary anthropometric measures of undernutrition: stunting, wasting, and underweight. Stunting, or low height-for-age, is a measure of chronic undernutrition. Wasting (low weight-for-age) is a measure of acute malnutrition. Underweight (low weight-for-height) is an indicator of both chronic and acute undernutrition. Prevalence of stunting (low height for age) in children under five years of age (“U5”) is the best indicator of chronic undernutrition.

Two surveys have collected anthropometric data in Myanmar, ostensibly representative at the national level:

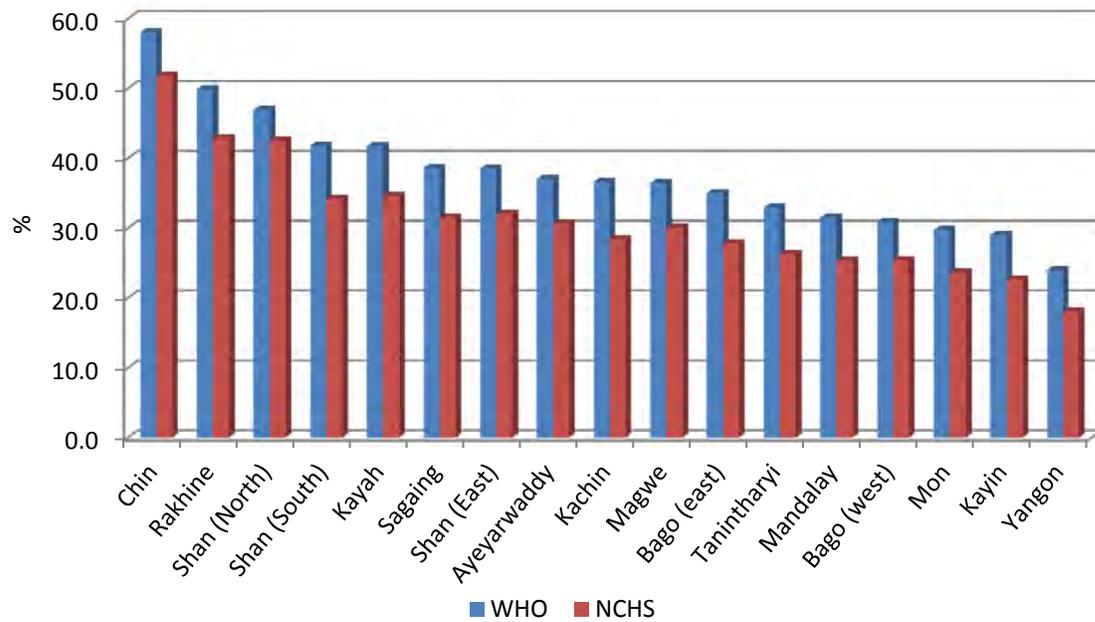
- Three rounds of the Myanmar Multiple Indicator Cluster Survey (MICS): MICS1 in 1995, MICS2 in 2000, and MICS3 in 2009-10. MICS collected height-for-age (stunting), weight-for-age (underweight), and weight-for-height (wasting).
- The two IHLCA rounds (2005-06 and 2009-10) collected data on weight-for-age (underweight) only.

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<sup>79</sup> UNICEF 2012

<sup>80</sup> The primary differences in the old NCHS versus new WHO growth standards can be understood using the example of the change in weight-for-age (WFA) standards: (1) the new WHO WFA standards are more stringent than NCHS standards for infants 0-6 months as it requires them to weigh more for their age than the NCHS standards do; therefore, the new WHO standards will result in higher prevalence of low WFA among 0-6 months compared to NCHS standards; (2) the new WHO WFA standards are lower than NCHS standards for older infants and young children ages 6-60 months and will result in lower prevalence of low WFA compared to NCHS standards.

**Figure 6. Stunting in U5s by State/Region, WHO vs. NCHS standards, 2009-10**

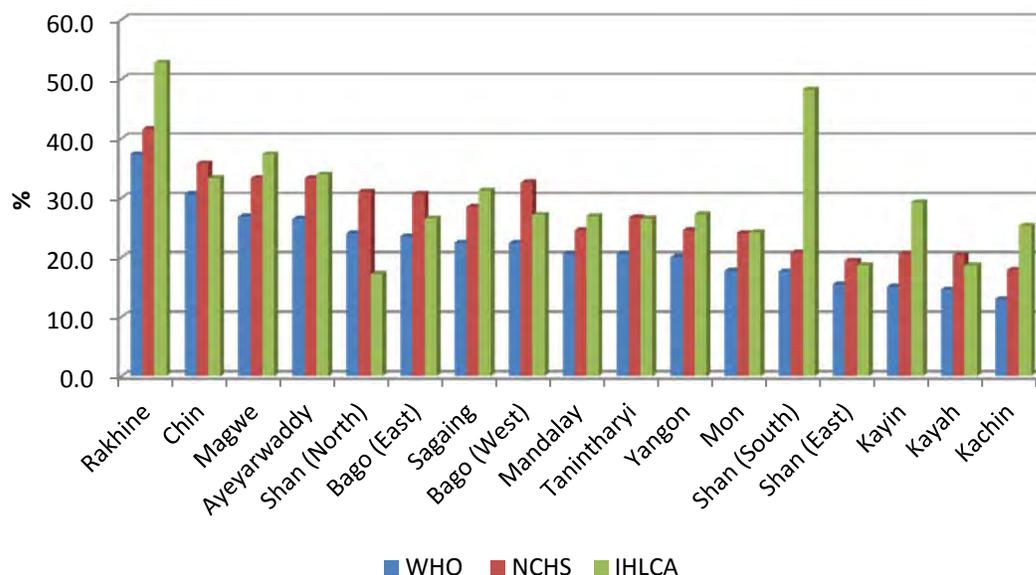


Source: Burma MICS 2011.

Note: There are only 17 states/divisions reported.

Underweight (low weight-for-height) is an indicator of both chronic and acute undernutrition. Underweight is the only nutrition indicator collected by more than one ‘nationally’ representative survey; both the MICS3 and the IHCLA report on prevalence of underweight in children under five. TO allow comparison with the IHCLA results (which relied on the old NCHS standards), the MICS3 results using the old NCHS standards are displayed in the chart below.

**Figure 7. Underweight in U5s, by State/Region MICS vs. IHCLA, 2009-10**



Source: Burma MICS 2011 (data collected 2009-10) IHCLA 2011 (data collected 2009-10).

Though the nutrition assessments are among the more reliable data related to food security, these too are fraught with uncertainty. Although IHCLA results indicate underweight prevalence is nearly the same as MICS found in eight of the 17 states/(sub)regions, IHCLA reports prevalence is substantially higher in nine of the 17 states/(sub)regions, but about a third lower than the MICS rate in one subregion (northern Shan). Given that the surveys were conducted at nearly the same time, the source(s) of the discrepancies is unclear. This example is just one symptom of the larger data reliability problem in Burma, and should serve as a reminder to food security stakeholders that the statistics reported here should be viewed cautiously.

The team made a number of observations about general nutrition and health conditions that should further temper interpretation of the published nutritional indicators. First, village level health care and basic nutrition messaging is woefully inadequate. The lack of basic health care adversely affects everyone, but has especially negative consequences for physiologically vulnerable individuals, such as pregnant and lactating women and young children at critical stages of development. Pre- and post-natal care is extremely poor. Though official documents report (GOB) midwives serve rural villages, only one of the villages we visited had a resident midwife, and one other had a midwife in the neighboring village. The majority of villages reported that midwives were supposed to visit monthly, but rarely did, and that most women gave birth at home, usually with a traditional birth attendant present.<sup>81</sup>

Second, based on village site visits and interviews with mothers of young children, the team can confidently state that the prevalence of stunting is substantially higher in the Delta, and in certain townships in the center of the country (Bago East, for example), than official figures indicate.

<sup>81</sup> Midwives and auxiliary midwives undergo training via the MoH with a recognized standardized curriculum. Traditional birth attendants may or may not have formal education, and typically do not have specific training other than through an informal apprenticeship, typically by a mother or grandmother who has been a traditional birth attendant herself.

“Growth monitoring” in Burma consists of weighing children, but often not at the time of birth, and very likely not done on a consistent basis. A high-ranking MoH/NNC representative reports that half of the Ministry’s scales are inoperable. Growth monitoring never includes measurement of length/height. Mothers do not have growth charts for their children, and are not shown growth charts during visits with GOB midwives or auxiliary midwives so they can better understand how their child’s growth compares to the growth of children fed adequate diets.

Poor access to water and sanitation, and poor understanding of the importance of handwashing and basic hygiene leads to high levels of diarrheal disease. Diarrheal disease is the number two cause of U5 mortality and accounts for 20 percent of all U5 mortality in Burma. Other high burden disease include acute respiratory infections (the number one cause after neonatal deaths), and malaria.<sup>82</sup> Official statistics suggest access to clean water and improved sanitation are much higher than the findings from field observations. Nationally, an estimated 79 percent of residents have access to improved sanitation according to the IHLCA 2011 report. The team witnessed many cases of open defecation at the village level. Sanitation facilities described as “latrines” were in fact just thatched huts that provided privacy but released solid waste directly onto topsoil, often very close to waterways. A recent news report indicates that 35 percent of Rakhine residents practice open defecation, despite that official statistics indicate 54 percent of Rakhine residents have access to “improved sanitation.”<sup>83</sup>

The statistics around IYCF support the low penetration of quality post-natal care. Only 15 percent of infants under six months are exclusively breastfed. During the important transition period to a mix of breast milk and solid foods between six and nine months of age, one-third of infants are not fed appropriately with both breast milk and other foods.<sup>84</sup>

There are no available analyses on the determinants of early childhood malnutrition. Such analyses could shed light on the role of maternal education and customary dietary restrictions during the pre-natal and post-natal periods on household nutrition outcomes.

There does not appear to be any systematic nutrition education for landless households, smallholder farmers or other vulnerable populations.

**IYCF Practices.** Many surveys and food security assessments report that young children across Burma suffer poor nutrition outcomes because of poor IYCF. However, few reports list the specific practices which are especially common or especially harmful. Indeed, no study of the determinants of malnutrition in Burma currently exists. Nonetheless, there is suggestive evidence that IYCF practices play an important role in nutrition outcomes.

Traditionally, women prepare meals for the entire family and have primary responsibility for feeding of young children. During site visits, the team observed numerous young children taking care of even younger siblings, and many of these children eat without adults present. In addition to observations, the team heard consistent accounts of young mothers having to return to the field shortly after birth so they could contribute to household income. In these cases, newborns, infants, and young toddlers are often left in the care of young siblings. While this practice is a common and expected observation in rural environments where women have a heavy labor burden around the house and in the fields, it has

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<sup>82</sup> UNICEF. n.d. Myanmar nutrition brief entitled “Tracking Progress on Child and Maternal Nutrition: A survival and development priority.”

<sup>83</sup> Compare the IRIN report with official statistics. Report: IRIN. January 18, 2013. “WASH woes for Myanmar’s Rakhine IDPs.” Official statistics: IHLCA 2011.

<sup>84</sup> World Bank. [n.d.] Myanmar: Nutrition at a Glance, accessed December 2012 via <http://siteresources.worldbank.org/NUTRITION/Resources/281846-1271963823772/Myanmar.pdf>.

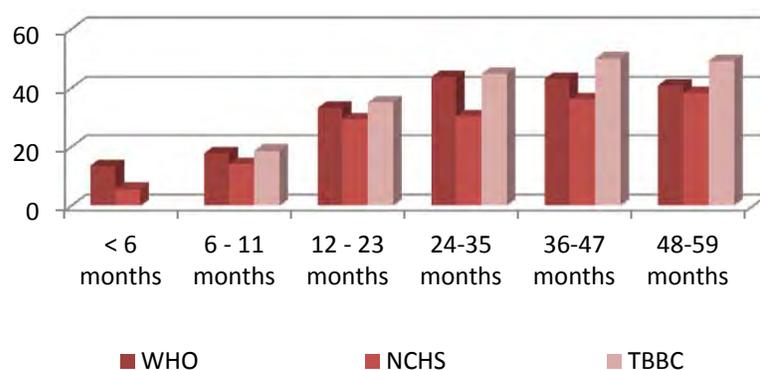
important consequences for IYCF because it places IYCF in the hands of children who are too young to make good decisions about hygiene and nutrition.

As a consequence of a white-rice based diet, vitamin B1 deficiency is common and a major nutrition concern because it can cause infantile *beriberi*, the fifth leading cause of death among infants (7.12 percent of deaths in U1s in 2003). Beriberi accounts for almost nine percent of all deaths of infants under six months old in Burma.<sup>85</sup> Among pregnant women surveyed in 2009, the prevalence of vitamin B1 deficiency is 6.8 percent, and among lactating women, prevalence is 4.4 percent.<sup>86</sup>

There are apparently a number of taboos about consumption of certain foods during certain events, especially during a woman’s pregnancy, because of superstitions about potential effects on the consumer or offspring. One recent gender assessment reports that about just over half of the women in certain communities in the Ayeyarwady region avoid meats during pre-natal and post-natal periods because the “women’s body is weak and vulnerable to diseases...[so] women do not eat or men instruct their wives not to eat meats such as duck, rat, tortoise, and frog, etc....”<sup>87</sup> Whether the decrease in protein from meat is made up for by an increase in pulses or other protein sources is unclear. Equally unclear is whether similar taboos exist outside of Bamar-dominated communities. Food consumption patterns of subgroups and food taboos are two major research gaps.

The rapid rise in stunting prevalence from less than six months of age to 12-23 months of age, illustrated in the chart below, is a pattern frequently observed in conjunction with poor weaning practices, including both early weaning and improper complementary feeding during the weaning period, and where disease burdens are high (especially where diarrheal disease and intestinal parasites are common). Interestingly, refugees in camps along the Thai border (denoted as “TBBC” in the following two charts) have lower prevalence of stunting and wasting, a fact that may be due to food assistance and health clinics in the camp.

**Figure 8. Stunting by Age in Months (%), 2009-10**



Source: Burma MICS 2009-2010 and TBBC 2012

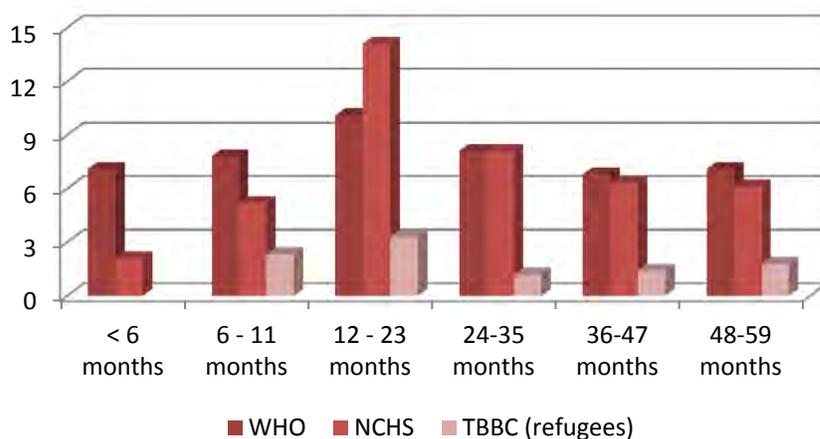
<sup>85</sup> Ministry of Health, National Nutrition Centre. 2012. Health in Myanmar 2012: Nutrition Promotion (reporting results from Cause Specific Under Five Mortality Survey (2003), accessed via <http://www.moh.gov.mm/file/Nutrition%20Promotion.pdf>

<sup>86</sup> Ministry of Health, National Nutrition Centre. 2012. Health in Myanmar 2012: Nutrition Promotion, accessed via <http://www.moh.gov.mm/file/Nutrition%20Promotion.pdf>

<sup>87</sup> Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeyarwady Delta, p.29.

Low weight-for-height, or “wasting,” is an indicator of acute undernutrition. As with the age pattern observed with stunting, the rise in wasting among infants and toddlers 23 months and younger, illustrated in the chart below, is a pattern frequently observed where poor IYCF practices and high burdens of disease together increase the risk of acute illness and poor recovery. As with stunting prevalence among U5s (illustrated in the chart above), wasting among TBBC refugees is much lower. Again, this likely reflects improved food consumption because of food assistance, and improved access to and use of health care.

