



WFP

**RAPID FOOD SECURITY
ASSESSMENT**

IN

**THE TOWNSHIPS OF
BOGALE & LAPUTTA**

Vulnerability Analysis & Mapping Unit (VAM)
March 2009

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EXECUTIVE SUMMARY

Key Findings:

While sampled households depict adequate food consumption patterns, this is mainly due to a reliance on loans and food assistance; along with reduced expenditure on non-food essentials such as shelter, education and health.

Less than 25% of this sample can be classified as having poor or borderline food consumption.

However:

- Eighty three percent (83%) of the sample report being in debt with the buying of food being the most common reason for undertaking loans.
- In the 30 days prior to the survey, 51% of sampled HHs reported relying on food aid for their household rice consumption.
- There is a direct correlation between areas with a high percentage of households that are unable to source their entire household rice requirement from food aid and areas with a high percentage of HHs with Poor / Borderline Food Consumption.
- Low agricultural productivity is the main constraint to food production. Thus an increase in access to land does not lead to an increase in food availability in Bogale and Laputta.
- Forty six percent (46%) of the sample state the main shock they face is reduced incomes and lack of employment.
- Ownership of cows and buffalos remain well below pre-Nargis levels and indicates that HHs have been unable to replace larger livestock lost to the disaster.
- More than one-quarter (26%) of the sample do not own any productive assets.
- While 28% of sample reports sourcing some income from fishing; this is well-below Pre-Nargis levels.
- 28% of HHs reported having at least one able member currently unemployed and looking for work

The Role and Relevance of Food Aid in Bogale and Labutta

It is clear from the assessment findings that the overall food security situation across the delta has shown vast improvement. This is in no small measure due to the actions of the various development actors (international & local) and the government. Indeed, less than 25% of this sample can be classified as having poor or borderline food consumption.

However there is a clear and present need for continued food assistance due to the following factors:

- Rice is the most commonly consumed item and the only item for which the entire sample reports daily consumption. This is almost certainly due to the fact that rice is widely distributed as food aid. The availability of rice has significantly contributed to the dietary diversity of the HH. The opportunity cost of rice distribution means that HHs are able to divert income that they would have spent on rice to other food items – vegetables, oils etc.. This hypothesis is strengthened by the fact that HHs that do not receive food aid have a higher percentage of HHs in the Poor and Borderline categories (Refer Maps # 7 & 8).
- The fishing and agriculture sectors, while showing signs of improvement are still largely unsustainable with respect to income generation. Households involved in this sector are mainly able to source food only for their own needs and not for income. This finding is strengthened by the fact that the lack of income was reported as the reason why 83% of the sample reported undertaking debt. In this case, food aid has an increased relevance since food assistance enables farming & fishing HHs to sell a portion of their grown / sourced food or fish thus ensuring some income.
- Eighty three percent of the sample report being in debt. Further information needs to be collected to ascertain if this high figure is an anomaly. The fact that debt patterns are similar across 2 townships indicates that this is a consistent pattern across the delta. Furthermore, 33% of HH in debt state the main reason for undertaking loans is to buy food. It is thus reasonable to conclude that the absence of food aid would force more HHs to undertake larger debt burdens.
- In the 30 days prior to the survey, 51% of sampled HHs reported relying on food aid for their household rice consumption.
- Food expenditure, as a percentage of total household expenditure was 43%. Keeping in mind, the fact that 91% of the sample receive food aid; this is a very high figure. In other words despite receiving food, HHs still spend up to 40% of their income on food.

Thus, while HHs depict adequate food consumption patterns this is mainly due to a high dependence on food assistance and credit.

