

# Myanmar Livelihood Baseline Profile

## Minbu Rainfed Upland Livelihood Zone

December 2011<sup>1</sup>

### Zone Description

Minbu Township is located in Magway Division in the western part of the central Dry Zone of Myanmar. This profile outlines livelihood patterns in the rainfed upland villages where NAG works. The Irrawaddy River flows to the east of this livelihood zone and there are two nearby major roads (from Minbu town to Tha Yat in Magway Township and from Minbu town to Sitwe in Rakhine State) and one railway line (from Tha Yat through Minbu to Pakokku).

The zone can be divided into two areas. The first area is low upland, with flat wide areas for cultivation and lots of trees. The second area is separated from the first by a hilly grazing area with oil fields (which are both publicly and privately owned). This area is high upland, less flat and less forested. Similar crops are grown in both areas: oil seeds (including sesame, groundnuts and sunflower), pulses (including green gram, pigeon peas, cowpeas, chickpeas, and lab lab), cotton, and sorghum (for livestock fodder). Paddy rice, the main staple food, is not grown in this livelihood zone, but is grown in other parts of Minbu Township, including in villages with irrigated land. Almost all crop production is sold and households from all wealth groups purchase the vast majority of their food needs, which is unusual in a rural, agricultural livelihood zone and makes households highly vulnerable to fluctuations in the prices.

The farming system in the zone relies completely on rainfed agriculture. The rainy season runs from mid-May to mid-September, sometimes with a dry period in July, and average rainfall was 32 inches per year over the last 6 years. It was reported that the rainfall pattern has changed over time, becoming more intense and less frequent. Temperatures range from 20-23C in December-January to 40-42C in March-April. Farmers describe three types of soil: sandy, clay and gravel. Clay soil is considered best, and makes up about 20% of the land area, followed by sandy soil (50% of the area) and then gravel soil (30% of the area). Better off households tend to have access to the better quality land. Fields are tilled using oxen for draught power. In order to maximise rainfall, farmers do deep tillage, adopt mulching practices and before ploughing broadcast animal manure (which can absorb water).

The main constraints to crop production include irregular rainfall, traditional farming practices, poor quality seeds, limited investment in inputs, lack of knowledge on input usage (i.e. fertilizer, pesticide and fungicide dosages) and uncertain crop selling prices. Traditional farming practices include leaving sesame to 'rot' for a few days before threshing to make the threshing process easier. This reduces the quality of the sesame and the price received for it. In addition, cultivating twice per year on each plot without any fallow period affects soil fertility and yields. In some villages, land is available for poor households, but because they cannot afford the cost of titles, inputs and animal traction, they are unable to farm and work as labourers instead.

Government extension services are targeted to paddy producing parts of the township. There is scope to improve agricultural productivity, but rainfall is the main limiting factor and fluctuating crop selling prices are another major constraint. Because the weather and prices are unpredictable, farmers engage in low risk farming, which means low investment and consequently low returns. Most farmers cannot afford to take the risk of investing heavily in their crop production. However, Minbu is known to produce the worst quality sesame in the Dry Zone, partly because of post-harvest processing, so some improvements should

<sup>1</sup> Field work for the current profile was undertaken in October – November 2011. The information presented refers to August 2010 – July 2011, a below average year for food security by local standards due to poor sesame production in 2010. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for at least five years (i.e. until at least 2016). All prices referred to in the document are for the reference year.

be possible.

Since approximately half the population of the zone is landless, wage labour and self-employment are central to livelihoods in this zone. The poorer wealth groups engage in local agricultural work, migrant labour, road construction, oil field labour, charcoal burning, plum picking, and gypsum collection, amongst a variety of other activities. Most able-bodied people in landless households work nearly full time, for very low wages, averaging only about 1000 kyat per day in the reference period August 2010 – July 2011. Local agricultural work is the most important income source.

Access to credit is an important livelihood strategy in this zone, for poor and better off households alike. Sources of credit include the Agricultural Development Bank, NGOs (including PACT, Save the Children and NAG), moneylenders, traders and grocery shops. Rates of interest vary considerably (from 1.5% per month with the ADB to 10% per month with moneylenders), as do the terms of repayment (with the ADB and NGOs less flexible than other sources). Only farmers can borrow from the ADB and the size of loan depends on the number of acres owned. Mortgaging of land and pawning of assets such as gold are also common when households face problems.