**Figure 9. Wasting by Age in Months (%), 2009-10**

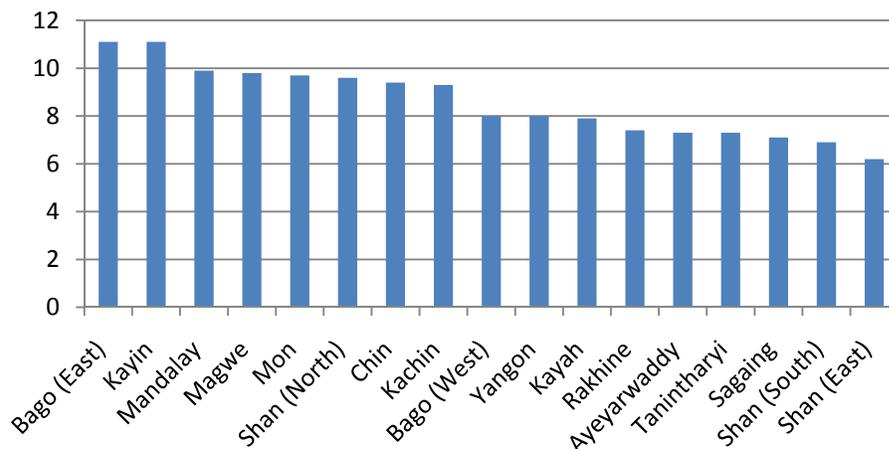


Source: Burma MICS 2009-2010 and TBBC 2012

The high incidence of low birth weight (defined as 2,500 grams or less at birth) partially explains the nearly 14 percent of infants under six months of age who are stunted. In a 1994 hospital-based study, nearly 24 percent of infants were low birth weight. That figure dropped to 10 percent in 2004. A separate study in 2010, based on community surveys from MoH/NNC, found 7.9 percent of all births were low birth weight.<sup>88</sup> The geographic pattern of low birth weight suggests different cultural or environmental factors can influence birth outcomes. Comparing the chart below and the relative distribution of poverty, there does not appear to be a strong correlation between poverty and birth outcomes. For example, Bago East and Kayin have the highest rates of low birth weight out of the 14 states/regions, but these two places are ranked significantly lower than the national average in terms of poverty incidence (20 percent and 17 percent, respectively, compared to the national average of 26.2 percent). Shan State (east), which ranks second highest in poverty incidence, has the lowest level of low birth weight infants in the country.

<sup>88</sup> Ministry of Health, National Nutrition Centre. 2012. Health in Myanmar 2012: Nutrition Promotion, pp.65-68, accessed via [www.moh.gov.mm/file/Nutrition%20Promotion.pdf](http://www.moh.gov.mm/file/Nutrition%20Promotion.pdf)

**Figure 10. Low Birth Infants by State/Region (% births < 2500 grams), 2009-10**



Note: Percentage of live births in the two years preceding the survey that weighed below 2,500 grams at birth.  
 Source: Adapted by authors using data from MICS 2009-10.

Evidence in the literature indicates that small mothers tend to give birth to small babies,<sup>89</sup> and they are at higher risk for pregnancy related complications. One of the risk factors is anemia which, when severe during pregnancy, can result in premature birth, low birth weight, and hemorrhage during childbirth. According to the NNC, among non-pregnant women, the prevalence of anemia was 45 percent (in 2001), 26 percent in adolescent school girls (in 2002), 71 percent in pregnant women (in 2003), and 75 percent in U5s (in 2005). Another NNC publication reports that the MoH combats anemia through deworming campaigns, nutrition education, and distribution of iron folate supplements, "...once a day for six months to all pregnant women throughout the country and biweekly iron supplementation for adolescent school girls in 20 selected townships."<sup>90</sup> Given limited midwife coverage, especially in more remote rural areas, this claim is highly dubious and results of interviews with villagers and MoH/NNC officials further disprove that MoH (or anyone for that matter) is providing nutrition education.

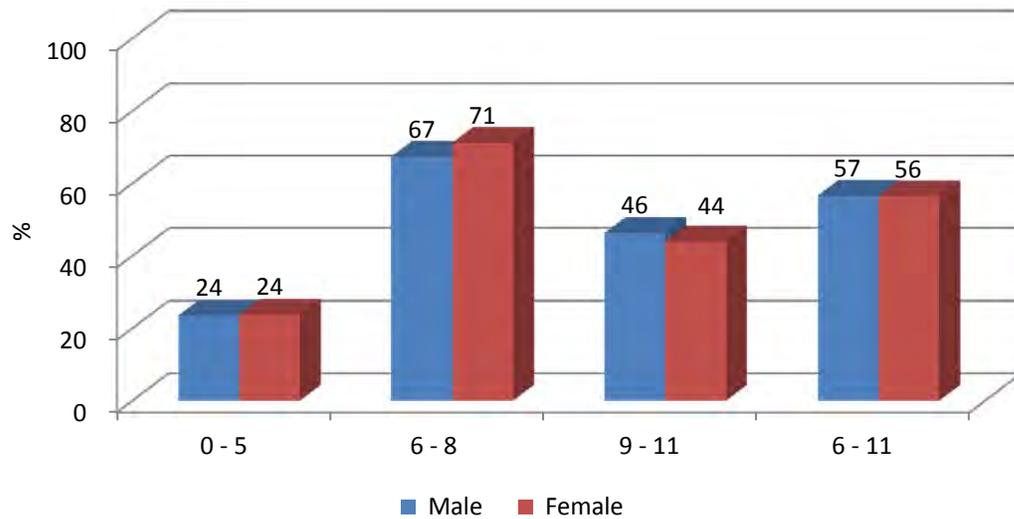
Exclusive breast feeding rates are extremely low. A 2000 NNC survey found just 16 percent of mothers practiced exclusive breast feeding during the first six months<sup>91</sup> while the MICS3 reported a higher figure of 23.6 percent in 2010. Anecdotal evidence during the field visit indicates that mothers often feed rice water or white rice to infants. No matter which figure is more accurate, both indicate a woefully inadequate emphasis on basic health and nutrition education.

<sup>89</sup> See, for example, the 2008 Lancet series on maternal and early childhood malnutrition.

<sup>90</sup> Ministry of Health, National Nutrition Centre. 2012. Health in Myanmar 2012: Nutrition Promotion, pp.65-68, accessed via [www.moh.gov.mm/file/Nutrition%20Promotion.pdf](http://www.moh.gov.mm/file/Nutrition%20Promotion.pdf)

<sup>91</sup> Ministry of Health, National Nutrition Centre. 2012. Health in Myanmar 2012: Nutrition Promotion, pp.65-68, accessed via [www.moh.gov.mm/file/Nutrition%20Promotion.pdf](http://www.moh.gov.mm/file/Nutrition%20Promotion.pdf)

**Figure 11. Adequately Fed Infants by Age Group (%), 2009-10**



*Note: Four categories are: infants under six months of age exclusively breastfed, infants 6-8 months who received breast milk and complementary food at least 2 times in prior 24 hours; infants 9-11 months who received breast milk and complementary food at least the minimum recommended number of times per day; 6-11 months who were appropriately fed.*

*Source: Adapted by authors using data from MICS 2009-10.*

A high burden of disease contributes to poor nutrition outcomes, especially in young children who face the greatest risk of exposure. Intestinal helminthes (“worms”) are a major disease burden, especially among children. A 2003 survey found the prevalence of worms in U5s was 30.8 percent, and more than 44 percent among pregnant women.<sup>92</sup> Worm burdens are higher in the Delta and coastal regions, according to that same 2003 survey.

As in other developing countries, acute respiratory infections, diarrheal disease, and malaria all disproportionately affect the young. Review of secondary data and field visits suggest poor water and sanitation infrastructure and poor hygiene practices correlate highly with poverty. Since an average 81 percent of health expenditures are out-of-pocket, high disease burdens negatively affect the nutritional status of children and the overall economic well-being of poor households. See Annex 3 for additional health statistics.

**Knowledge gaps.** As noted above, apparently, there are taboos about consumption of certain foods during certain events, especially during pregnancy. However, documentation of taboos is lacking (at least in the English language). Effective design of policies and programs to improve food consumption patterns of subgroups (whether increasing quantity or quality of calories) require a thorough understanding of food taboos.

**Overnutrition.** The World Bank’s “Nutrition at a Glance” brief for Burma reports that 40 percent of adults (15+ years of age) in Burma are overweight or obese, a finding attributed to a 2009 WHO Global InfoBase.<sup>93</sup> There is no corroborating evidence for this statistic; observations from the field visit are

<sup>92</sup> Ministry of Health, National Nutrition Centre. 2012. Health in Myanmar 2012: Nutrition Promotion, pp.65-68, accessed via [www.moh.gov.mm/file/Nutrition%20Promotion.pdf](http://www.moh.gov.mm/file/Nutrition%20Promotion.pdf)

<sup>93</sup> World Bank. [n.d.] Myanmar: Nutrition at a Glance, accessed December 2012 via <http://siteresources.worldbank.org/NUTRITION/Resources/281846-1271963823772/Myanmar.pdf>. One reviewer of this draft report

completely contrary to such a finding. The team did notice a strong correlation between wealth and overweight, and that this phenomenon appears mostly concentrated in the major urban centers of Yangon, Naypyitaw, and possibly Mandalay. In these urban areas, there appears to be a much higher consumption of processed foods, including local fast foods.

Interviews with a medical doctor at a community hospital on Inle Lake suggest that a sedentary lifestyle drives hypertension and Type 2 diabetes in that community because people live most of their lives on the water, either fishing, farming hydroponic tomatoes, or trading.

A more sedentary lifestyle, combined with local diets relatively high in carbohydrates and fats, have been at the core of the so-called “double burden” of undernutrition and overnutrition in many other countries. If Burma continues to urbanize, and more people move out of agriculture, this pattern will become an important trend to address. This pattern will be especially important to guard against because malnourished children are at greater risk of adult obesity and cardiovascular disease.<sup>94</sup>

### 1.3.8. Other vulnerable groups

As in all countries, there are a number of other vulnerable groups in Burma. Their vulnerability may not be tied to poverty, lack of assets, or poor nutrition outcomes. These groups include orphans and vulnerable children (OVC), people living with HIV/AIDS (PLWHA), the disabled (both developmentally and physically disabled), the elderly, or persons persecuted for political affiliation or activity. This paper will not focus on these groups, but will simply highlight a few points, because these groups constitute smaller populations and, importantly, there are very few social protections in place to support these vulnerable groups.

**Orphans and Vulnerable Children (OVC).** The 2008 Constitution of the Union of Burma says, “the State has the responsibility to take care of mothers and children, orphans, children of deceased military personnel, elderly people and persons with disabilities.” The Department of Social Welfare has the primary responsibility to fulfill this mandate.<sup>95</sup>

A UNFPA study (2010) reported that information on orphans and street children is not available and should be conducted to analyze and identify needs. Additionally, information on school attendance of orphans as compared to non-orphans, an indicator of MDG6, was not available as of July 2010.<sup>96</sup>

After Cyclone Nargis in 2008, numerous children were separated from their families. It was reported in June 2008, that young children, without identification cards and without the use of family surnames,<sup>97</sup> and unable to locate villages from a map, struggled to reconnect with their surviving family members. UNICEF reported that there were at least 2,000 orphans or children missing parents as a result of the

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speculated that the high reported figure may have been due to an error in translation. Regardless of the cause, this is one more example of the danger of relying too heavily on reported statistics in Burma, regardless of which agency reports the statistics.

<sup>94</sup> As reported in Wilson (2009), “Barker (1992) provided much of the early research on the effects of early childhood malnutrition on chronic morbidity in adulthood. The Barker Hypothesis (also known as the “thrifty phenotype” or “fetal origins hypothesis”) posits that, in response to undernutrition during critical stages in fetal growth, both the structure and functions of organs are “programmed” in ways that predispose people to a number of chronic conditions later in life including coronary heart disease, hypertension, stroke and diabetes (Barker 1997).”

<sup>95</sup> Bawi, 2012, Understanding the Challenges of Disability in Myanmar.

<sup>96</sup> UNFPA, July 2010, Report on Situation Analysis of Population and Development, Reproductive Health, and Gender in Myanmar.

<sup>97</sup> Ancestral lineage is not passed down through family names. Children are given a combination of names, but the names do not represent family (Christian Science Monitor, June 2008, In Burma (Myanmar), how many Cyclone Orphans?).

cyclone, while others in the country thought the numbers were much higher because the Delta region was known for having numerous children.<sup>98</sup>

**People Living with HIV/AIDS (PLWHA).** The UNFPA (2010) and UNAIDS (2012) report on HIV/AIDS in Burma and provide an overview of infection rates. The prevalence of people living with HIV between the ages of 15-49 was estimated at 230,000 in 2009 (35 percent female)<sup>99</sup> and 216,000 in 2011 (36 percent female).<sup>100</sup> Total prevalence of HIV was 0.61 percent in 2009<sup>101</sup> and 0.53 percent in 2011.<sup>102</sup>

In Burma, the main mode of transmission is sexual (73 percent). As common with this disease, there are certain groups at higher risk and more vulnerable to HIV/AIDS: injecting drug users (37.5 percent), men who have sex with men (28.8 percent<sup>103</sup>), female sex workers (18.4 percent<sup>104</sup>), and males with sexually transmitted diseases (5.4 percent). Additionally, HIV prevalence of pregnant mothers was (1.26 percent), blood donors (0.48 percent), new military recruits (2.5 percent), and new tuberculosis patients (11.1 percent). Only 20 percent of the population with advance HIV infection has access to antiretroviral drugs.<sup>105</sup>

Donor funding to NGOs and the UN organizations within Burma to respond to HIV/AIDS reached an estimated US\$43 million in 2011. International NGOs are working to increase capacity of HIV patient management and to improve prevention and treatment programs but a shortage of medical staff and specialists still pose a threat to the public health sector.

**Disabled.** According to UNICEF, the first and only survey focused on the disabled, conducted in 2008-09, revealed that just over two percent of people across the country had disabilities. This number translates into “one person with disability in every nine households.”<sup>106</sup> The LIFT baseline survey found a similar but slightly lower percentage of individuals classified as disabled (between 0.8-1.8 percent).<sup>107</sup>

The Burma government signed the Bali Declaration on Inclusive Development for People with Disabilities on November 17, 2011, and the Convention for Rights of Person with Disabilities (CRPD) on December 7, 2011. It was reported, however, that there has been a lack of research to establish an inclusive development program for those with disabilities.<sup>108</sup>

Persons with disabilities are socially, economically, and educationally disadvantaged and almost half of the disabled children do not attend school. Around 318,000 children, under age 15 are disabled and 249,000 are of school age (6-15). In Burma, disability is often a result of a preventable cause such as polio or iodine deficiency - a full 60 percent of childhood disability is linked to congenital factors, most of them preventable.<sup>109</sup>

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<sup>98</sup> Christian Science Monitor, June 2008, In Burma (Myanmar), how many Cyclone Orphans?

<sup>99</sup> UNFPA, July 2010, Report on Situation Analysis of Population and Development, Reproductive Health, and Gender in Myanmar.

<sup>100</sup> UNAIDS National AIDS Programme, 2012, Global AIDS Response Progress Report Myanmar.

<sup>101</sup> UNFPA, July 2010, Report on Situation Analysis of Population and Development, Reproductive Health, and Gender in Myanmar

<sup>102</sup> UNAIDS National AIDS Programme, 2012, Global AIDS Response Progress Report Myanmar.

<sup>103</sup> UNAIDS National AIDS Programme, 2012, Global AIDS Response Progress Report Myanmar estimates this as 7.8% for 2011.

<sup>104</sup> UNAIDS National AIDS Programme, 2012, Global AIDS Response Progress Report Myanmar estimates this as 9.6% for 2011.

<sup>105</sup> UNFPA, July 2010, Report on Situation Analysis of Population and Development, Reproductive Health, and Gender in Myanmar.

<sup>106</sup> UNICEF/ Ministry of National Planning and Economic Development. July 2012. Situation Analysis of Children in Myanmar, p. 122.

<sup>107</sup> LIFT. 2012. LIFT Baseline Survey Report.

<sup>108</sup> Bawi, 2012, Understanding the Challenges of Disability in Myanmar.

<sup>109</sup> UNICEF/ Ministry of National Planning and Economic Development. July 2012. Situation Analysis of Children in Myanmar.