Water sources vary from village to village and include shallow wells (hand dug and cemented), boreholes (both public and private, for which people are charged about 15 kyat per 5 gallons), open ponds (which do not last the whole year) and rainwater harvesting (by households and monasteries with iron sheet roofs). Humans and livestock generally do not share the same water sources. For example, where open ponds are used, there are separate ponds for human and animal consumption (the latter sometimes located in grazing areas). Water is usually transported manually using jerrycans, although ox carts are also used.

Most villages do not have electricity, but several have a generator that runs for two hours in the evening at a cost to the user.

## Markets

Market access in the Minbu Rainfed Upland Livelihood Zone is fairly good because it is relatively close to a large trading centre in Minbu town. However, only the main road is asphalt and other dirt roads become impassable for vehicles for up to five days following heavy rains. Even the main asphalt road is split by sand creeks that flow in the rainy season. There are few bridges, making access difficult at times. The railway line from Tha Yat to Pakokku passes through the zone and this is one way that people get from villages to Minbu town for shopping.

Sesame seeds and groundnuts, the main cash crops in this livelihood zone, are sold to traders based in Minbu and then on to Magway, Mandalay and finally China. Farmers tend to sell their production immediately after the harvest, in August-September for sesame and December-January for groundnuts.

The trading route for sesame or groundnuts that have been converted to oil is from Minbu to Magway to Pyay and finally to Yangon. Green gram and pigeon peas are exported through Mandalay to China, through Monywa to India, or through Yangon to other export markets. Crop selling prices are unpredictable and fluctuate considerably from one year to the next, making it risky for farmers to invest heavily in crop production. Because much of the oil seed and pulse production is exported from the country, national export and exchange rate policies have a large impact on the local prices that farmers obtain.

There is a lot of suspicion between farmers and traders, with each side thinking that the other is trying to cheat. Farmers complain that traders deduct an excessive amount for the weight of the bag. Traders complain that farmers mix sesame with small stones that look similar. Good market functioning requires trust and it seems that this is a problem in Minbu. In addition, the trucks that transport farm products to Minbu get a commission from the trader, which is factored into the price that the farmer receives, in addition to charging the farmer for transportation costs. This contributes to farmers getting poor prices

for their production.

Households in the Minbu Rainfed Upland Livelihood Zone purchase all of their food. Rice is bought either from traders in Minbu town or from village-level stores. All villages have general stores that meet the daily needs of households in the village, as well as smaller stores selling snacks, betel and basic household products like soap, salt and spices. The number of larger general stores depends on the size of the village, but they tend to have four stores in larger villages and two stores in smaller villages. The smaller stores are informal, opening and closing depending on the financial situation of the owner. The larger stores extend credit to community members and expect repayment around the harvest time. The advantages for households of purchasing items locally include convenience and the ability to purchase small quantities of items on credit without an explicit interest rate, which especially suits poorer households. The disadvantage is that local prices tend to be higher. Better off households tend to purchase items less frequently and in larger quantities in Minbu town, travelling to market there about 4-5 times per month.

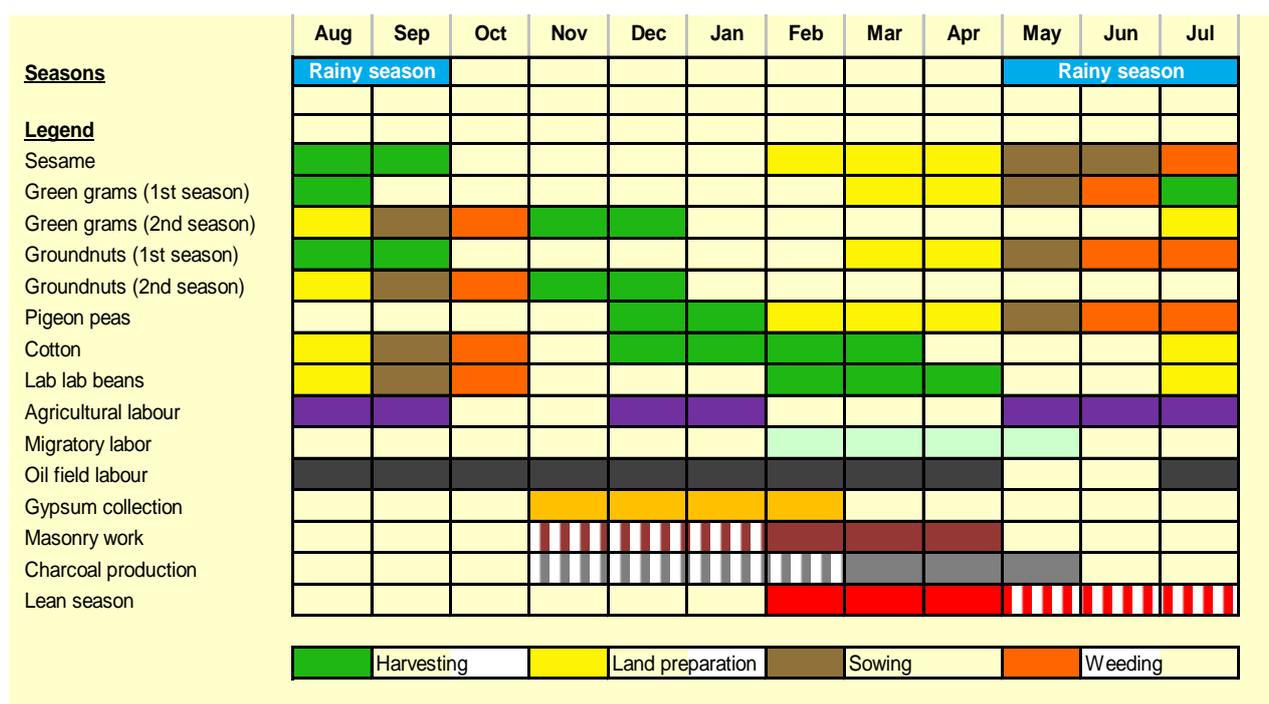
Local casual work is the most important income source for very poor and poor households. Household members only migrate when there is a problem or in bad years. The most common destinations for migration are Nay Pyi Daw (for building construction) or Muse in Shan State (for road construction). The most common period for migration is January-March, the lean season. There is some in-migration to the area to work in the oil fields that neighbour the zone. People from all over the country seek work in the oil fields.

#### **Reference Year**

All of the information presented in this profile refers to the period August 2010 – July 2011, a below average year for food security by local standards due to poor sesame production in 2010. In interviews at community level, key informants were asked to rank the seasons over the last five years, with '1' indicating a poor season and '5' indicating an excellent season for household food security.

The average ranking for the rainy season in 2010 was '2', or below average. The winter season 2010-11 was ranked '3', or an average season. Sesame production was below average in this year due to inadequate rainfall during the critical period of flowering and fruit setting. Green gram production was also poor due to heavy rain at harvesting time. Groundnut and cotton production was relatively average.