In Yangon, there are 13 health service providers and two education institutions for people with visual impairment, and one school for people with hearing impairments. Most (76 percent) of the learning institutions available for vocational training are based in Yangon. Two government schools (one residential, one non-residential) under the Department of Social welfare, five private schools, and five NGOs provide special education for people with learning disabilities. There is no education for learning or intellectual disabilities outside of Yangon. In Mandalay there are two health service providers, and one provider for people with hearing impairments. Taunggyi has three health service providers and no services for people with hearing or visual impairments.<sup>110</sup>

**Elderly.** The dominant demographic change to occur in Burma over the first half of this century will be the ageing of its population, according to UNICEF (2005). According to the most recent estimates, approximately 7 percent of the population is age 60 and above.<sup>111</sup> As people age, marital status plays an important role in living conditions and well-being; widows live with family members, while women that were never married tend to live alone. Elderly in the home play a potential important role of caring for infants and children in the household. Since the majority of this age group is dependent on family for income and thus ensured food security, support is needed for the elderly population who do not have family networks.<sup>112</sup>

**Persons persecuted for political affiliation or activity.** The GOB has released hundreds of political prisoners since the start of 2012; most recently, another 50 political prisoners were released just prior to President Obama's visit on November 19, 2012. Despite the opening up of the central government, and warming relations with the US and European Union, political affiliation appears to be an ongoing source of vulnerability. According to the Association of Political Prisoners Burma (AAPPB) there are still at least 216 political prisoners in Burma's jails.<sup>113</sup> There is little question that the conditions under which prisoners are reportedly held across the country's prisons and labor camps is inhumane. Though engagement requires some optimism, and President Thein Sein has taken very promising steps towards substantial changes, it would be foolhardy to assume political affiliation no longer places individuals and their families at risk. Those thrown in jail are often of working age; the loss of an economically active family member (and probable harassment of other members) is likely to result in deterioration of the household's economic condition and therefore food security.

#### 1.4. Why Are They Poor and Malnourished?

Examination of correlates of poverty and malnutrition suggests a typology of vulnerability and a set of key shocks that appear to affect households in Burma. This typology and the set of key shocks are discussed in this section.

As discussed in Section 1.3, a typology suggests the following categories of people across Burma are most vulnerable to food insecurity: **landless households and functionally landless smallholders, ethnic minorities, women (especially mothers), and young children.**<sup>114</sup>

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<sup>110</sup> Bawi, 2012, Understanding the Challenges of Disability in Myanmar.

<sup>111</sup> This is based on UN estimates, which are in turn based on the 1983 census and growth rate assumptions. Estimates are available via <http://www.un.org/esa/population/publications/worldageing19502050/pdf/146myanm.pdf>

<sup>112</sup> UNICEF, 2005, The Elderly Population in Myanmar: Trends, Living Conditions, and Characteristics and Prospects, April 2005.

<sup>113</sup> AlertNet, December 11, 2012, reporting on ICRC, accessed 12/13/12 via <http://www.trust.org/alertnet/news/icrc-to-resume-myanmar-prison-visits-hopes-to-visit-conflict-areas/>. A list of political prisoners: [http://www.aappb.org/Updated\\_PP\\_list.html](http://www.aappb.org/Updated_PP_list.html).

<sup>114</sup> Clearly, some individuals will span more than one category. For example, there are certain to be women from an ethnic minority in a household (or even heading the household) with young children, and with no access to land. Though one might reasonably surmise that such a

The key shocks that most affect vulnerability to food security are: **price volatility, natural disaster, climate change, disease, conflict, sudden loss of access to land**. Many of these key shocks that increase vulnerability to food security do so via loss of productive assets, including both physical and human capital, either through indebtedness, confiscation, physical loss of assets, or depletion of assets as a coping strategy. Many of these key shocks (price volatility and natural disasters, for example) may negatively affect access to foods through downward pressure on wage rates.

The magnitude of the knowledge gaps around determinants of malnutrition across Burma cannot be understated. Based on the author's best educated guesses, the correlates of malnutrition appear to be poverty (strongly correlated with livelihood strategy, ethnicity/residency and education), residency (which may simply be a proxy for ethnicity), and IYCF feeding practices. The impact of residency is likely also working through poor WASH conditions, as well as IYCF feeding practices.

The table below summarizes the key sources of vulnerabilities for landless and smallholder farmers across different zones. The categorization does not attempt to distinguish gender or age as a separate category of vulnerability; however, certain sources of vulnerability (e.g., disease) appear to disproportionately affect young children and possibly women. More on this topic appears below under "Gender" and "Young Children."

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household is among the most vulnerable, the purpose of this exercise is not to "rank" vulnerability within categories, but to characterize the categories themselves.

**Table 8. Key sources of vulnerability in 3 zones, by landholding type**

Delta/Coastal		Dry Zone		Hilly	
Farmers	Landless	Farmers	Landless	Farmers	Landless
<ul style="list-style-type: none"> <li>• price volatility</li> <li>• lack of access to affordable financial services</li> <li>• sudden loss of access to land</li> <li>• disease</li> <li>• climate change</li> <li>• natural disaster</li> <li>• conflict/ displacement</li> </ul>	<ul style="list-style-type: none"> <li>• un(der)employment</li> <li>• lack of access to affordable financial services</li> <li>• disease</li> <li>• climate change</li> <li>• natural disaster</li> <li>• conflict/ displacement</li> </ul>	<ul style="list-style-type: none"> <li>• price volatility</li> <li>• seasonal water shortage</li> <li>• lack of access to affordable financial services</li> <li>• sudden loss of access to land</li> <li>• disease</li> <li>• climate change</li> </ul>	<ul style="list-style-type: none"> <li>• un(der)employment</li> <li>• lack of access to affordable financial services</li> <li>• seasonal water shortage</li> <li>• disease</li> <li>• climate change</li> </ul>	<ul style="list-style-type: none"> <li>• lack of access to affordable financial services</li> <li>• disease</li> <li>• sudden loss of access to land</li> <li>• conflict/ displacement</li> <li>• price volatility</li> </ul>	<ul style="list-style-type: none"> <li>• un(der)employment</li> <li>• lack of access to affordable financial services</li> <li>• disease</li> <li>• conflict/ displacement</li> </ul>

*Source: Author's own categorization based on literature review and field visit*

Many sources of vulnerabilities – including lack of access to affordable financial services, climate change, natural disasters –cut across agro-eco zones, and affect both the landless and poorest farmers. Others are unique to particular geographic areas, for example, the seasonal water shortages that confront households in the Dry Zone. Conflict and displacement is also happening in a number of places, but not everywhere.

As discussed later in the Recommendations section, some of these sources of vulnerabilities can be affected by civil society (by CBOs, donors, NGOs) even in the absence of institutional and policy reform (i.e., in a short game). Others will require commitment of national government (i.e., are really only in a long game, such as cessation of conflict and displacement, and substantially lowering the disease burden).

### 1.4.1. Lack of Access to Land

Lack of access to land is clearly a key source of vulnerability to food insecurity because it makes households dependent on income to access food through market purchase. As discussed in other papers in this series, the best estimates of landlessness are derived from a combination of sources, which places the incidence of landlessness at approximately half of the rural population.

The IHLCA survey finds that the incidence of landlessness is essentially unchanged in recent years; although it decreased from 26 percent in 2005-06 to 24 percent in 2009-10, the difference was found as not statistically significant. Based on Land Core Group data, nearly two million acres of land has been allocated to large agribusinesses by the GOB just in the last decade. Anecdotally, landless rates appear to be on the rise, particularly as the military government opens up and foreign investment increases.

During field visits, the team inquired about the extent of landlessness in each of the villages in the Delta, Dry Zone, and hilly regions visited. Our team found the percentage of landless households in the villages we visited was 50 percent – 90 percent in the Delta, 25 percent and 58 percent in the Dry Zone, and between zero percent and 40 percent in hilly areas. These landless rates are in line with other recent findings by Dapice et al. (2009). In sum, based on a review of secondary data and observations during the field visit, there is very good reason to believe the landlessness figures are much higher than reported in IHLCA, and that the percentage of landless households will increase in the near term as more foreign investment is drawn to agribusiness across the country.

There appear to be four major paths to landlessness: population growth, indebtedness leading to landlessness, confiscation in otherwise non-conflict areas, and loss of access to land arising from conflict and displacement.

Based on review of secondary reports, and discussions with villagers during site visits, it seems very likely that all paths lead to permanent landlessness. The team was struck by the apparent inability for households, once they have lost access to land, to ever acquire land again, either through purchase or restitution; the phenomenon of landlessness in Burma truly is a one-way slide into poverty.

IHLCA also reported average farm size by poverty. While the average farm size was 6.7 acres, poor households had a farm size of 4.4 acres, while non-poor households had an average farm size of 7.3 acres. Across states/regions, the largest average farm sizes were in Ayeyarwady (11.2 acres) and Yangon (9.3 acres), while the smallest farm sizes were in Chin (1.7 acres).<sup>115</sup>

Access to land in hilly regions appears to be relatively better than in the Delta and Dry Zones. Assessments in Chin State<sup>116</sup> and Shan State consistently report that the overwhelming majority of households have access to land. The important exceptions appear to be in Kachin State where conflict has resulted in displacement, and Shan State where confiscations have resulted in sudden loss of access to land.<sup>117</sup>

Lack of access to credit at sustainable interest rates places many smallholder farmers at high risk of becoming landless. Even with collateral, interest rates of 5-10 percent per month are common; without

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<sup>115</sup> IHCLA 2011.

<sup>116</sup> Solidarites International. January 2012. Food Security Surveillance survey: Comparative Report Southern Chin State, Kanpetlet Township, June and October 2011. Available via [http://www.burmalibrary.org/docs13/SI\\_Comparative\\_food\\_security\\_monitoring\\_report\\_CHIN\\_Kanpetlet\\_14\\_Jan\\_2012-red.pdf](http://www.burmalibrary.org/docs13/SI_Comparative_food_security_monitoring_report_CHIN_Kanpetlet_14_Jan_2012-red.pdf).

<sup>117</sup> Woods, Kevin. 2012. Emerging Agribusiness Trends in Myanmar: An Overview. Kunming: Yunnan University Press, in press.

collateral, interest rates are often 10-15 percent per month or higher. Farmers with small landholdings are less able to cope with poor harvests or other shocks to income, and appear especially likely to take on debt which they are unable to repay. The widespread and deep indebtedness of Burma's landless and smallholder farmers has been documented elsewhere; recent research<sup>118</sup> points to increasing levels of indebtedness, a finding which is inconsistent with overall improvements in poverty levels as suggested by IHLCA 2011.

**Knowledge gaps:** There is urgent need for improved understanding of the relative contribution of each pathway to overall landless rates. While we know four paths to landlessness exist – population growth, indebtedness, confiscation, and conflict leading to displacement – we don't know relative contribution of each factor. Even those who work on land issues and study landlessness across Burma, such as the Land Core Group, lack such knowledge. What we do know is that over the last few years, there has been a tremendous increase in large-scale agricultural schemes, often with foreign investment partners; nearly two million acres in consignments have been doled out by the GOB to the private sector in the last decade.<sup>119</sup> Still, we do not know whether this trend is the most important cause of landlessness, or simply the most sensational.

Of particular interest for donors working or planning to support projects in the Delta region, Ayeyarwady has the largest average farm sizes (11.2 acres) as well as the highest rates of landlessness. The team wonders if there is a historical reason for this coexistence, and what the implications of the apparent increasing concentration of land in this densely populated region.

#### 1.4.2. Ethnicity

The rich ethnic tapestry of Burma plays a crucial role in the nation's history and is the source of many of its current crises. Unsurprisingly, ethnicity is an important correlate of poverty and food insecurity for a complex set of reasons.

There are numerous writings on the ethnic makeup, distribution, and cultures of Burma's ethnic groups.<sup>120</sup> Here, the focus is on providing a brief picture of the ethnic landscape, with an emphasis on interpretation of whether and how ethnicity is correlated with vulnerability and food insecurity.

Some 135 distinct ethnic groups who speak more than 100 languages or dialects reside within the borders of present day Burma.<sup>121</sup> There are a handful of major recognized ethnic groups: Bamar (or Burmese, 68%), Shan (9%), Karen (7%), Rakhine (4%), Chinese (3%), Indian (2%),<sup>122</sup> and Mon (2%). Other groups constitute 5% or less each of the population; these groups include, among others, Kachin, Chin, Kayah, Danu, Akha, Kokang, Lahu, Naga, Palaung, Pao, Tavoyan, and Wa.<sup>123</sup> A ninth group, the Rohingya,

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<sup>118</sup> Kloeppinger-Todd, Renate and Tun Min Sandar. 2012. Rural financial institutions: savings, insurance, credit; Dapice, D., T. Vallely, and B. Wilkinson. 2009. Assessment of the Myanmar Agricultural Economy.

<sup>119</sup> Woods, Kevin. 2012. Emerging Agribusiness Trends in Myanmar: An Overview. Kunming: Yunnan University Press, in press.

<sup>120</sup> See for example, Steinberg, David, 2009. Burma/Myanmar: What Everyone Needs to Know; Sakhong, Lian H. 2012. The Dynamics of Sixty Years of Ethnic Armed Conflict in Burma. Numerous newspaper articles and blogs have covered ethnic issues. See, for example, <http://www.asiantribune.com/news/2012/01/23/myanmarnization-ethnic-nationalities-betrayal-ideals-bogyoke-aung-san>.

<sup>121</sup> UNFPA, July 2010, Report on Situation Analysis of Population and Development, Reproductive Health, and Gender in Myanmar.

<sup>122</sup> There is an important and complicated history of Chinese and Indian populations, with waves of immigration and forced expulsion. There is a small but important population of Chinese-Burmese who tend to dominate business.

<sup>123</sup> CIA Factbook, December 2012, accessed via <https://www.cia.gov/library/publications/the-world-factbook/geos/bm.html>.

reside in Rakhine State but are stateless and unrecognized by GOB and are not counted in official statistics.<sup>124</sup>

The largest group, the Bamar (or Burmese) and for which the country got its name, live mainly in the center of the country: the central plains and valleys of the Dry Zone and in the Delta. Occupying the border states, which are generally named for the largest ethnic group residing in the state, are the “minority” ethnic groups. The Shan live mainly around the Shan plateau in the frontier states bordering Thailand, Lao PDR, and China; the Kayin live mainly in the southeast and Ayeyarwady Delta; the Rakhine people are found mainly in the western coastal region; the Mon live in the southern part of the country; the Chin live in the western mountainous regions; the Kachin in the upper north; and the Kayah live in the eastern hilly region.

Independence from Britain was intended to bring about General Aung San’s vision of a federal system, in which ethnic minorities were accorded some autonomy to achieve self-determination within the larger Union. Ethnic groups living in the border areas were persuaded to join the Union under the promise that if, within ten years of independence, they preferred independence over remaining a part of the new Union, they had the right to secede. The assassination of General Aung San by his political rival changed the course of the country’s post-independent history.

Today’s present administrative division of the country speaks falsely to ethnic autonomy or semi-autonomy. Burma is divided into seven “regions” (Sagaing, Mandalay, Magwe, Bago, Yangon, Ayeyarwady, and Tananthiryi) in which ethnic Burmese dominate, and seven “states” (Kachin, Chin, Shan, Kayah, Karen, Mon, and Rakhine) in which ethnic minorities dominate respective states.<sup>125</sup> In practice, the Burmese military government controlled resources and people in the states as well, very often through force. Aside from very small autonomous areas (“Self-Administered Zones”) (Pa-O and Palaung among others), no significant autonomy has been granted.

The lands on which ethnic groups reside are among the most resource rich areas in the country. The major deposits of oil, jade and precious gems, hardwoods, and some of the richest soil for horticulture all lie within areas

dominated by non-Burmese. As Burmese military and civilian counterparts have struggled to obtain and retain access to these resources, conflicts have taken on economic undertones. This tension is most prevalent around specific industries, including logging, mining, hydroelectricity, and large-scale agricultural schemes, according to studies and news articles.<sup>126</sup> Thus, ethnicity appears tied to vulnerability because the ancestral lands of ethnic minorities contain highly-prized resources.<sup>127</sup>

In ongoing efforts to bring ethnic minority land under central government control, the junta used (and still uses) the military (known as the Tatmadaw). There is widespread evidence of forced labor, forced displacement, conscription of child soldiers, and the use of rape as a weapon of domination.<sup>128</sup>

<sup>124</sup> According to the Human Rights Watch (June 2012) during the 1983 census, the Rohingyas were excluded from the process and have formally been denied citizenship. <http://www.hrw.org/news/2012/06/11/burma-protect-muslim-buddhist-communities-risk>.

<sup>125</sup> The Permanent Committee on Geographical Names, 2007. An Introduction to the Toponymy of Burma.

<sup>126</sup> Woods makes a convincing case for considering China’s opium substitution program in Myanmar a veiled cover for territorial expansion into resource rich neighboring Shan State. Woods, Kevin. 2012. Emerging Agribusiness Trends in Myanmar: An Overview. Kunming: Yunnan University Press, in press.

<sup>127</sup> The non-profit Stimson Group has produced an interactive map illustrating where ethnic minorities reside overlaid with major infrastructure projects. See <http://www.stimson.org/programs/myanmar-map/>

<sup>128</sup> See, for example, detailed descriptions in U.S. Department of State 2011 accessed via <http://www.state.gov/documents/organization/186475.pdf>.