## Seasonal Calendar

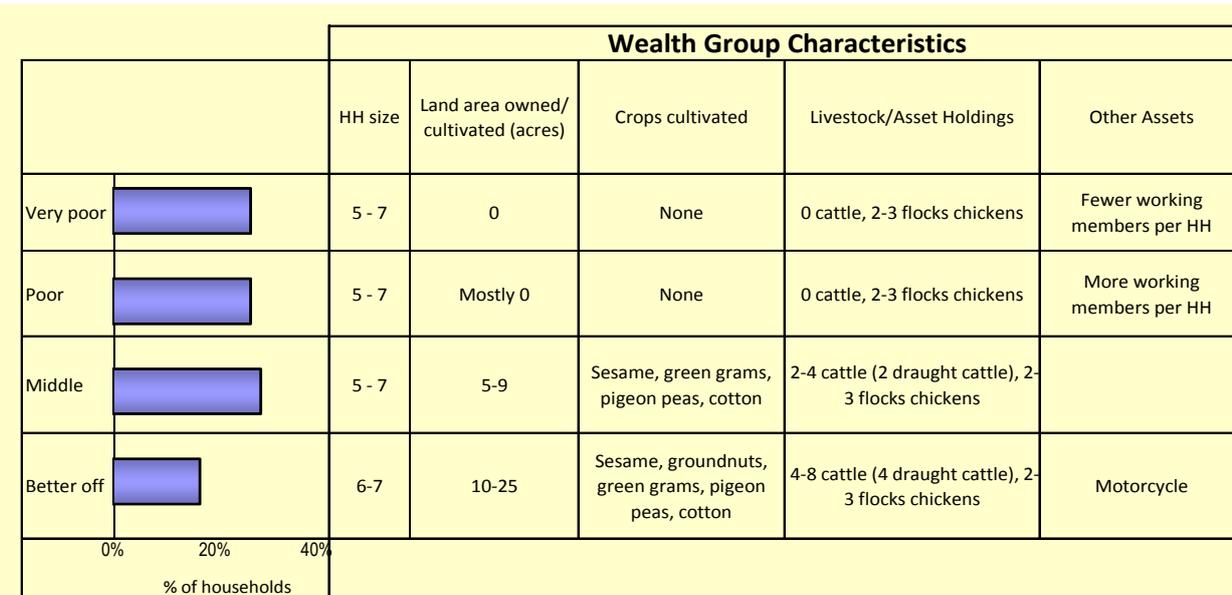


The reference year starts in August because that is when the main crop, sesame, is harvested. Other crops are also harvested in August, including first season green grams and groundnuts. There is a second harvest period during the year, starting in November, when second season green grams and groundnuts, pigeon peas and cotton are harvested. The lab lab bean harvest starts later, in February. Sesame, groundnuts and green grams are short-cycle crops, while pigeon peas and cotton are long-cycle. Sesame and pigeon peas are intercropped, while green grams, cotton and sorghum (grown for fodder) are usually single stand.

Casual agricultural labour opportunities within the livelihood zone peak from May to September. Agricultural work in nearby villages that grow paddy rice is also available in December-January, which is harvest time. Activities that peak in the dry season include charcoal production, gypsum collection, and masonry labour. Work in the oil fields is available during most months of the year.

The peak of the lean season is from February to May, when local agricultural work opportunities are limited. Land preparation work during this period is often carried out with own household labour rather than with employed labour.

## Wealth Breakdown



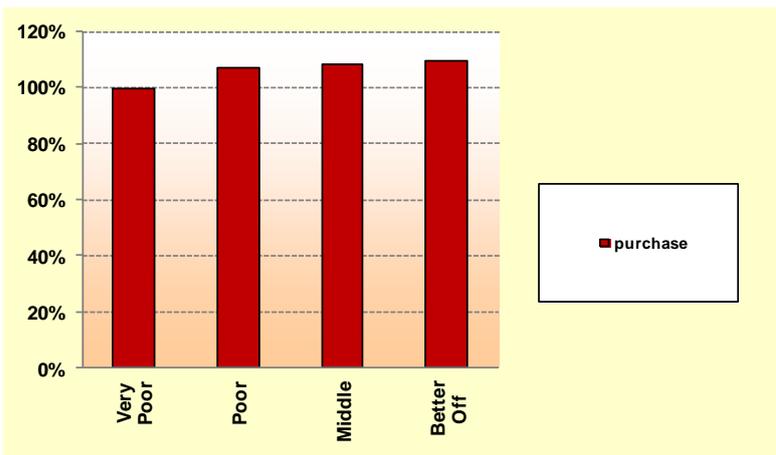
The main determinants of wealth in this zone are the area of land owned and cultivated, number of livestock owned, and number of people per household capable of work. The area of land cultivated increases with wealth, with the bottom two groups mostly landless. A small proportion of households in the poor wealth group own a small amount of land, but they do not cultivate it. This is probably because of a lack of oxen and the risks involved in investing in cash crop production.

Distinguishing between very poor and poor households was not easy at village level. Most of them do not own livestock and overall household size is similar, but the poor have slightly more people able to work per household (and fewer dependents) than the very poor. Middle and better off households cultivate the same crops except for groundnuts, which only the better off can afford to cultivate.

Livestock rearing, apart from draught oxen, is not prioritised by most households in this livelihood zone. Fodder is limited, as is labour availability for grazing and keeping animals, and there is a limited market for milk and meat. There is a system for livestock sharing between households, known as *mwe beh*, but it is not widely practised. Only poorer households rear pigs and it is difficult to make a profit from this activity, which may be why few households attempt it.

### Sources of Food for the Reference Year (2010-2011)

The graph presents the sources of food for households in different wealth groups in the livelihood zone for the period August 2010 – July 2011. Apart from a limited amount of own vegetable consumption, the only source of food for all wealth groups was market purchase. Households purchased rice, cooking oil, dry and fresh fish, beef, pork, lab lab beans, potatoes and vegetables.



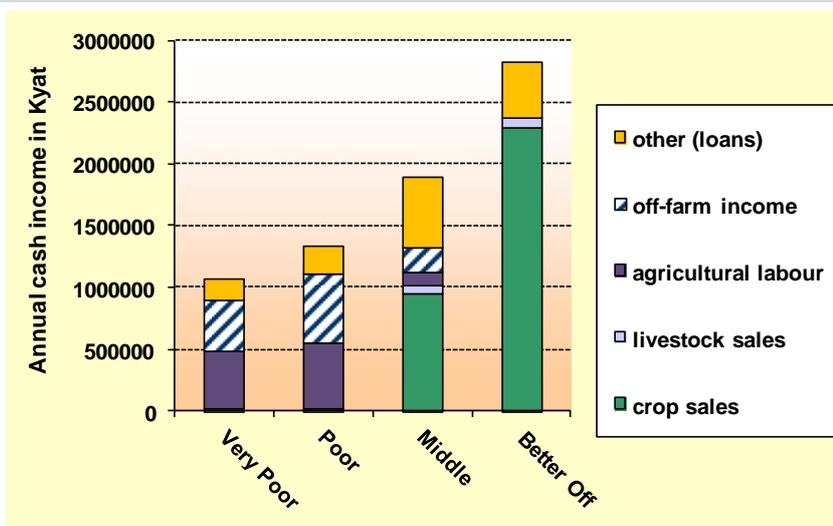
The quality of the household diet improves with wealth, but does not vary much by wealth group. Cereals are the main source of

*In the graph, food access is expressed as a percentage of minimum food requirements, taken as an average food energy intake of 2100 kcals per person per day.*

energy needs, comprising on average 80-90% of the household diet, followed by oil (10-20%). Meat, fish and beans make up only 0-5% of energy needs, across all groups.

Milk from own livestock is not consumed in this livelihood zone.

### Sources of Cash for the Reference Year (2010-2011)



The graph presents the sources of cash income for households in different wealth groups for the period August 2010 – July 2011.

Very poor and poor households obtained the bulk of their cash income from on- and off-farm casual employment and self-employment activities like charcoal burning and gypsum collection. On average, they earned 1,000 kyat per day from agricultural work and 1,000 - 3,000 kyat per day from off-farm activities.

*The graph provides a breakdown of total cash income according to income source. The figures in the graph represent the mid-point of a range.*

	Very poor	Poor	Middle	Better off
Annual income (kyat)	750,000 – 1,250,000	1,000,000 – 1,700,000	1,600,000 – 2,300,000	2,000,000 – 3,600,000

harvesting of cotton. Land preparation is mostly done using own household labour, while all other types of agricultural work are paid in cash.

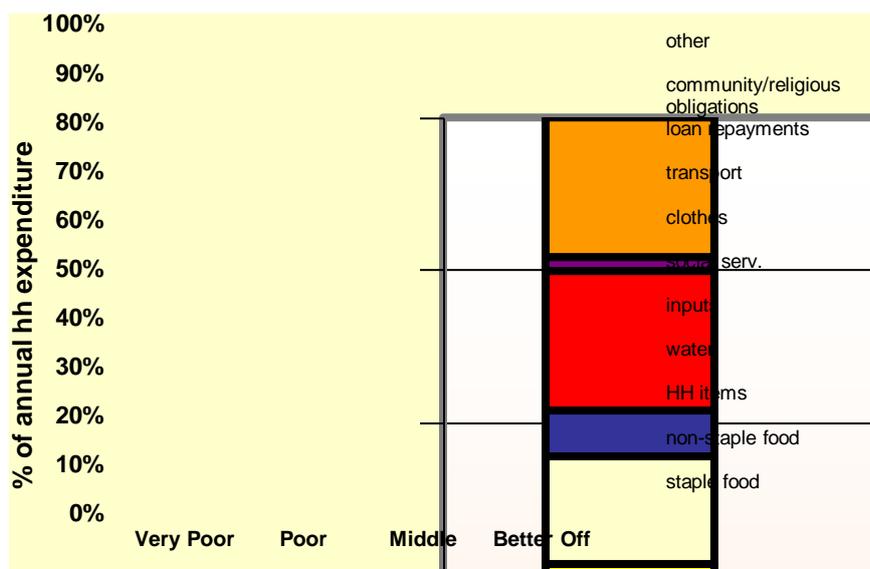
The agricultural activities that require the most labour are weeding of all crops, harvesting and threshing of sesame, and

Middle and better off households obtained most of their income from crop sales. All crop production was sold, usually at harvest time when prices were low. Income from livestock sales was very small because cattle herd sizes are small and animals are not sold every year.