One scholar of land issues in Burma, Kevin Woods, argues that the central government has effectively used cease-fire agreements with ethnic insurgent groups to gain access to land and resources in areas where the government previously lacked oversight.<sup>129</sup> Foreign investment, whether formal or informal (quietly providing capital to Burmese businesses), appears to have played a particularly important role in expanding Burmese military-backed control to ethnic minority territories. As Woods states,

Much like the British colonialists that preceded them, the Burmese military–state has been unsuccessful in gaining extensive power and authority in the ethnic periphery....[I]t was not until the ceasefires, which offered renewed opportunities for business deals, that the military–state gained greater territorial control in the ethnic border uplands....Land concessions are not threatening state sovereignty, but rather the converse – enabling the process of Burmese military–state-building in the ethnic frontier. Burmese sovereignty and territory do not get steamrolled by new currents of global finance capital. Instead Burmese state and military officials direct capital flows into resource-rich, non-state uplands as an act of creating effective national state and military authority, sovereignty and territory in practice. In this way a military regime appropriates (trans-) national capital networks to form military–private partnerships to solidify de jure sovereignty into de facto territorial control (Woods 2011, p.748-49).<sup>130</sup>

Tied to the issue of ethnicity may be one of religion. Though the state announced Buddhism<sup>131</sup> as the official religion, and an estimated 90 percent of people reportedly practice Buddhism, there is an important minority of Christians and Muslims, who comprise about five and four percent, respectively. Other religions together comprise about one percent. Non-Buddhists are overwhelmingly ethnic minorities. Religious differences may be one of the underlying causes of conflict between the Buddhist Rakhine and Muslim Rohingya in Rakhine State.<sup>132</sup>

Many ethnic minority experience both physical isolation, particularly during conflict or post-conflict situations, and social and economic isolation because of language barriers. Since the official language is Burmese, curriculum at government schools is taught exclusively in Burmese.

In the border conflict areas, households have often been displaced from their home, which almost always translates into loss of access to land and disruption of livelihoods. The most significant populations of internally displaced persons (IDPs) are Kachin, Karen, and Rohingya. Estimates of IDPs in Burma range from about 340,000 to upwards of 500,000. According to UNHCR estimates, there are nearly 1.15 million people displaced and/or stateless within the borders of Burma (see table below).

**Table 9. Burma Populations of Concern, November 2012**

<b>Residing in Burma</b>	<b>Number</b>
Internally Displaced Persons (IDPs)	339,200
Stateless Persons (i.e., Rohingya)	808,075
<b>Total Population of Concern</b>	<b>1,147,275</b>

Source: UNHCR 2012.

<sup>129</sup> Woods, Kevin. 2012. *Emerging Agribusiness Trends in Myanmar: An Overview*. Kunming: Yunnan University Press, in press.

<sup>130</sup> Kevin Woods. 2011. "Ceasefire capitalism: military–private partnerships, resource concessions and military–state building in the Myanmar-China borderlands," *The Journal of Peasant Studies*, 38(4): 747-70.

<sup>131</sup> Of the two major branches of Buddhism, people in Burma practice Theravada Buddhism, which is considered the most conservative branch. Theravada Buddhism is also common in Thailand, Cambodia, and Laos. The other major branch, Mahayana Buddhism, is commonly practiced in China, Korea, Japan, and Singapore, among other countries.

<sup>132</sup> There is little literature on the Rohingya outside of blogs and newspaper articles. One particularly interesting article is : <http://edition.cnn.com/2012/10/26/world/asia/myanmar-rohingya-violence-explainer/index.html>

On the other side of the border, in neighboring Thailand and Bangladesh, there are an estimated 150,000 million refugees, many of whom have been living in camps for generations.<sup>133</sup>

According to a UN estimate, there are an estimated 115,000 IDPs in Rakhine State, most living in camps in and around Sittwe, Rakhine State. A mid-January 2013 report highlights the poor WASH conditions of the camps; an October/November 2012 needs assessment found that 60 percent of IDPs in Rakhine State camps lacked sufficient access to clean drinking water, and 70 percent lacked access to sanitation.<sup>134</sup>

At any given time, there are many IDPs who cannot be reached by INGOs or NGOs providing humanitarian relief either due to GOB restrictions on access or because of escalations in violence which drives INGOs/NGOs to withdraw staff for personal safety reasons.

**Knowledge gaps.** As one of the most ethnically diverse countries in Asia, and indeed the world, it is critical that outsiders (including donors) achieve a deeper understanding of the ethnic makeup of the country, the underlying causes of conflicts, and the constraints to improved food security among different ethnic groups.

### 1.4.3. Gender and Vulnerability

The relationship between gender and vulnerability is an important issue, and an especially difficult one to untangle in Burma. First, women have a number of rights which make Burma rather unique among developing countries, especially compared to its neighbors India, China, and Bangladesh. Women in Burma have had the right to vote since 1935,<sup>135</sup> and women have the same rights as men to own property and to receive equal inheritance. There are cultural practices, at least among the majority Burmese, which suggest women enjoy more equality than some of their peers in other developing countries. For example, women do not change their names upon marriage; neither men nor women wear wedding rings or other outward symbols of marriage; there is no equivalent for the word “Mrs.” (or a married “Mr.” for that matter) in the Burmese language; and marriage does not require a change of residence for the woman. Indeed, it is equally acceptable for newlyweds to live with the bride’s parents, the groom’s parents, or on their own. This kinship practice has important implications for IYCF, since there does not appear to be one dominant figure (mother or mother-in-law, for example) providing advice to young mothers about feeding practices.

Complicating the outsider’s understanding of gender relations are the many contradictions around gender and education. Several recent reports have noted that there is a lower value placed on girls’ education presumably because men are considered the main “rice-winners.”<sup>136</sup> However, Burma has achieved parity of enrollment of girls and boys in both primary and secondary education.<sup>137</sup> In fact, there are 1.11 girls for every one boy in primary school; that rate further increases in secondary school, where

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<sup>133</sup> Thai-Burma Border Consortium (TBBC), November 2012, Displacement and Poverty in South East Burma/Myanmar. Available at <http://theborderconsortium.org/idps/idps.htm>.

<sup>134</sup> IRIN. January 18, 2013. “WASH woes for Myanmar’s Rakhine IDPs.”

<sup>135</sup> LIFT. 2012. LIFT Gender Strategy.

<sup>136</sup> LIFT. 2012. Gender Strategy; Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeerwady Delta, accessible via <http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/STATEOFTHEWORLDMOTHERSREPORT2012.PDF>. Importantly, of the households surveyed by Save the Children: 99 percent were Bamar Theravada Buddhists, 1 percent were Karen, less than 1 percent were Christian, 72 percent were married, and 81 percent of respondents had no more than five years of schooling. Therefore, it would not be appropriate to extrapolate findings to other ethnic or religious groups, to urban areas, or to a more educated cohort.

<sup>137</sup> UNFPA, July 2010, Report on Situation Analysis of Population and Development, Reproductive Health, and Gender in Myanmar.

there are 1.26 girls for every one boy. At the university level, there are more women enrolled than men (Khin 2012). At Yezin Agricultural University, the country's only agricultural university, there are more women than men at both the undergraduate level and graduate levels; among faculty, there are 3.5 women for every 1 man.<sup>138</sup> For educated, urban women, their socioeconomic status in regards to home chores, private business, and joint-decision making, is reportedly almost equal to that of men.<sup>139</sup> Nearly three times the number of females are illiterate compared to males, according to official statistics.<sup>140</sup> Rural women and ethnic minorities, however, do not appear to enjoy the same level of status as educated Bamar females living in urban areas.

Despite these legal and cultural practices that encourage gender equality, there are clearly strong gender roles, and these roles place women in relatively more vulnerable positions. Women have primary responsibility for home and care of children, while still participating in the labor force, often even during pregnancy and nursing. This situation is the second so-called "double burden" present in Burma; this responsibility places woman, especially women of child-bearing years, in danger of poor health and nutrition outcomes. The gender division of labor, and difference in daily wages based on perceived (rather than real) differences in effort required, may be a symptom of gender-based status.

One of the few gender assessments available<sup>141</sup> suggests that women are more affected by hunger and food insecurity because of women's relatively lower status as caregivers of other family members, including the primary "rice winner". According to interviews in the assessment communities, women are the first to sacrifice their own hunger and nourishment if the household does not have sufficient food. Moreover, at least within the assessed communities, it is acceptable for women to beg neighbors for food, but not for men to do so, since begging is seen as a sign of low social status.<sup>142</sup>

The country's high maternal mortality ratio – 316 per 100,000 live births – underscores the vulnerability of woman of child-bearing years. A lack of adequate health services, including reproductive and MCH services, is compounded by high poverty rates and low quality of education. Despite official statistics that indicate skilled professionals (i.e., MoH midwives) attend the majority of births, most births actually occur at home and traditional birth attendants with limited formal training are more likely present.<sup>143</sup>

Lack of attention to basic warning signs in pregnancy, especially late pregnancy, are indications of a nearly nonexistent health system and low levels of general education, (health education, in particular). It is unclear whether the status of women (or more precisely, the status of pregnant woman) plays a role in late attention to warning signs in pregnancy. This topic merits further research.

The dominant Buddhist culture is patriarchal, and perpetuates inequalities in practice that do not exist in law. For example, a woman's *longyi* (traditional sarong) cannot be hung above a man's *longyi* or it will lower men's *hpon* (masculinity). Only men can become a monk, to which is attached a high merit value. A woman can never be a monk; instead, the best a female can hope for is to be reborn a male in her

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<sup>138</sup> Khin Mar Cho. 2012. Current situations and future opportunities of Agricultural Education, Agricultural Research and Agricultural Extension in Myanmar.

<sup>139</sup> UNFPA, July 2010, Report on Situation Analysis of Population and Development, Reproductive Health, and Gender in Myanmar.

<sup>140</sup> LIFT. 2012. LIFT Gender Strategy. Reportedly, 11 percent of the female population is illiterate, while only 4 percent of the male population is illiterate.

<sup>141</sup> Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeyarwady Delta, accessible via <http://www.savethechildren.org/atf/cf/%7B9def2ebe-10ae-432c-9bd0-df91d2eba74a%7D/STATEOFTHEWORLDMOTHERSREPORT2012.PDF>

<sup>142</sup> LIFT. 2012. LIFT Gender Strategy.

<sup>143</sup> Interviews with key informants in GOB and civil society, November 2012.

next life, while in this life, the best she can do is to gain merit by consenting to her son's ordination as a novice monk. Certain beliefs and practices clearly signal the inferiority of women in society.

Although female vendors are highly visible in local markets, and appear to have freedom of movement, women are underrepresented in many occupations and sectors (e.g., mining, forestry, fishing), however, this fact is true in most countries, whether developing or not. In positions of authority and governance, female representation lags behind. UNFPA (2010) was not able to calculate a Gender Empowerment Measurement since Burma did not have a parliament, so there is no benchmark at present in relation to gender empowerment for the country, against which it could be compared to international standards. However, in its Gender Strategy, LIFT reports recent research indicating that less than 3 percent of position of local authority are held by women, and fewer than 4 percent of all seats in Parliament (at national and state/regional levels) are held by women.<sup>144</sup> Whether these are indicative of any particularly strong gender inequalities, or more of a holdover from the military government, is a matter for further research.

Limited qualitative data from individual assessments suggest that women either voluntarily refrain or are discouraged from community decision-making positions because of traditional norms. As a recent gender assessment reported,

“A woman at leadership role is something like disgraceful to men. It is like stealing the place of men. On the other hand, regardless of their ability, being a man is believed as a qualification for being a leader.”<sup>145</sup>

During field visits, the team noted the lack of women from community leadership positions, and the initial segregation of women and men during interviews. However, the team also noted that, unlike in many other poor countries, once given attention, women were not shy about sharing opinions even when men were present. The team also noted that, unlike in many other countries, men made almost no attempts to answer for women or to steer the conversation. Indeed, the team noted that there was a relative ease with which men and women interacted during interviews which was quite distinct from the male-female interactions in many other patriarchal societies.

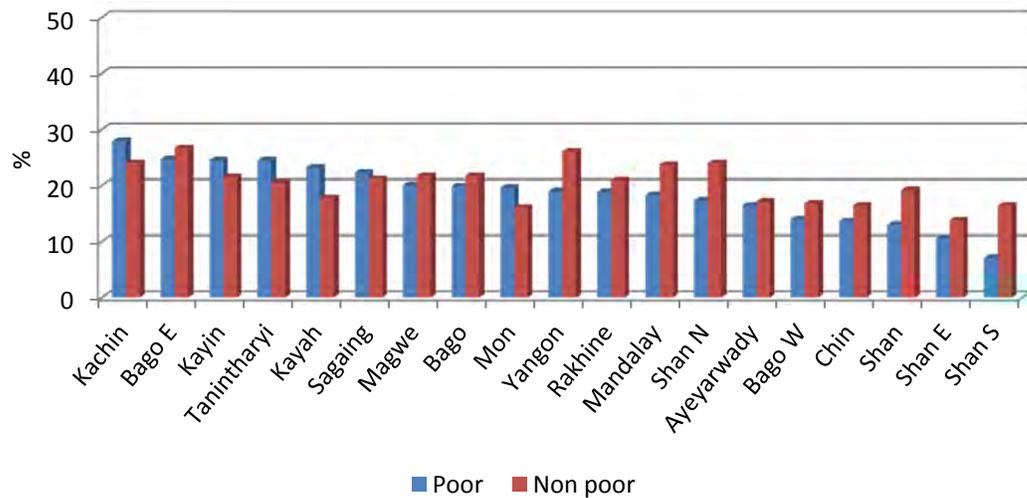
The correlation between poverty and gender is difficult to accurately assess because the evidence is inconsistent. Just over 20 percent of all households are female-headed, according to IHLCA. Over two rounds of its national surveys, the IHLCA has found an inverse relationship between poverty and gender. As the chart below illustrates, female-headed households are less likely to be poor than non-poor, according to the 2009-10 IHLCA. Notably, however, slightly less than one-third of the areas sampled reported that female headed households are more likely to be poor than non-poor and all of those were ethnic-minority states (with the single exception of Sagaing). This finding warrants further research.

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<sup>144</sup> LIFT. 2012. LIFT Gender Strategy.

<sup>145</sup> Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeyarwady Delta, p.40.

**Figure 12. Female Headed Household by Poverty Level and State/Region (%), 2009-10**



Source: Adapted by authors using data from IHLCA 2011.

Nationwide, 20.8 percent of households are headed by women. Approximately 26.7 percent of urban households are headed by women whereas approximately 18.7 percent of rural households are headed by women.<sup>146</sup> In part because female headed households are more common in urban areas, the IHLCA report authors speculate that,

The lack of relationship between poverty and female-headed [household]...may be due to receipt of remittance income or the fact that only better-off women, in primarily urban areas, are able to form their own households upon divorce or death of a spouse, rather than say, being absorbed into a relative's family.<sup>147</sup>

Interestingly, prevalence rates of stunting in U5 indicate more favorable outcomes for girls than boys; whereas 36.7 percent of boys are stunted by age 5, 33.4 percent of girls are stunted by that same age (MICS3). The reason for this difference is unclear.

High poverty rates place women and girls at risk of human trafficking, especially in states bordering China and Thailand. While human trafficking of boys is occurring as well (whether boys are forcibly conscripted as child soldiers, or for labor in tea shops, for example), there appears to be a strong economic incentive to “sell” young girls and women into sexual slavery, particularly in the states bordering China and Thailand. As a consequence of China’s one child rule, there is a gross imbalance of males over females in China, which seems to motivate Chinese men to “buy” brides from neighboring Burma, even if only to bear a child. The team heard from several unrelated sources that the fee paid for the young bride is on the order of US\$3,000-\$4,000, close to ten times the average annual income of the typical Burma household.

Complicating the understanding of gender in vulnerability, many of the correlates of poverty, including landlessness, ethnicity/residency, and main livelihood strategy, appear to affect both men and women equally. In ethnic areas, particularly those marred by conflict, women are vulnerable to rape. Human

<sup>146</sup> U Aye Maung Sein "Rural Statistics from Agricultural Census (Based on Myanmar Census of Agriculture 2003)."

<sup>147</sup> IHLCA 2011, p.34

rights organizations have documented cases of government soldiers using rape as one weapon of domination campaigns in ethnic areas.<sup>148</sup>

More broadly, outside of border conflict areas, across the country, the main risk for women appears to arise from the “double burden” that women face in acting as primary caretakers in the home while still contributing to income earning outside of the home.

**Knowledge gaps.** The gaps in knowledge about gender are substantially greater than the current body of documented knowledge. As with all the other categories of vulnerable populations, there is need for basic formative research to understand the main drivers of food insecurity among girls and women, and how those drivers differ across ethnic groups. There is very little information on possible gender inequities in receiving proper nutrition, and cultural practices and customs which make females, especially pregnant and lactating mothers who have particularly great physiological needs, more vulnerable to food insecurity. One NGO gender assessment in the Delta suggests that the main “rice-winner” is typically fed first and the most, followed by children, and that mothers often eat last.<sup>149</sup> Whether this reflects cultural norms across the country is unclear. Importantly, 99 percent of surveyed households in that assessment were Bamar Theravada Buddhists (only 1 percent were Karen, less than 1 percent were Christian), and 72 percent were married; thus, extrapolation to other ethnic or religious groups would be inappropriate.

The greater number of females in school and university is puzzling given the supposed lower value placed on female education that has been reported. This fact may simply be a reflection of higher wage rates among males which makes it less “costly” to send girls to school.

It is unclear whether the status of women (or more precisely, the status of pregnant woman) plays a role in late attention to warning signs in pregnancy. Gender norms and taboos about menstruation and reproduction may prevent men from engaging in discussions about a wife’s health, and a wife may refrain from raising health issues particularly if seeking care would involve household expenditures. There is very little documented evidence of these cultural norms, however; Save the Children’s gender assessment in the Delta is one of the only reports that touches on this subject.<sup>150</sup>

The reasons are unclear for the relatively higher stunting prevalence among boys under five compared to girls under five.

A recent gender assessment by Save the Children in Ayeyarwady Region found that “over one third of the [NGO’s local] staff does not know about the concept of gender in development or humanitarian interventions.”<sup>151</sup> If local staff (nearly half of whom are female, in this case) are unaware of the concept of gender, donors and external researchers will need to make very concerted efforts to train and sensitive local communities, including NGO staff, before they will be able to increase their knowledge and understanding of the role of gender in vulnerability, and how best to target interventions to improve food security across Burma’s diverse ethnic cultures.

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<sup>148</sup> Refugees International. 2003. No Safe Place: Burma’s Army and the Rape of Ethnic Women; Freedom House’s ongoing reporting on Burma, for example, <http://www.freedomhouse.org/report/freedom-world/2013/burma>

<sup>149</sup> Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeyarwady Delta.

<sup>150</sup> Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeyarwady Delta.

<sup>151</sup> Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeyarwady Delta. p.37.

There are recognized tools for assessing the role of girls and women in agriculture and food security projects, for example, the ADB's gender checklist for agriculture.<sup>152</sup> These tools can guide the basic questions that should be answered to effectively integrate gender into project implementation.

#### 1.4.4. Children at Critical Stages of Development

Young children, especially those under two, who are in critical stages of development, are extremely vulnerable to food insecurity and poor health and nutrition outcomes. Well-established literature cites the long-term consequences of early childhood malnutrition including poor cognitive outcomes,<sup>153</sup> lower educational attainment,<sup>154</sup> lower adult earnings, increases in chronic morbidity,<sup>155</sup> and premature adult mortality.<sup>156</sup> Rather than reciting the poor nutritional status of young children here, the above section details nutrition outcomes for children under five years of age.

**Knowledge gaps.** There is a need for more robust national nutrition surveys, but their rigor will depend on a recent and reliable population census. Parliament recently approved a planned population census in 2014.<sup>157</sup> If the census takes place as planned, this will provide a much needed foundation for other sample surveys.

There is a need for regular growth monitoring (of both weight and height) at the village level, and for basic education of mothers about the nutritional status of their children.

As noted above, apparently, there are a number of taboos about consumption of certain foods during certain events, especially during a woman's pregnancy, because of superstitions about potential effects on the person or offspring. There are major gaps in our understanding of basic food consumption patterns of subpopulations, including young children, and any possible role food taboos may play in IYCF.

The team was unable to ascertain whether there are distinct dominant figures (mother or mother-in-law, for example) who typically provide advice or otherwise influence the IYCF of young mothers. Based on the field visit, there does not appear to be one dominant figure. More research on this topic is warranted, however, and the results should be incorporated into health and nutrition programming so that the appropriate household and/or community members can be targeted.

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<sup>152</sup> Asian Development Bank Gender Checklist: Agriculture, accessible via <http://www.adb.org/sites/default/files/pub/2006/agri2.pdf>

<sup>153</sup> Maluccio, J.A., J. Hoddinott, J.R. Behrman, R. Martorell and A.R. Quisumbing. 2006. "The Impact of an Experimental Nutritional Intervention in Childhood on Education Among Guatemalan Adults," IFPRI Discussion Paper 207. Washington, DC: International Food Policy Research Institute; Martorell, Reynaldo. 1999. "The Nature of Child Malnutrition and its Long-Term Implications," *Food and Nutrition Bulletin* 20: 288-292; Case, Anne and Christina Paxson. 2008. "Stature and Status: Height, Ability, and Labor Market Outcomes," *Journal of Political Economy* 116(3):499-532; Glewwe, Paul and Elizabeth King. 2001. "The Impact of Early Childhood Nutritional Status on Cognitive Development: Does the Timing of Malnutrition Matter?" *World Bank Econ Review* 15(1): 81-113.

<sup>154</sup> Behrman, Jere, 1996. "The Impact of Health and Nutrition on Education," *The World Bank Research Observer* 11(1), 23-37; Brown, J., Pollitt, E., 1996. "Malnutrition, Poverty, and Intellectual Development," *Scientific American* 274(2), 38-43.

<sup>155</sup> Barker, David J.P. (Ed.). 1992. *Fetal and infant origins of adult disease*. London, BMJ Books. Barker, David. 1997. "Maternal Nutrition, Fetal Nutrition, and Disease in Later Life," *Nutrition* 13(9): 807-13; Barker, David. 2002. "Fetal Programming of Coronary Heart Disease," *Trends in Endocrinology & Metabolism* 13(9): 364-68.

<sup>156</sup> Barker, David J.P. (Ed.). (1992). *Fetal and infant origins of adult disease*. London, BMJ Books; Barker, David. 2002. "Fetal Programming of Coronary Heart Disease," *Trends in Endocrinology & Metabolism* 13(9): 364-68.

<sup>157</sup> See <http://reliefweb.int/report/myanmar/parliament-approves-census-bill> and <http://www.futuregov.asia/articles/2012/dec/10/myanmar-braces-2014-population-and-housing-census/>

#### 1.4.5. Key shocks

As noted above, the key shocks that appear to most affect vulnerability to food security are: **price volatility, natural disaster, climate change, disease, conflict, and sudden loss of access to land.** This section briefly summarizes the basic nature of those shocks.

**Price volatility.** Burma agricultural markets experience a large degree of price volatility because of GOB policies, global events, and occasional large-scale natural disasters. Unusually high price spikes have negatively impacted food security. For example, in August 2007, the GOB eliminated fuel subsidies which caused an overnight spike in prices (at an estimated 100-500 percent increase) and an inflation rate of 35 percent. Food and other commodity prices suddenly increased. Buddhist monks demonstrated against the price increases and were brutally suppressed by the GOB. The international community strongly condemned this unrest, termed the “Saffron Revolution,” and imposed new sanctions on Burma.

Given that households spend about 70% of income on food products,<sup>158</sup> these increases had a strong negative impact on the population welfare. Landless households, who are net food buyers, are among the most vulnerable to price shocks.<sup>159</sup>

Landless and functionally landless households, who rely on casual labor for the majority of their income, are most vulnerable to wage and price shocks since they must depend entirely on market purchases.

**Natural disasters and climate change.** One UN agency reports that an estimated “84 percent of natural disasters are climate-related, and Asia is the global ground zero for natural catastrophes.”<sup>160</sup> As anyone who has watched Burma in the last four-five years knows well, the country is prone to cyclones, earthquakes, landslides, and generalized effects of climate change.

The most dramatic example came in 2008, shortly after this political unrest, when Cyclone Nargis struck Ayeyarwady and Yangon regions. An estimated 140,000 people were killed and 2.4 million people were severely affected. The total amount of damage and losses in affected areas was estimated at US\$4.06 billion.<sup>161</sup> Nargis directly and negatively affected rice production since more than 65 percent of the country's main rice production zone is located in the area directly hit.<sup>162</sup> In October 2010, cyclone Giri struck Rakhine State. WFP and other partners estimated that more than 200,000 people were directly affected. Though relatively rare, several parts of the country face risk of earthquakes. Shan State experienced a 6.9 magnitude earthquake in March 2011. A 6.8 magnitude earthquake struck Shwebo in November 2012.

Aside from government policy, natural disasters are another important cause of volatility in agricultural production and prices. During the field visit, of the farmers and traders we spoke with talked explicitly about the increased unpredictability they face. Following record flooding in 2008, Burma has experienced episodes of both drought and flooding in the years since then. As a result, farmers we spoke with are acutely aware of the increasing production risk they face. As Haggblade (2013) notes,

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<sup>158</sup> Engdahl, F William, 2007. The geopolitical stakes of 'Saffron Revolution.'

<sup>159</sup> See Table 84 of the LIFT Baseline Survey, which indicates that 93 percent of landless households are net buyers.

<sup>160</sup> WFP. 2012. Building Resilience on a Fragile Continent WFP and Climate Change in Asia, p.2.

<sup>161</sup> USAID's emergency partners operating in Burma in 2008 in response to Cyclone Nargis included Acted, ADRA, American Red Cross, IRC, SC/US, World Vision; United Nations, Government of the Union of Myanmar, Association of Southeast Asian Nations, 2010. Post Nargis Periodic Review III.

<sup>162</sup> Steinberg, David, 2009. Burma/Myanmar: What Everyone Needs to Know.

studies of climate change predict Burma will experience higher average temperatures along with increased but erratic rainfall over the course of the next decades. These climate changes will increase the incidence of drought and flooding, which will negatively affect all farmers in disaster prone areas, but will hit vulnerable households hardest.

Building resiliency to natural disasters must be an integral part of any agricultural or food security programming strategy. One of the striking discoveries during the team’s visit was just how acutely aware the average farmer is to the negative effects of climate change, and the need for farming practices to adapt. The team expects that donors and GOB agencies will find a willing and quite well informed constituency when engaging farmers in climate change adaptation programs and projects.

For more details about climate change and associated risks, please see the background paper “Agro-ecological systems in Burma” by Kye Baroang and Glenn Denning.

**Disease.** There are high burdens of many diseases, including diarrheal disease, malaria, tuberculosis, and a host of largely preventable other tropical diseases. Indeed, Burma has Asia’s highest burden of malaria, and WHO has designated the country a high-burden TB and multidrug resistant TB country.<sup>163</sup> Low levels of community-level water and sanitation infrastructure, poor hygiene practices, low penetration of preventive and curative health care at the village level, poverty, and low education levels contribute to high burdens.

In spite of these high disease burdens, compared to its ASEAN neighbors, the GOB devotes the least per capita on healthcare – just 2.3 percent of GDP, or an estimated US\$0.66 per capita.<sup>164</sup> The result is that sudden illness requiring treatment strains most impoverished households beyond capacity. The national average indicates individuals bear a full 81 percent of the cost of health expenditures. In rural areas, especially more remote rural areas with even more limited reach of GOB health services, out-of-pocket expenses could approach 100% of health costs. Consumer debt may finance such expenditures in the short term, but contributes to overall levels of poverty from which it appears near impossible for households to escape.

**Conflict and displacement.** In the border states of Kachin and Rakhine, there is ongoing conflict. In the ethnic states of Chin, Kayin, Kayah, and Tanintharyi, past conflict has left many communities in isolation. Conflict and displacement often leads to a sudden loss of access to land, but also results in many other negative outcomes. Populations in conflict or post-conflict situations are often faced with physical isolation from markets, and humanitarian organizations who might otherwise respond to acute food insecurity are often unable to gain physical access to affected communities. See Section 1.4.2 for more on IDPs.

**Sudden loss of access to land.** Loss of access to land, through indebtedness, confiscation, or conflict represents an important key shock for large numbers of people across the country, though the majority experiencing this type of shock are in hilly regions. More on this issue appears in Sections 1.4.1 (Lack of Access to Land) and 1.4.2 (Ethnicity).

**Household Coping Mechanisms.** As discussed in Section 1.3.6, food insecure households appear to use three main coping mechanisms when faced with acute food insecurity, according to LIFT. Rather than

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<sup>163</sup> USAID. 2012. Burma Prosperity:Health (fact sheet), accessible via [http://transition.usaid.gov/locations/asia/countries/burma/fact\\_sheets/USAID\\_Burma\\_health\\_fact\\_sheet.pdf](http://transition.usaid.gov/locations/asia/countries/burma/fact_sheets/USAID_Burma_health_fact_sheet.pdf).

<sup>164</sup> Vicory, Alison. N.d. Revisiting the Financing of Health in Burma: A Comparison with the Other ASEAN Countries, accessible via [http://www.businessandeconomics.mq.edu.au/our\\_departments/Economics/Econ\\_docs/bew/2008/2008\\_Revisiting\\_the\\_Financing\\_of\\_Health\\_in\\_Burma.pdf](http://www.businessandeconomics.mq.edu.au/our_departments/Economics/Econ_docs/bew/2008/2008_Revisiting_the_Financing_of_Health_in_Burma.pdf).

reduce the number of meals, or the size of meals, families appear to become indebted, switch to less expensive and less preferred foods, and/or eat more wild foods than usual.<sup>165</sup> It bears repeating that borrowing money for food appears to be quite common, especially among poor households. LIFT's baseline survey found that among the poorest households, more than 2/3 had used a loan to finance food purchases; even the wealthiest households had used loans to finance food purchases in five percent of cases.<sup>166</sup>

In addition to taking on debt, during the field visit, the team also heard many stories of poor households selling off small livestock (e.g., ducks or chickens) or someone in the household (especially young, able bodied men and women) migrating for temporary work .

### **1.5. Institutional Environment**

There are a large number of institutions whose policies affect food security and nutrition in Burma. A detailed discussion of the complex web of the relevant formal and informal institutional policies is beyond the scope of this paper. Here, we attempt to simply enumerate the major actors.

The Ministry of Agriculture and Irrigation has perhaps the most complex and wide-sweeping effect on the agricultural sector and therefore rural life. The MoAI states its primary objective is the "promotion of productivity in agriculture through providing farmer support service" and to "give high priority to rice and other exportable pulses". Through the Central Committee for the Management of Cultivated Land, Fallow Land, and Waste Land, chaired by the MoAI, the GOB allows private investors and farmers to develop fallow land and cultivable wasteland for agriculture.

Under the MoAI are all the research and extension support agencies including, among others, the Myanmar Agriculture Service, Settlement and Land Records, Department of Agricultural Research, Mechanization, and the country's only institution of higher learning in agriculture – Yezin Agricultural University.

The Department of Rural Development under The Ministry for Progress of Border Areas and National Races and Development Affairs, commonly referred to as the Ministry of Border Affairs, previously had the responsibility for rural infrastructure such as bridges and roads, as well as oversight of ethnic states. A recent reorganization now sees the Department of Rural Development charged with rural development more broadly, but with a self-identified lack of capacity to implement rural poverty reduction programs.

The Ministry of Social Welfare, Relief and Resettlement has primary responsibility for coordinating relief to those affected by disasters, including those suffering from acute food insecurity due to drought, flood, or civil conflict.

Many humanitarian actors, including WFP, have Memorandums of Understanding with either the Ministry of Social Welfare or the Ministry of Border Affairs.

Other key ministries and institutions include:

- The Ministry of Health, and the National Nutrition Centre which sits within the Ministry of Health

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<sup>165</sup> LIFT. 2012. LIFT Baseline Survey Report.

<sup>166</sup> LIFT. 2012. LIFT Baseline Survey Report.

- The Myanmar Agricultural Development Bank, a state-owned bank and the main source of institutional credit for small-scale farmers.
- The Ministry of Education, charged with overseeing the public schools and universities.
- The Ministry of Livestock and Fisheries

Aside from the Ministries with specific influence on agriculture, marketing, health and nutrition, there are a host of other Ministries that influence the complex rural landscape affecting food security and livelihood opportunities: Ministry of National Planning and Economic Development, Ministry of Defense, Ministry of Mines, Ministry of Energy, Ministry of Labor, Employment, and Social Security, Ministry of Environmental Conservation and Forestry.

Among civil society actors, the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI) is the largest and most influential commercial actor that influences the production and marketing of foodstuffs. Multiple UN agencies, including WFP, UNICEF, and FAO provide technical and humanitarian, including emergency food assistance, in many areas.

There are several coordination and information sharing mechanisms in place, including:

- Myanmar Nutrition Technical Network (MNTN), jointly chaired by NNC and UNICEF: MNTN focuses on sharing information about emerging nutrition issues, works to harmonize technical guidelines for nutrition programming, and collaborates on nutrition surveillance.
- Food Security Working Group (FSWG), made up of INGOs and NGOs: the FSWG provides a platform for INGOs and NGOs to share information about food security conditions and activities of its members across the country.
- Food Security and Agriculture Thematic Group, chaired by UN agencies, with membership drawn from UN agencies, INGOs and NGOs: focuses on sharing information about the food security situation, and refinement of food security indicators to guide assessments

Donors – primarily through the multi-donor trust fund LIFT, contribute to development and relief efforts to improve food security primarily in the Delta, Dry Zone and Shan State.