Households obtained substantial income from loans in the reference year and many households borrowed from multiple sources. This partly has a consumption smoothing effect, allowing households to have an income source when other sources are lacking. Ultimately, however, more has to be paid back than is borrowed.

### Expenditure Patterns for the Reference Year (2010-2011)

The graph presents expenditure patterns for the reference year August 2010 – July 2011. While total expenditure increases with wealth, the expenditure breakdown by percent in this graph demonstrates how much expenditure is spent on different categories. The proportion of expenditure on staple food (which is rice, in dark green in the graph) decreased with wealth, from just over 40% of annual expenditure for very poor households to less than 20% for better off households. Combining staple and non-staple food, very poor households spent about two-thirds of their income on food, declining to less than one-third for the better off.



The graph provides a breakdown of total annual cash expenditure according to category of expenditure.

Middle and better-off households spent much more, in absolute terms, on most other items. The main household items (in yellow) purchased are tea, soap (bar soap and washing powder), and other toiletries (including *thenika*), and these decrease as a percent of total expenditure with wealth. Firewood and water were generally not purchased in the reference year. ‘Social services’ (in pale blue) included school and medical expenses (including formal and traditional medicine). Primary school was often free and school expenses included uniform, stationery and pocket money. ‘Other’ items (in orange) included betel leaf/nuts, alcohol, tobacco and entertainment (mainly paying to watch videos).

Inputs (in pink) were a significant expenditure item for middle and better off households. Hiring labour was the largest component (60-70%) of this category of expenditure, which also included expenditure on seeds, tools, fertiliser, pesticide, livestock drugs and, in some cases, fodder.

Households repaid part of their debts (in red) in the reference year, but generally ended the year with higher levels of debt than they started it. This may be because it was a below average year or it may be because the sources of credit increased during the year, with the start of the PACT lending programme. Levels of debt at the end of the reference year (July 2011) varied widely but were in the following ranges by wealth group: 80-300,000 for very poor, 100-350,000 for poor, 350-900,000 for middle and 0-1,000,000 for better off households. Note that the end of the reference year was just before the main sesame harvest, the point at which farmers have the highest levels of debt during the year.

## Hazards

The main hazard that occurs in this livelihood zone is irregular and inadequate rainfall. As the farmers in this zone have no access to irrigation, poor rains result in crop failure and then they need to resort to other income-generating activities to purchase food. Another periodic hazard is the fluctuation of prices for crops that are exported.

Other hazards were not consistently reported in all villages, but included livestock diseases like foot and mouth and crop diseases and pests like leaf folders, leaf miners, pod borers, sesame phyllody and black spot.

## Coping Strategies

The coping strategies used in bad or very bad years vary by wealth group and the sections above illustrate some of these, since the baseline is for a below average year.

**Very poor and poor:** The main coping strategy when income from agricultural labour is low due to crop failure is to increase off-farm activities such as migration, oil field labour, charcoal sales and plum picking. Very poor and poor households also increase loan taking in bad years. Reducing expenditure on expensive foods (meat, fish and oil), clothes, social obligations, and non-essentials (like alcohol, betel, tobacco and entertainment), in order to purchase more food, is another commonly used coping strategy. A damaging strategy that is sometimes exploited in bad years is to remove children from school.

**Middle and better off:** Middle and better off households increase livestock sales in bad years. There is a limit to how many animals a household can sell without negatively affecting future production and livelihoods. Sometimes this strategy takes the form of selling a large ox and purchasing a smaller one. As for the poorer groups, another strategy for these groups is to increase loan taking in bad years. Sometimes this takes the form of mortgaging land or gold, commonly with a three-year repayment period. Non-essential expenditure is reduced or cut-out entirely in bad years, and middle and better off households have more scope to exploit this strategy compared to the very poor and poor since they have higher levels of expenditure. A potentially damaging coping strategy that is sometimes exploited by households with land is to reduce investment in crop production by reducing the area cultivated.