## **1.6. Targeting Vulnerable Households**

This paper has outlined a typology of vulnerable households in Burma. The intent is to provide a ‘broad brush’ picture of the major categories of vulnerable households, and what appears to make them so vulnerable to poverty and food insecurity. The goal is to contribute to USAID’s knowledge base as the agency contemplates increased engagement in Burma, and possible design of agricultural and food security programs.<sup>167</sup> In this section, we outline a set of recommendations most critical to address household vulnerability in Burma.

US engagement in Burma is new, and while there is tremendous hope for broad-sweeping change, there is tremendous uncertainty about the reform process. Burma faces almost overwhelming challenges to institutional and policy reform, not least of which is entrenched interests in maintaining the status quo. As USAID contemplates expanding programming to support food security objectives, the agency would do well to develop strategic and agile programs that will support vulnerable populations even in the

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<sup>167</sup> Proper design of programs of course, including targeting criteria that are appropriate at the community level, will require formative research by GOB, donors, and implementing partners to understand the unique community dynamics.

absence of the structural and institutional reforms necessary for longer term, sustainable improvements in the welfare of vulnerable households across the country.

The following sections lay out a set of strategic options that should be considered in any short game, and those options that should form the foundation of any long-term investment strategy to improve food security for millions of poor people across Burma. Importantly, the strategic options in a short game are not meant to be exclusive to a short-game stance; rather, these options will help lay the groundwork for a long game. If well designed and implemented, the short-game options have potential to leave vulnerable households better off, even if the political will to make the more profound and long-reaching transformations ultimately falters.

### 1.6.1. Strategic Options in a Short Game

In the absence of institutional and structural reform, there are numerous strategic options available to donors to improve food security for vulnerable households. The primary objectives of all strategic options should be to:

- Lower staple food prices, and reduce food price volatility, through investments in improved food market performance to increase food access.
- Increase incomes through diversification away from casual labor and much less profitable crop production into more remunerative farm and non-farm activities to increase food access.
- Improve basic nutrition and health outcomes through integration of nutrition and health into every strategic option to increase food utilization.
- Lay the groundwork for a long game by investing now in improvements in human capital for the next generation.

While some of these strategic options may take longer than others to bear fruit – lowering staple food prices and increasing incomes may take longer than health and nutrition messaging to have an impact, for example – even playing a short game, donors can have a positive effect in defined geographic areas. The diagnostic team identified a series of strategic options that are feasible in the short game, briefly outlined in the table below.

**Table 10. Strategic Options for the Short Game**

Targets	Early Actions	Short Game
<b>Farmers</b> a) improve productivity of monsoon rice b) promote dry season and Dry Zone diversification	+ summarize existing best practices + assess lessons from elsewhere on promotion of high value activities for vulnerable groups	+ agronomic practices + seed quality + diversification: high-value, scalable (horticulture, poultry, fish ponds) + farm-level water management
<b>Post-farm value chain</b>	post-harvest loss assessment	+ post-harvest handling + target niche markets
<b>Landless and functionally landless</b>	+ pilot programs promoting school attendance, improved nutrition and health (link with high-value diversification)	+ high value agriculture + nonfarm income + education access + nutrition packages (horticulture, poultry, education, public health)

+ test pilot safety nets  
to reduce indebtedness  
following livelihood shocks

+ scale up safety nets and insurance  
options for landless households

This section will elaborate on some of the specific activities donors can support to improve the food security of landless and functionally landless households.

**Lower staple food prices and reduce food price volatility.** An obvious part of any short game will require increasing household food access. This imperative will require not only increasing incomes (discussed below), but also reducing staple market prices through improvements in production/productivity and marketing to ensure the landless and other households highly dependent on the market can buy staple foods at reasonable prices. Other background papers in this Diagnostic focus on the multitude of strategic options to address constraints to improving agricultural sector performance and the opportunities available under both the short and long game to increase availability, increase farmer incomes while simultaneously increasing the affordability of staples, and reducing market price volatility.

**Increase incomes.** The importance of expanding livelihood opportunities and increasing incomes of vulnerable households in a country where there really are no safety nets cannot be underestimated. At the center of any strategy to increase incomes must be activities that support diversification away from casual labor and much less profitable crop production as primary sources of income. At present, the livelihood options for landless and near landless households typically involve some combination of casual farm labor, non-farm income through small businesses (textile weaving, vending), employment migration (commonly in tea shops or as domestic help), and high value agricultural activities that require minimal land (e.g., poultry, horticulture, and fishing).

During site visits in the Delta, Dry Zone and hilly areas, the team interviewed many villagers and village leaders about livelihood options. While the majority of villagers earn income, at least part of the year, as daily agricultural laborers, there are a number of different types of entrepreneurial activity at the village level. Among the most common microenterprises were textile weaving, fishing, basket weaving, vending, and poultry operations. In a short game, these activities can and should be encouraged. Some of the activities are presently supported through donors and CBOs, most notably under LIFT, but support needs to be vastly scaled up.

Interventions that support employment generation at village/village tract level via microenterprise, especially microenterprise that improves dietary diversity/nutrition (e.g. poultry and horticultural crops that can be incorporated into the diet) are desperately needed. An expansion of microfinance, village savings and loan schemes (VSLs), and other community-based self-help groups (such as rice banks and animal banks), would enable investment in improved production and micro-entrepreneurial activity.

Support for microenterprise, especially one that involves any expansions of financial tools, should be coupled with some financial literacy training at a minimum. Depending on the community level of education (especially the levels of functional literacy and numeracy), it may be necessary or appropriate to include in programming an approach similar to USAID/Nepal's "Education for Income Generation" program, in which women learn how to read and learn basic job skills so they can run small businesses.

For landless households, access to credit at reasonable interest rates can reap large benefits, by enabling households to invest in, for example, scalable poultry operations, other small livestock rearing or fishing businesses, or start up inventory for village vending operations. For smallholders and for landless with the ability to rent small plots, diversification into high value crops is quite promising, provided a value chain approach ensures existence of a market and the ability of farmers to meet the market's required quality. Given current borrowing practices (most of which is to purchase food), donors should explore targeted support for input use (e.g., improved seed, fertilizer, day old chicks, animal feed) as a way to kick start business investment and productivity increases.

Combined with nutrition messaging, projects that encourage rearing of small livestock (especially chicken and ducks) for both home consumption and income generation has been successful in other country contexts and holds great promise in Burma to improve food security of the landless and smallholder farmers. Control of potential disease outbreaks, such as Newcastle disease in poultry and swine fever in pigs, through donor-supported vaccination campaigns may be feasible even under a short game (i.e., even in the absence of sufficient GOB investment or engagement). USAID is already supporting health initiatives, including disease surveillance and control programs. Support for surveillance and control, even if in a limited geographic area, could reap large benefits for households depending on livestock for their livelihoods.

Targeting of women for income generation activities should be informed by the opportunities available to vulnerable households within individual communities, and by the time burden faced by women in those communities. All project design should ascertain the time burdens placed on women prior to project design so that implementation does not negatively impact girls'/women's ability to participate effectively. As some NGOs have found in Burma, lack of time is often one of the most important barriers preventing women from participating fully in project activities.<sup>168</sup> Donors and implementing partners should make use of the recognized tools for assessing the role of girls and women in agriculture and food security projects (e.g., ADB's gender checklist for agriculture<sup>169</sup>) which can guide the basic questions that should be answered to effectively integrate gender into project implementation.

Donors can and should support income generating activities (IGA) through training, and expansion of microfinance and savings and loan schemes. IGAs should be carefully designed so they do not disrupt communities by encouraging greatly increased migration, particularly of main wage earners, away from rural villages. MDRI-CESD Director U Myint points to China's Township and Village Enterprises (TVEs) as a potentially promising strategic option for Burma to ensure inclusive economic growth, while avoiding massive urbanization.<sup>170</sup>

**Improve basic nutrition and health outcomes.** Large scale donor-funded activities have focused on improving food availability and access (e.g., LIFT funded programs), as well as other vitally important areas such as conflict resolution and peacebuilding. However, other equally essential areas – such as basic nutrition and health – have been virtually ignored by the GOB and donors.

Basic health and nutrition programs should be integrated into any new program aimed at improving agricultural sector growth and/or enhancing food security, and backwards-integrated into any existing such programs. For example, NGOs/CBOs may tie IGAs to nutrition messaging and/or kitchen gardens.

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<sup>168</sup> Save the Children. n.d. Annex 2: LIFT Mid-Term Report: Gender Assessment Report: The situation of women in Post Nargis Ayeyarwady Delta, p.39.

<sup>169</sup> Asian Development Bank Gender Checklist: Agriculture, accessible via <http://www.adb.org/sites/default/files/pub/2006/agri2.pdf>

<sup>170</sup> Dr. U Myint. "Reducing Poverty in Myanmar: the Way Forward," speech presented at Workshop on Rural Development and Poverty Alleviation in Myanmar, Naypyitaw, May 20, 2011.

Basic community-based healthcare and messaging about hygiene practices, aside from inherent health benefits, increase household labor availability to earn income and reduce likelihood that landless households and smallholder farmers will need to borrow money to pay health expenses.

USAID partners have learned many valuable lessons over decades of programming in health and nutrition. Among the set of evidence-based practices<sup>171</sup> that can be implemented on a small-scale and in nearly any operational environment are:

USAID partners have learned many valuable lessons over decades of programming in health and nutrition. Among the set of evidence-based practices that can be implemented on a small-scale and in nearly any operational environment are:

- Kitchen gardens in which NGOs/CBOs teach women to grow nutrient-dense crops (vegetables, fruits, legumes) for use in household meals, while providing basic nutrition education
- Mother's clubs, or other platforms where mothers and their families learn about optimal breastfeeding and complementary feeding practices, and continued feeding during child's illness.
- "Training of trainers" nutrition education and healthy cooking demonstrations, one side benefit of which is that such programs can create jobs for female nutrition educators who teach family, neighbors and community members
- Hand-washing campaigns
- Campaigns to end open defecation (similar to Bangladesh's Community-Led Total Sanitation approach)<sup>172</sup>
- Increased access to safe drinking water, through WASH campaigns
- Regular growth monitoring (including weight and height) of children under five in targeted communities, and introduction of individual growth monitoring charts so mothers can see how their child's growth compares to his/her healthy peers. Although these practices would have greatest impact at the national level, they can be implemented by NGOs with trained staff, even without structural changes in national policies and institutions.

There is some intriguing evidence from an ongoing research study that WASH may play a central role in reducing under-nutrition other than through its effect on reducing diarrheal incidence.<sup>173</sup> This research suggests that improved diet only solves one-third of the stunting problem, and that stunting may be strongly related to repeated gut injury which causes nutrients to be directed to fight infection due to intestinal injuries caused by repeated contact with infectious agents. If true, WASH needs play a co-starring, rather than supporting "add-on" role to improve nutrition outcomes.

Importantly, many of the strategic options designed to affect nutrition and health outcomes must involve targeting mothers because they are the primary caregivers. However, effective targeting of

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<sup>171</sup> The USAID Office of Food for Peace commissioned an independent review of seven years of Title II development food security programming to assess success, failures, and describe a set of best practices. The FAFSA reviewed 101 programs across 28 countries suggest some of the most cost-effective practices that enjoy the greatest impacts. Sectoral areas include WASH/agriculture/natural resource management, infrastructure/MCHN/income generating activities. For more information, see PowerPoint presentations accessible via <http://www.fantaproject.org/fafsa2/index.shtml>.

<sup>172</sup> Some of the lessons learned from the Bangladesh experience tackling rural sanitation issues such as open defecation are outlined in Hanchett et al. 2011. Long-Term Sustainability of Improved Sanitation in Rural Bangladesh, accessible via <http://www.wsp.org/sites/wsp.org/files/publications/WSP-Sustainability-Sanitation-Bangladesh-Report.pdf>

<sup>173</sup> Johns Hopkins Bloomberg School of Public Health/Cornell University/University of London/Zimbabwe Ministry of Health and Child Welfare/London School of Tropical Medicine and Hygiene. n.d. Sanitation, Hygiene, Infant Nutrition Efficacy (SHINE) project, PowerPoint presentation.

women must be informed by a solid understanding of the time constraints faced by women in targeted communities. Moreover, there may be good reason to expand the targeted individuals to include fathers, grandmothers or aunts, for example, if they are involved and/or influential in nutrition and feeding of young children.

**Increase school attendance.** To set up the long game, rural education must be incorporated into any set of chosen strategic options, even in the short game. Particularly for children from landless or functionally landless households, investments in education and nutrition are critical to build the human capital necessary for them to launch remunerative non-farm careers as skilled artisans, professionals, or small business owners.

Aside from a limited WFP Food for Education (FFE) program, there appears to be very little interest or investment in rural education. This ignorance is a massive oversight. No support for vulnerable households undertaken today will have a lasting imprint on the welfare of those households without ensuring that the children within those households have a promise of increased opportunities for higher-wage jobs.

As an early action to explore practical options and to lay a foundation for prospective rural education reform, USAID should consider funding small-scale pilot efforts to link increased enrollments (through scholarships or FFE programs designed to cover the cash and opportunity costs of attracting landless children to schools) with expanded teacher staffing and supplementary curricular and extra-curricular learning opportunities aimed at improving the relevance and impact of rural education on the career trajectories of children of the rural poor.

WFP and NGOs have experience in other countries using foods supplied through local purchases and complemented by school gardens. This partnership links local production to a community market and enables both children and their parents to incorporate the benefits of nutrition messaging at school or home into more nutritious meals at school.

One promising development is evidence of at least one commercial actor engaging in a creative Corporate Social Responsibility (CSR) program. The largest feed and poultry operation in Burma, the Thai company CP Thai has begun piloting elementary school poultry rearing programs that aim to improve school nutrition and to show children proper animal husbandry and the profitability of poultry production. USAID and other donors should investigate other possible opportunities to encourage private sector support of education.

### **1.6.2. Strategic Options in a Long Game**

Broad-based, inclusive agricultural growth will require many institutional and structural transformations. Most if not all of these transformations are outside of donor control, but donors can offer support through technical assistance and basic research that will improve the knowledge base.

Setting up a long game, especially starting out with a misaligned budget, will require a stark shift in priorities and many difficult investment decisions. Like all long-term investments, however, the payoffs will be much larger (and for a much larger group of people) than if decision-makers keep fixated on short-sighted splashy investments. The good news is that most of the recommendations presented here (education, jobs, and capacity building) were self-identified needs by nearly every interviewee, whether in villages or Ministry offices. Some of the recommendations will require educating stakeholders about why a particular investment is worthwhile, an undertaking that will mean breaking down a silo mentality and entrenched patterns of doing business.

The diagnostic team identified a series of strategic options that will be critical in a long game, briefly outlined in the table below.

**Table 11. Strategic Options for the Long Game**

Targets	Early Actions	Long Game
<b>Farmers</b>	+ detailed agricultural sector budget review + agricultural graduate deployment (UDOC)	+ budget resources for agriculture + institutional reform (agricultural research, extension, education) + water system management + land access + farmer organizations
<b>Post-farm value chain</b>	+ rural cell phone expansion + assess alternate ag. statistical systems, including satellite-based + micro-finance + MADB assessment	+ improve data quality + predictable policies + rural finance + intermodal transport system logistics
<b>Landless and near landless</b>	+ pilot efforts to improve enrollment, curriculum and nutrition + land policy monitoring and support	+ education reform + rural nutrition, health and sanitation

This background paper will elaborate on some of the specific activities donors can support to improve the food security of landless and functionally landless households in the long game. Importantly, the long game should build on gains and lessons learned in the short game. The primary objectives of all strategic options in a long game should be to:

- Invest in human capital by:
  - Placing education at the center of investment strategy.
  - Incorporating nutrition into policies and programs to ensure the next generation reaches its full genetic potential.
  - Building capacity within GOB and civil society.
  - Developing a knowledge base through basic research topics with wide-ranging consequences.
- Address land use in a way that respects the interests of all stakeholders
- Break down silo mentality and encourage regular and meaningful coordination among stakeholders
- Design and support national safety nets

This section will elaborate on each of the above primary objectives, and will outline some of the specific activities donors can support to attain these primary objectives.

**Investment in human capital.** Investment in human capital must be at the center of any long game, both for GOB and the donor community eager to see Burma succeed. There is woefully inadequate government spending on health and education. Yet, education, and basic health and nutrition, must be

at the center of any investment in human capital that hopes to reap meaningful payoffs at a population level.

**Education.** Education, especially rural education, needs to move to the center of discussions about inclusive economic growth. Attendance rates and educational attainment among vulnerable households are impaired by the opportunity cost of sending rural children to schools that unsuccessfully integrate them into the community, and at a cost that creates yet more indebtedness.

Burma's history of strong education dating to the British colonial era has been severely undermined by decades of neglect and entrenched structural poverty. In the short game, increasing attendance and attainment through FFE (and teaching the school community about nutrition through school gardens) is a worthy and important goal. In a long game, true progress in building human capital should be less focused on attendance rates and more focused on attainment rates and the quality of education, which is currently abysmal.

Addressing weaknesses in the educational system will require substantial fiscal and human resources devoted to tackling tough problems. The Ministry of Education needs an increase in its budget allocation so it can: 1) undertake curriculum reform to ensure education is relevant for a rural but transforming economy; 2) address the language barrier through creative solutions, perhaps adding government sponsored preschool focused on Burmese (or other) language acquisition; and 3) hire sufficient numbers of qualified and motivated teachers.

Fortunately, Burma has a history of strong education,<sup>174</sup> and even today enjoys gender parity in attendance. Even more fortunate, education is a self-identified need. Indeed, everywhere the team went, regardless of whether the interviewees were villagers, village administrative officers, GOB Ministry staff, or local staff from CBOs, education topped their list of priorities areas in need of urgent investment.

**Nutrition needs to move to the center of discussions about development.** The long-term consequences of early childhood malnutrition – poor cognitive outcomes,<sup>175</sup> lower educational attainment,<sup>176</sup> lower adult earnings, increases in chronic morbidity,<sup>177</sup> and premature adult mortality<sup>178</sup> – are widely recognized within the international community. As a result of the large evidence-base, many international organizations and bilateral donors are prioritizing improvements in early childhood nutrition with the goal of improving long-term human capital outcomes.<sup>179</sup>

The multitude of benefits of investing in nutrition, however, are not well known in Burma. As a result, the GOB's commitment to nutrition is paper-thin. This lack of awareness is partly due to a silo mentality (discussed below). Within GOB and civil society, nutrition is seen as a "health issue," somehow unlinked to economic issues or agricultural sector issues. There is very little understanding of IYCF practices and how they influence food security outcomes. There seems to be little appreciation for the link between infrastructure, disease burdens, and poverty and nutrition outcomes.

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<sup>174</sup> Ware and Clark. 2009. Consequences of Sanctions: Are the MDGs Relevant in Myanmar?; Steinberg, David, 2009. Burma/Myanmar: What Everyone Needs to Know.

<sup>175</sup> Maluccio et al. 2006; Case and Paxson 2008; Glewwe and King 2001.

<sup>176</sup> Behrman 1996; Brown and Pollitt 1996.

<sup>177</sup> Barker 1997; Barker 2002; Lucas 2006; Fisher et al. 2006.

<sup>178</sup> Fisher et al. 2006; Choi et al. 2000.

<sup>179</sup> World Bank 2002; USAID 2008.

The MoH NNC is currently revising Burma's 5-year National Plan of Action for Food and Nutrition (NPAFN). An expatriate consultant, funded by FAO, is currently revising the draft.<sup>180</sup> As a donor agency with tremendous capacity in nutrition programming, USAID should be an active part of that conversation. The team was able to read an early draft of the plan. There were substantial operational gaps yet to be filled in the early draft. It will be critical for stakeholders to operationalize the NPAFN, in active consultation with all the key stakeholders involved in the agricultural sector, to increase the chances of effective application of food and nutrition policies under the new 5-year NPAFN.

**Breaking down silos will ensure greater ownership of solutions to poverty and food insecurity.** There is a strong culture of stove-piping, or what one might call a silo mentality. This type of thinking is especially true in the area of food security. Among GOB stakeholders, food security simply means food availability (or more precisely, *rice security*) at the national level. The concepts of food access, utilization, and stability appear quite foreign in Burma.

At present, nutrition is considered mainly as a component of the health sector rather than an inter-sectoral issue requiring attention in policies related to food security and livelihoods. The result of this silo mentality is that there is no systematic approach to addressing the basic and underlying causes of food security, among which are poor IYCF and a high disease burden. One consequence is an apparent fixation on increasing agricultural output despite any evidence that increases in output will in fact translate into improved food security for the nation's rural population.

Yet, a focus on increasing agricultural productivity, without a simultaneous and integrated focus on increasing human productivity (through improvements in education, nutrition, and health), would be a mistake. Experience in many countries underscores the importance of integrated approaches to tackling poverty and food insecurity. Any solutions to improving nutrition outcomes, for example, will necessarily involve a multi-sectoral approach, including expertise and resources in agriculture, education, infrastructure, private agribusiness, and healthcare. Designing and implementing poverty reduction plans will require increased inter-ministerial coordination, and coordination and communication between GOB and civil society.

One interesting consequence of the tense relationship between donors and GOB is that parallel systems have developed (government and "everyone else"), and there is little history of true coordination. Further undermining the promise for a partnership between the international community and GOB is an unhealthy working relationship among many UN agencies, and between UN agencies and INGOs/NGOs. Among UN agencies, there is palpable tension and rampant jealousies. Reversing this legacy will require commitment on the part of donors and GOB.

USAID may be able to play an important role of peacemaker within the international community because it lacks the "baggage" or past bad practices of the silo mentality and lack of coordination.

"First, in order to go forward with poverty reduction, or more generally to go anywhere, we must know where we are at present . . .

Second, after finding out where we are at present and where we want to go, the next step will be to think of how to get there . . .

Third, after finding out where we want to go and how to get there, the next step is to come up with what must be done to get to where we want to go . . .

- U Myint, Economic Advisor to President Thein Sein, in his speech at the Forum on Poverty workshop May 2011, Naypyitaw

<sup>180</sup> Ministry of Health, National Nutrition Centre. 2012. Draft Myanmar National Plan of Action for Food and Nutrition 2011-2015.

**Basic research is urgently needed to create a knowledge base to enable policy and program design, and to measure progress.** Basic research must be at the foundation of any long game. To ensure inclusive growth, we need to better understand the constraints on improving agricultural sector performance and household food security. Once a knowledge base is created, information must be disseminated to all stakeholders so they can incorporate that knowledge into improved practices.

Other papers in this series focus on basic research needs within the agricultural sector. Here, we

“This is a government crying out for help in capacity-building, at every level . . . they want to do so many things. The real problem is implementation . . .

- David Lipman, EU Ambassador to Myanmar

highlight research needs specific to food security, especially those affecting household food consumption and nutrition outcomes.

- Basic research on household decision-making patterns, including who controls expenditures and who controls food purchases, and how these patterns may differ among different ethnic groups
- Basic research on household consumption patterns, including intra-household allocation of food, and how these patterns may differ among different ethnic groups
- Basic research about the determinants of malnutrition, especially any determinants that are specific to cultural practices

The results of this research can inform design of agricultural policy and programs that incorporate improved household nutrition as a desired outcome. Knowing who in the household to target with what types of interventions will go a long way to ensure the positive impact of food security efforts.

**Capacity building is a self-identified need in both government and civil society.** There is a critical need for massive capacity building of technocrats within GOB who must design and implement GOB programs. Along with education, capacity building was the second-most common self-identified need, given top priority especially among government staff. From Union to township and down to the village level, there is widespread recognition that capacity is low because of the poor educational system, and yet there is an extremely strong desire among GOB staff to be at the center of problem-solving efforts. As one observer notes, “Burma’s citizens need demand-driven support, not supply-driven development.”<sup>181</sup>

The US should offer its considerable resources in nutrition research and programming as an evidence-base from which to inform the ongoing conversation about GOB priorities to support inclusive and sustainable economic growth.

**Land use management may indeed be the “third rail,” but not dealing with it is likely to result in widespread civil unrest.** Unequal access to resources and lack of popular voice in decisions about major infrastructure projects and resource extraction that affect rural populations, are at the heart of many conflicts between the Burmese military-government and ethnic minorities in minority-dominated ethnic states. But the GOB’s heavy-handed and widespread use of land laws has also stripped rural Burmese households of access to land.

Without reforms in land use management, there is risk of an ever growing landless population. Moreover, the promise of reform produces rising expectations among the populace that could lead to

<sup>181</sup> Talbott, Kirk, John Waugh, and Douglas Batson. 2012. “Sharing the Wealth: Burma’s Post-Military Rule and Natural Resource Governance,” *Small Wars Journal*

further civil unrest. However, global attention on Burma means there is perhaps greater incentive for GOB to work towards a national resolution to the land issue that recognizes the explosiveness of battling entrenched interests and yet finds a way to extend access to the millions of vulnerable people who have been previously denied.

**National safety nets are needed to protect the most vulnerable households from sliding into destitution.** The social capital available to the average household in Burma is intimately tied to ethnic and village-level networks. Burma has no national safety nets, with the exception of the formal social security system which covers a tiny fraction of the population. In some areas, UN agency and NGO programs act as *de facto* safety nets.

Industrialized countries long ago recognized that social protection programs are necessary to keep the most vulnerable households from sliding into destitution. Safety nets must be designed, properly funded, and monitored to ensure they adequately reach those who most need them. There are now many national safety nets in developing countries (e.g., Brazil, Mexico, and Bangladesh) which provide examples of design and implementation. At a minimum, in support of investments in human capital and social protection of the most vulnerable groups in Burma, the team recommends consideration cash transfers or other in-kind support to the elderly, disabled, and households supporting OVCs.

### **1.7. Conclusion**

Burma has embarked on an unprecedented path to restructure its political, economic, and social institutions in an effort to realize its potential as a global agricultural power and reduce rural poverty that has gripped its citizens for nearly half a century. In the process, Burma's leaders have opened up to the international community, seeking technical assistance to stimulate broad-based inclusive growth. As international donors contemplate new programming to stimulate agricultural growth and enhance food security in Burma, donors have the opportunity to support short term gains while laying the foundation for long term improvements in household welfare of the people of Burma.

Policies that encourage a more even distribution of resources, investment in key sectors (including water, sanitation and hygiene, health, education, and agricultural research and extension), and strategic government policies that focus on investment in human capital are critical to improving household food security. Without these investments, Burma will surely fail to meet its Millennium Development Goals, and the majority of its population – the poor who live and work in rural areas – will continue to face widespread food insecurity.

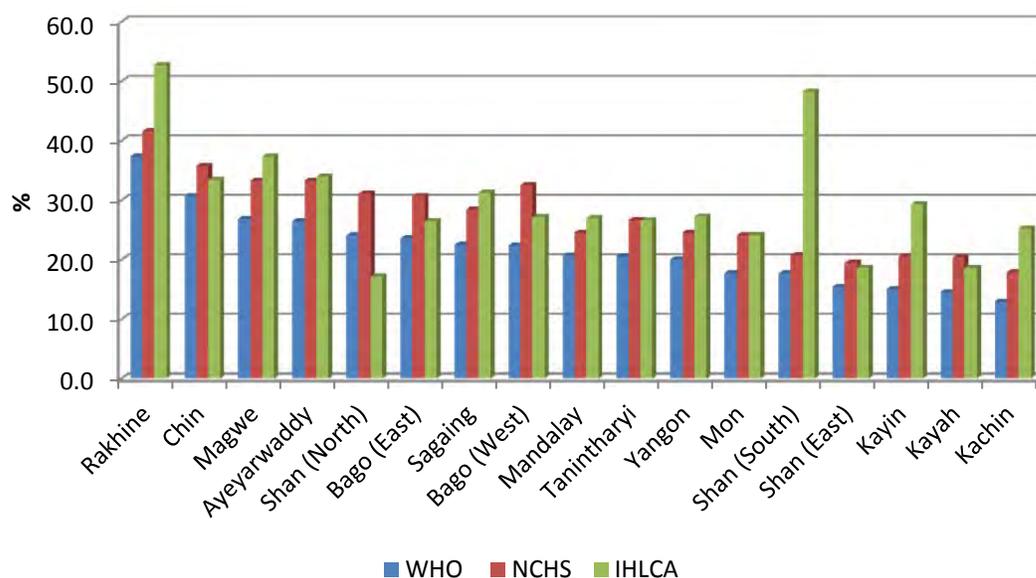
## Annex 1. Site Visits

	Village	Village tract	Township	State/Region
28 Oct 2012			Yangon	Yangon
29 Oct 2012			Yangon	Yangon
30 Oct 2012			Yangon	Yangon
31 Oct 2012			Yangon	Yangon
1 Nov 2012			Danuphyu	Ayeyarwady
2 Nov 2012	Kyaung Pann Gone		Pathein	Ayeyarwady
3 Nov 2012	Moe Goke	Moe Goke	Pathein	Ayeyarwady
3 Nov 2012	Thar Yar Gone	Nga Kwa	Pathein	Ayeyarwady
4 Nov 2012			Yangon	Yangon
5 Nov 2012			Yangon	Yangon
6 Nov 2012			Yangon	Yangon
7 Nov 2012	Pyun Zu		Waw	Bago
7 Nov 2012	Inn Daing Zu		Waw	Bago
8 Nov 2012			Naypyitaw	Mandalay
9 Nov 2012	Chi Pa (North)	Chi Pa	Shwe Bo	Sagaing
10 Nov 2012	Kywe Chan	Ye Chin	A Yar Daw	Sagaing
10 Nov 2012	Bone Let Kut	Naung Gyi Ei	A Yar Daw	Sagaing
11 Nov 2012			Mandalay	Mandalay
12 Nov 2012	Hei Yarr Ywa Ma	Pann Pei	Inle	Shan
13 Nov 2012	Payah Phyu	The Le Oo	Naung Shwe	Shan
13 Nov 2012	Naung Lane Gone	Thein Gone	Taung Ni	Shan
14 Nov 2012		Aung Bann	Aung Bann	Shan
15 Nov 2012			Yangon	Yangon
16 Nov 2012			Yangon	Yangon
16 Nov 2012			Yangon	Yangon

## Annex 2. Nutrition Indicators

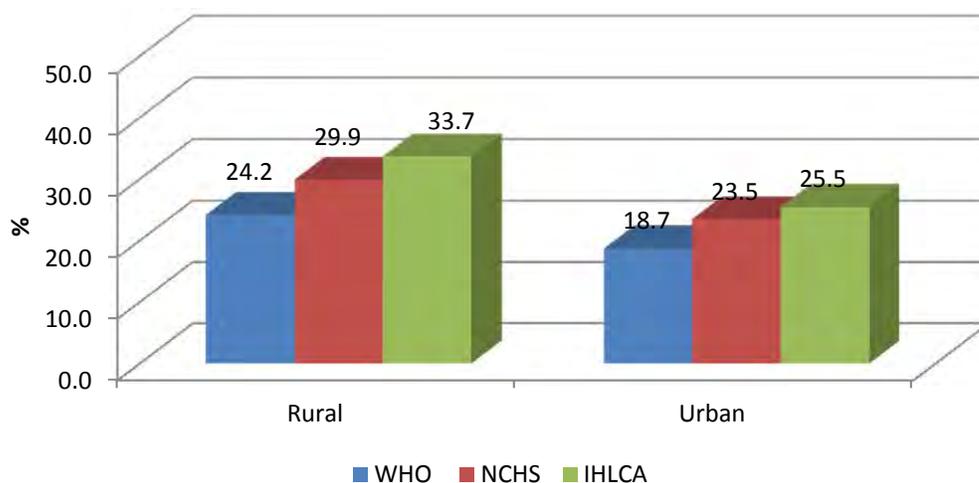
This annex includes tables and charts with additional nutrition indicators.