## Key Parameters for Monitoring

The key parameters listed in the table below are things that make a substantial contribution to household food and income sources in the Minbu Rainfed Upland Livelihood Zone. These things should be monitored to indicate potential losses or gains to local household economies, either through ongoing monitoring systems or through periodic assessments.

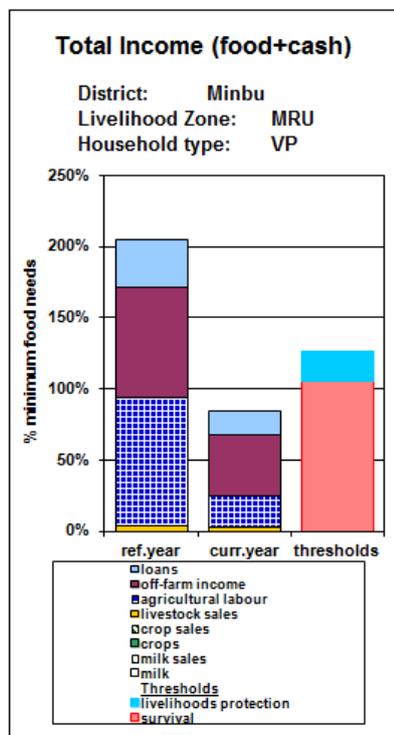
Item	Key Parameter – Quantity	Key Parameter – Price
<b>Crops</b>	<ul style="list-style-type: none"><li>• Sesame</li><li>• Green gram</li><li>• Pigeon peas</li><li>• Groundnuts</li><li>• Cotton</li></ul>	<ul style="list-style-type: none"><li>• Sesame</li><li>• Green gram</li><li>• Pigeon peas</li><li>• Groundnuts</li><li>• Cotton</li></ul>
<b>Livestock</b>	<ul style="list-style-type: none"><li>• Cattle</li></ul>	<ul style="list-style-type: none"><li>• Cattle</li></ul>
<b>Other food and cash income</b>	<ul style="list-style-type: none"><li>• Agricultural labour</li><li>• Off-farm labour and self-employment</li><li>• Loans</li></ul>	<ul style="list-style-type: none"><li>• Agricultural labour wage rate</li><li>• Off-farm labour wage rate and self-employment profit</li><li>• Loans interest rate</li></ul>

It is also important to monitor the prices of key items on the expenditure side, including rice prices.

## Scenario Analysis

The livelihoods baseline outlined above can be used to examine the impact of various types of change on people's livelihoods, including changes related to weather, markets, policies and interventions. At the heart of this analysis is the contention that in order to predict the effects of any shock or in order to understand the potential benefits of any development intervention, you first need to be able to understand the ways that people piece together their livelihoods.

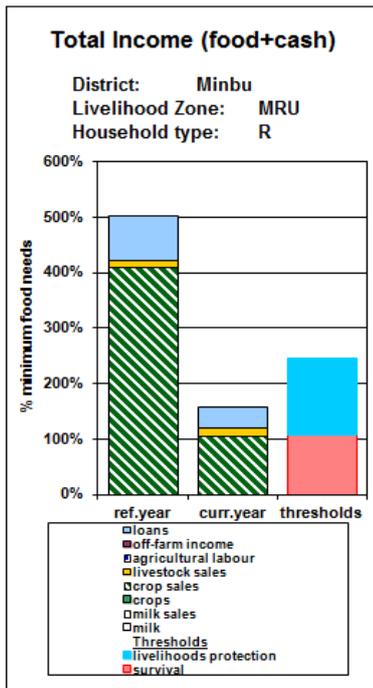
The following graphs use the Livelihoods Impact Analysis Spreadsheet (LIAS) to analyse questions related to vulnerability. In this analysis, the extent to which a household can increase access to food and income in response to a shock excludes the resort to negative coping strategies, such as unsustainable livestock sales, reduction in consumption beneath minimum consumption requirements, or eliminating social services expenditure. To illustrate the type of analysis that can be conducted, the following shock is considered for very poor households: a 50% loss of local of local labour income and a doubling of staple food prices. Everything else is considered unchanged in this scenario.



The graphic on the left illustrates this scenario for very poor households ('VP'). The bar with pink and blue on the right represents the two thresholds – the top of the pink section is the survival threshold and the top of the blue section is the livelihood protection threshold. This is the equivalent of the 'expenditure' bar in the graph on page 5. The other two bars represent household food plus cash income – the bar on the left is for the reference year, while the one in the middle is for the scenario (labelled 'current year'). In these charts, food and cash income have been added together and, in this case, expressed in food terms. (The results could also be expressed in cash terms).

Very poor households end up well below the survival threshold in this annual analysis, despite employing coping strategies like slightly expanding off-farm income and switching expenditure from non-essential items to staple food. The deficit is the difference between the middle bar and the thresholds bar on the right.

Very poor households can almost cope with the first shock (a 50% loss of local agricultural work), but a doubling of staple food prices (in the absence of other price or wage changes) has a more serious impact, as does the combination of the two shocks together. If wages rates keep up with staple price changes, then the deficit disappears.



For better off households, the following shock is analysed and illustrated on the left: a 50% crop failure and a doubling of staple food prices. Better off households end up well below the livelihood protection threshold, suggesting that they would not be able to afford all of the items in the livelihood protection basket under this scenario. These items include agricultural inputs, the cost of education and health care, and basic items related to maintaining a minimally acceptable standard of living and a diversified diet. Better off households can cope with the second shock (a doubling of staple food prices), but a 50% loss of crop production causes problems towards the end of the consumption year on its own. The combination of the two shocks together has serious implications.

Note that the pale blue part of the graph (the livelihood protection threshold) is much larger for better off than for very poor households because of the high cost of inputs for crop production.

Other scenarios can be examined if decision makers are interested in different assumptions regarding: inclusion of coping strategies, components of the survival or livelihood protection baskets, prices, quantities of income-related items (crops, labour, livestock).

## Programme Implications

The longer-term programme implications suggested below include those that were highlighted by the wealth group interviewees themselves and those made by the assessment team following detailed discussions and observations in the field. All of these suggestions require further detailed feasibility studies.

**Agricultural production support:** A number of the suggested development ideas relate to improving agricultural production: encouraging MAS to provide extension to farmers growing oil seeds and pulses; introducing seed selection training and improved seed storage; demonstrating and piloting of improved agricultural practices; improving the effective use of soil moisture; introducing low-cost crop processing techniques (e.g. for sesame threshing); supporting ground water exploitation; setting up crop insurance schemes; and introducing soil and water conservation techniques to help with climate change adaptation. However, since very poor and poor households are landless, it should be emphasized that these wealth groups will only indirectly benefit from such interventions, perhaps through increased employment, if at all. It would be interesting to explore whether the provision of agricultural support could be linked to higher wages for casual agricultural workers.

**Irrigation:** There are a large number of sand streams, which only have water flowing when it rains. They tend to swell quickly and then return to being 'dry', which suggests there is potential for capturing run-off. Whether there are suitable places for check dams or bunds and use of treadle pump technology should be investigated. Drip irrigation for vegetable gardens is another interesting option to test in villages with sufficient space.

**Marketing support:** Given the suspicions that exist between farmers and traders, there is an opportunity to improve this relationship with the hope that farmers will ultimately obtain better prices for the crops that they sell. There may be a role for the village membership organizations (MOs) to guarantee quality and to improve communication and relations between farmers and traders. The MOs could also have a useful role in the collection of information on crop production and wage rates at village level and the dissemination of price data from market centres to farmers.

**Income diversification:** This is a priority for very poor and poor households since they are currently very

dependent on low-paid local agricultural work. The challenge is to find local income-generating opportunities that are reliable and can provide a higher income per day. Livestock keeping may be one possible contribution to poorer households, but a preliminary detailed analysis of whether or not it is profitable is required. Vocational training was another suggestion from villagers.

**Infrastructure development:** Road access to villages is difficult in the rainy season and this both acts as a constraint to the transport of agricultural and other products to market and contributes to the high prices for staple food that households pay in this zone.

**Opportunities for membership organizations (MOs):** A number of these programme implications present opportunities for the Oxfam- and NAG-supported membership organizations, including: seed selection, access to inputs, price information management, trust building between farmers and traders, crop storage, training in improved agricultural practices (including harvesting and threshing practices), service delivery (e.g. threshing machines or hand tractors), social protection through projects to improve local infrastructure, and training in skills that can be marketed outside the village.