**Figure 13. Moderate Underweight (%), by State/Region, 2009-10**



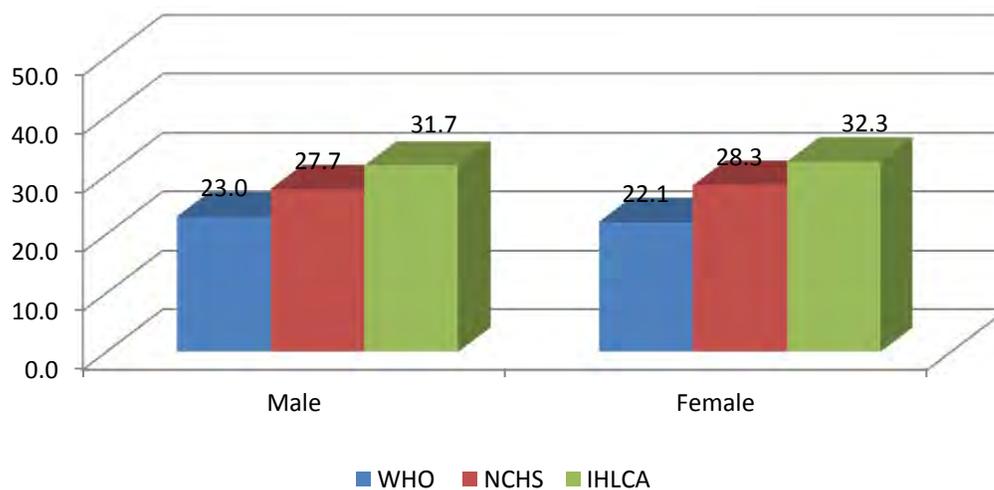
Source: Burma MICS 2009-10; IHLCA 2009-10

**Figure 14. Moderate Underweight (%), by Area, 2009-10**



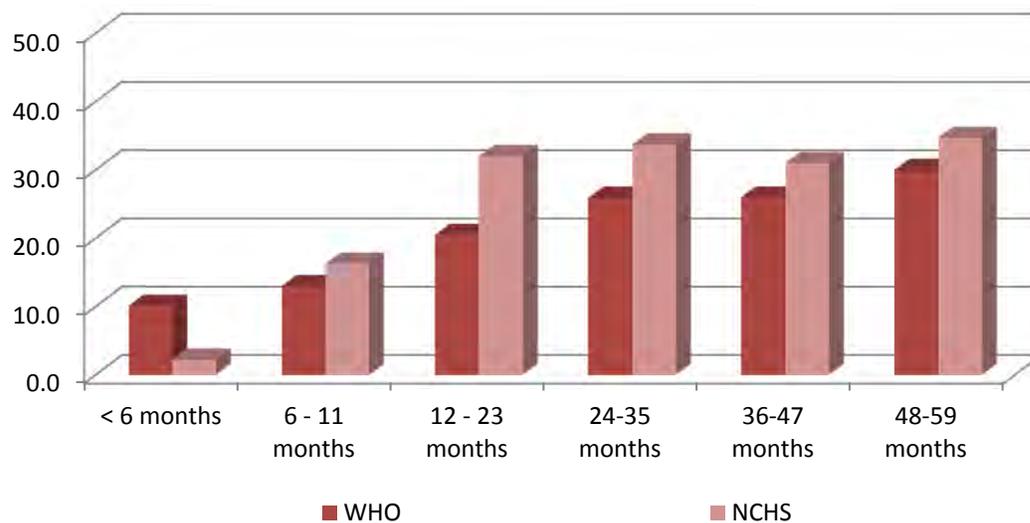
Source: Burma MICS 2009-10; IHLCA 2009-10

**Figure 15. Moderate Underweight (%), by Sex, 2009-10**



Source: Burma MICS 2009-10; IHLCA 2009-10

**Figure 16. Moderate Underweight, by Age, 2009-10**



Source: Burma MICS 2009-10

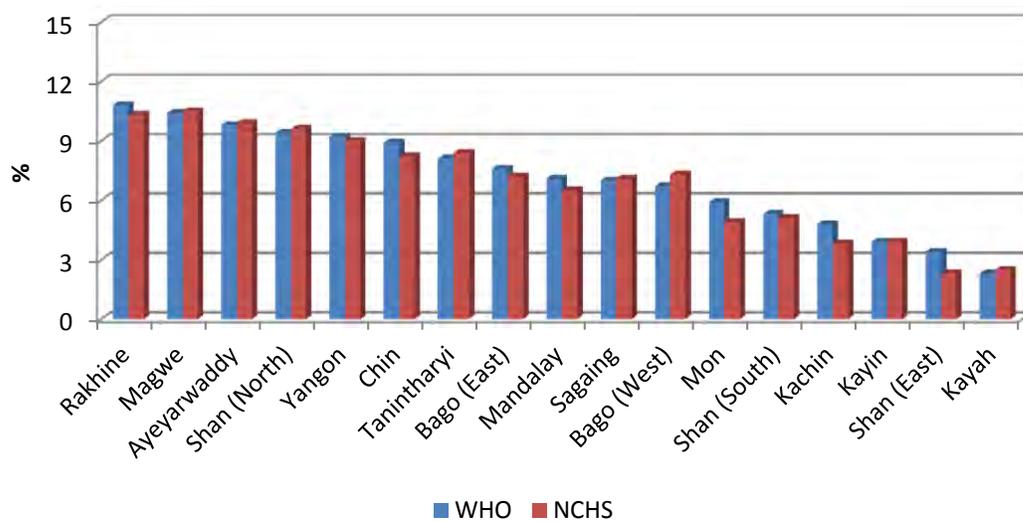
**Table 12. Stunting (%), by State/Region, 2009-10**

State/Division	WHO	NCHS
Chin	58.0	51.8
Rakhine	49.9	42.9
Shan (North)	46.9	42.5
Shan (South)	41.8	34.2
Kayah	41.7	34.6

State/Division	WHO	NCHS
Sagaing	38.6	31.5
Shan (East)	38.5	32.0
Ayeyarwady	37.0	30.6
Kachin	36.6	28.4
Magwe	36.4	30.1
Bago (east)	35.0	27.8
Tanintharyi	32.9	26.3
Mandalay	31.5	25.4
Bago (west)	30.8	25.4
Mon	29.7	23.7
Kayin	29.0	22.6
Yangon	24.0	18.0
Total	35.1	28.6

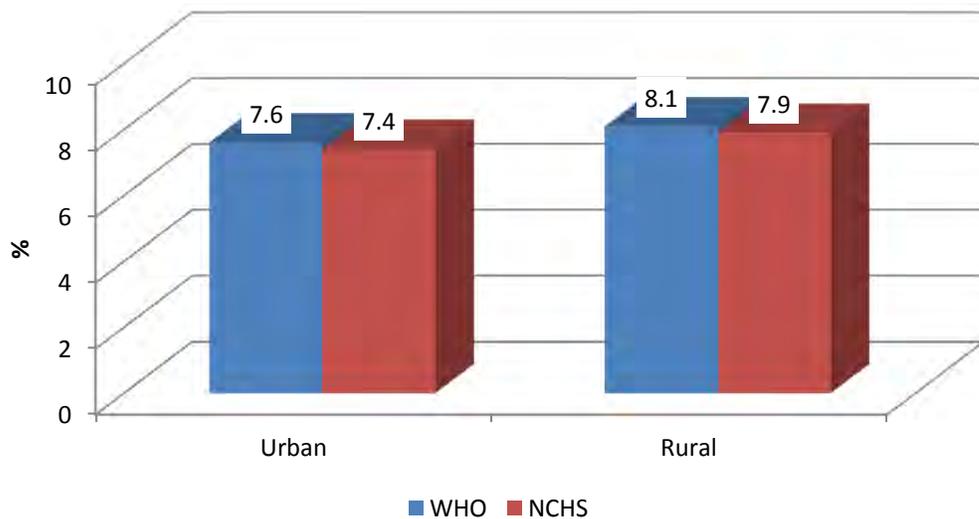
Source: Burma MICS 2009-10

Figure 17. Moderate Wasting (%), by State/Region, 2009-10



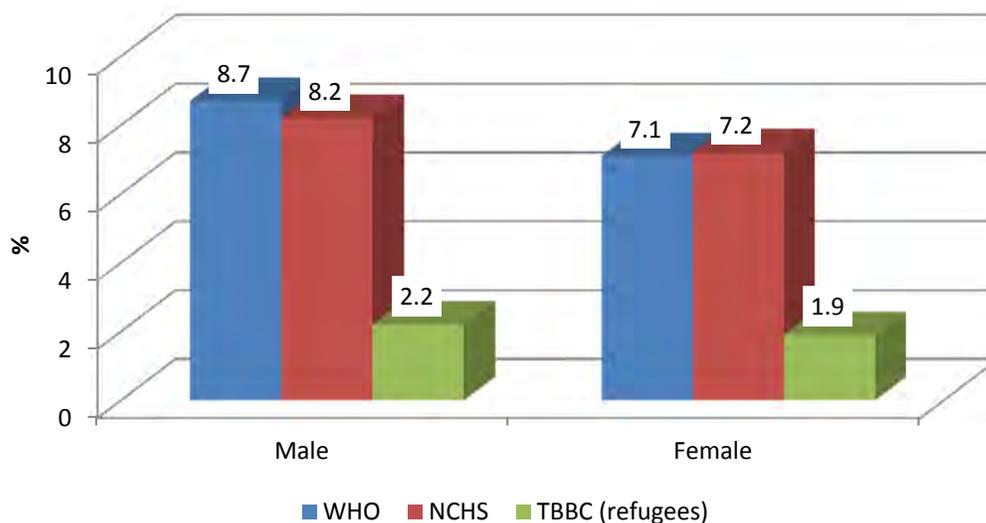
Source: Burma MICS 2009-10

**Figure 18. Moderate Wasting (%), by Area, 2009-10**



Source: Burma MICS 2009-2010

**Figure 19. Moderate Wasting (%), by Sex, 2009-10**



Source: Burma MICS 2009-10; TBBC 2012

**Table 13. Nutrition Assessment (%), by Selected Division and Township, 2008**

Division	Township	Underweight	Stunting	Wasting
Ayeyarwady	Mawlamyainegyun	44.1	48.4	14.5
Ayeyarwady	Ngapudaw	30.6	31.5	11.5
Magway		n.r	n.r	9.9
Magway	Magway	n.r	16	n.r

Division	Township	Underweight	Stunting	Wasting
Magway	Minbu	n.r	20.2	n.r
Magway	Pakokku	n.r	25.3	n.r
Magway	PwintPhyu	n.r	14.2	n.r

Source:

Save the Children, Nutrition Assessment Report, Magway Division Magway, Minbu, Pakokku, and Pwint Phyu Townships Union of Myanmar, August 2009.

Save the Children Nutrition Assessment Report Ayeyarwady Division Mawlamyainegyun and Ngapudaw, November-December 2008

Summary Report of the Mid Upper Arm Circumference (MUAC) Rapid Assessment in Cyclone affected Areas Supported by- National Nutrition Centre/ MOH and UNICEF

"Assessment sites were selected from the worst affected townships and included Twantay, Kungyangon, Hlaingtharyar and Dagon Myothit (North) townships in Yangon division and Laputa, Bogalay, Pyapon and Myaungmya townships in Ayeyarwady division." (pp.1)

**Table 14. Nutritional Status, by MUAC**

MUAC (cm)	Nutritional status	Ayeyarwady Division		Yangon Division	
		No	%	No	%
>= 13.5 cm	Normal	633	76.1	394	81.4
12.5 – 13.4 cm	At risk of malnutrition	145	17.4	71	14.7
11 – 12.4 cm	Moderate acute malnutrition	49	5.9	18	3.7
<11 cm	Severe acute malnutrition	5	0.6	1	0.2

Source: National Nutrition Center, MOH and UNICEF.

**Table 15. Distribution of MUAC by Division and Township**

Division/Township	<12.5		12.5-13.4		=>13.5		Total	
	#	%	#	%	#	%	#	%
Ayeyarwady division	54	6.5	145	17.4	633	76.1	832	100
Laputta	23	8.8	41	15.8	195	75.3	259	100
Bogalay	9	4.3	37	17.5	165	78.2	211	100
Pyapon*	2	2.3	21	24.1	64	73.6	87	100
Myaungmya	20	7.2	46	16.7	209	76	275	100
Yangon division	19	3.9	71	14.7	394	81.4	484	100
Twantay	5	5	16	15.8	80	79.2	101	100
Kungyangon	2	2.2	11	11.8	80	86	93	100
Hlaingtharyar	10	3.7	40	15	217	81.3	267	100
Dagon Myothit	2	8.7	4	17.4	17	73.9	23	100

Source: National Nutrition Center, MOH and UNICEF.

## Annex 3. Health Indicators

This annex includes supplemental tables and charts with select health indicators.

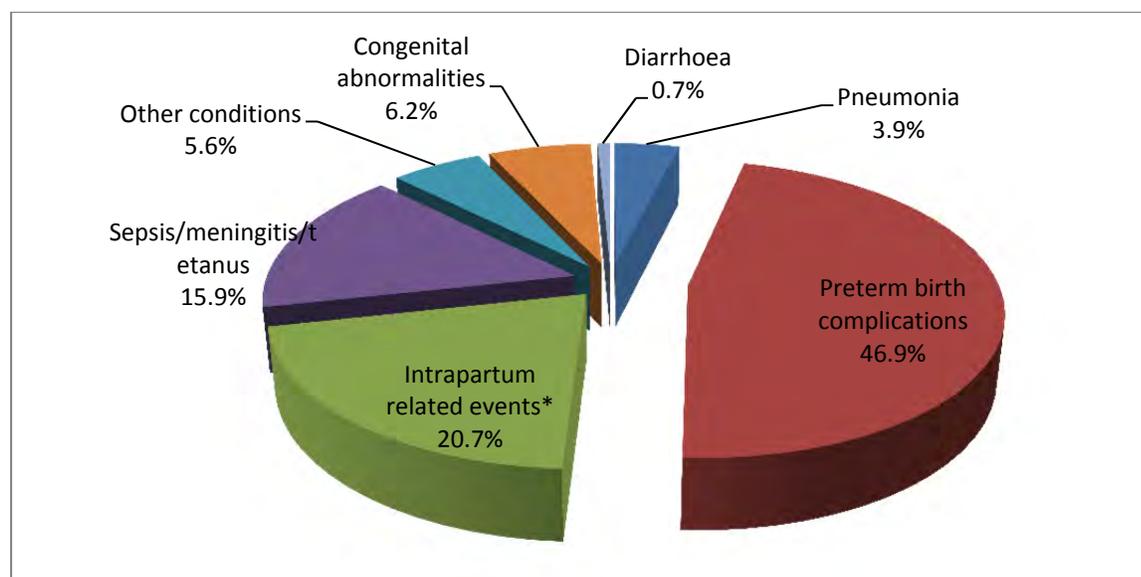
**Table 16. Infant and Maternal Mortality, 1990-2007**

Infant Mortality rate, 1990-2007			Maternal mortality ratio 1990-2007		
	per 1000 live-births			per 100,000 live births	
	urban	rural		urban	rural
<b>1990</b>	47	48.8	1990	102	187
<b>1995</b>	47.3	49.7	1995	99	176
<b>2000</b>	48.5	50.2	2000	113	186
<b>2001</b>	48.3	50.1	2001	104	180
<b>2002</b>	48.4	50.7	2002	110	190
<b>2003</b>	45.3	47.1	2003	98	152
<b>2004</b>	45.2	47	2004	98	145
<b>2005</b>	45.1	47	2005	96	143
<b>2006</b>	44.9	46.9	2006	96	141
<b>2007</b>	43.4	46.3	2007	94	136

*Note: Rates and Ratios are based on registered birth death events.*

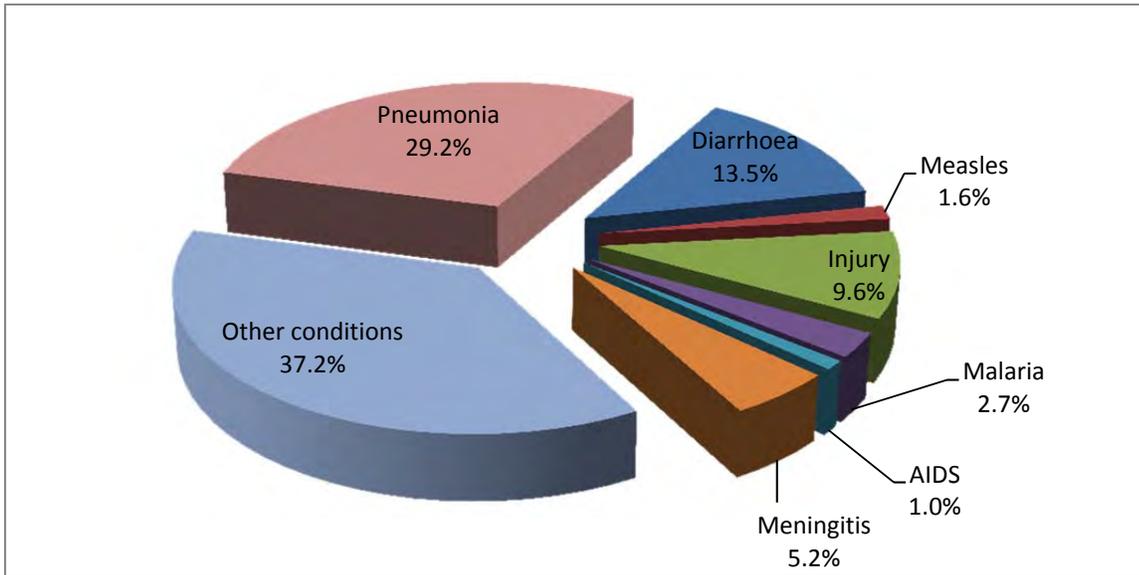
*Source: Statistical YearBook 2008, Central Statistical Organization (CSO), Ministry of National Planning and Economic Development*

**Figure 20. Deaths by Cause, Infants 0-27 days, 2010**



*Source: Created by authors using data from WHO 2012.*

**Figure 21. Deaths by Cause, Children 1-59 months, 2010**



Source: Created by authors using data from WHO 2012.

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