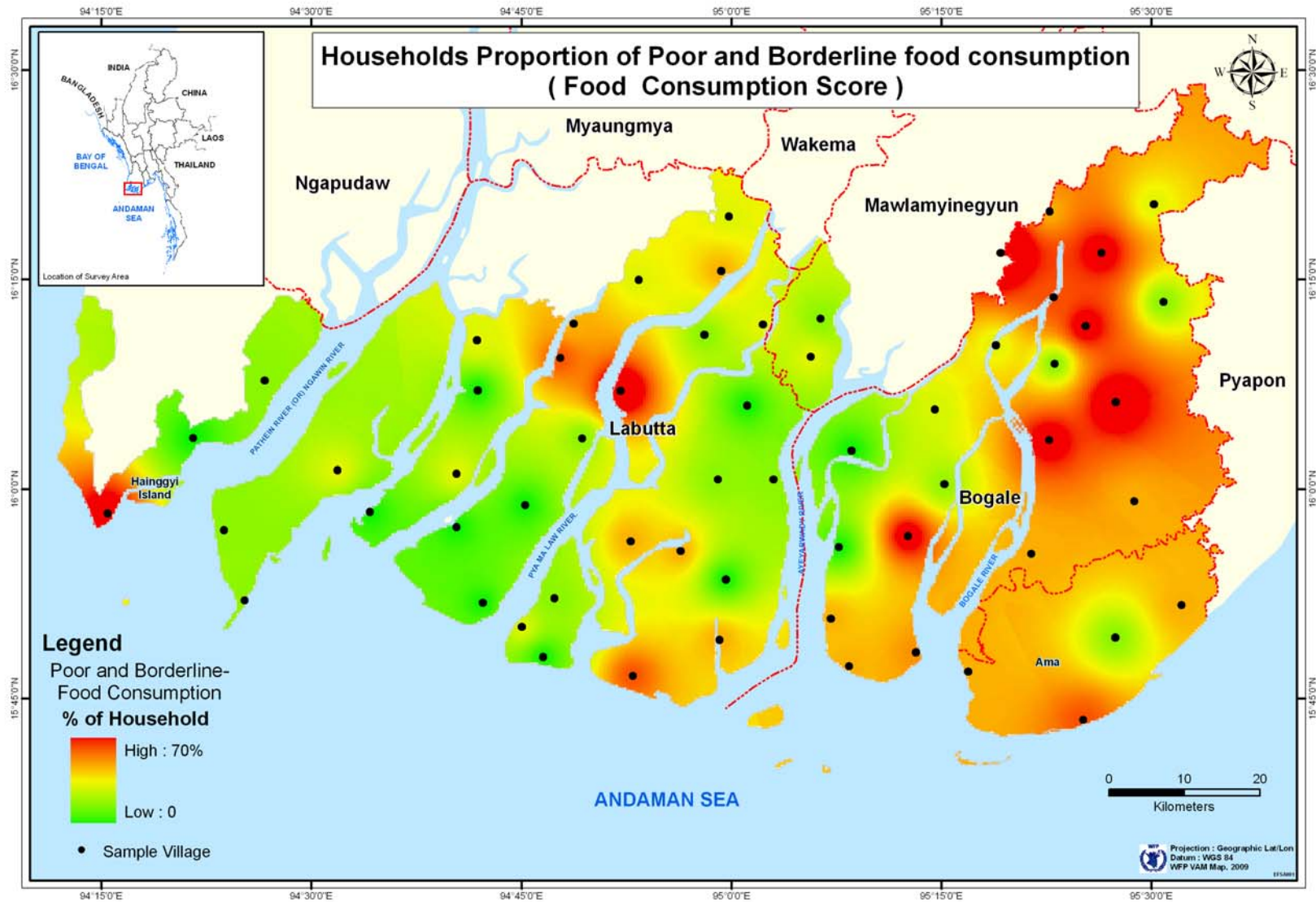
Recommendations

Program Recommendations

- It is recommended that WFP continue its emergency operations in areas within Bogale and Labutta townships beyond April 2009 but to extend no later than November 2009. However it is urged that the ‘mix’ of assistance programs be re-organized.
- To reduce dependency there is a need to significantly scale down targeted food distribution; however ensuring that most vulnerable and food insecure populations continue receiving assistance remains critical.
- From April 2009, targeted food distribution programs should be initiated in areas
 - a. That have a high percentage of population with poor or borderline food consumption (refer Map # 1)
 - b. Areas identified by WFP and it’s partners to be *both*
 - Suffering from high soil salinity thus drastically reducing agricultural productivity, and
 - Having only one agricultural season.
- Food-for Work programs should be continued, and where possible expanded beyond April 2009 as these programs have high relevance in the delta. It should also be noted that due to the onset of monsoons, FFW programs can only be effectively implemented until June 2009.
- The option for Cash-for- Work programs needs to be explored further.
- Programmes should focus on activities that strengthen human capital. This reinforces the recommendation that has also been stressed in the Post-Nargis Recovery and Preparedness Plan (December 2008).

General

- The need to increase agricultural productivity by (1) Reducing farming input costs, and (2) Increasing crop productivity
- Increase formal and semi-formal access to credit across the 2 townships
- Encouragement of the Non-food sector so as to provide HHs with greater income generating opportunities
- Replenishment of fishing assets
- Replenishment of larger livestock; swine & cattle



Background:

Cyclone Nargis, with peak winds of 190 kilometers per hour hit the Ayeyarwaddy and Yangon divisions of Myanmar on May 2 and 3, 2008. The cyclone devastated entire towns and villages and affected 2.4 million people. Nearly 140,000 people were killed or remain missing. Immediately after the cyclone, the government, UN agencies and NGOs (international and local) responded with emergency relief activities.

Now that more than 10 months have passed since the disaster and keeping in mind commendable emergency assistance that has been provided in the interim; development agencies are now assessing how best to make the transition from providing emergency assistance to shifting focus to medium and long-term recovery. In order to successfully achieve the latter, an overview of the food security situation today (i.e. approximately 10 months post-Nargis) is vital.

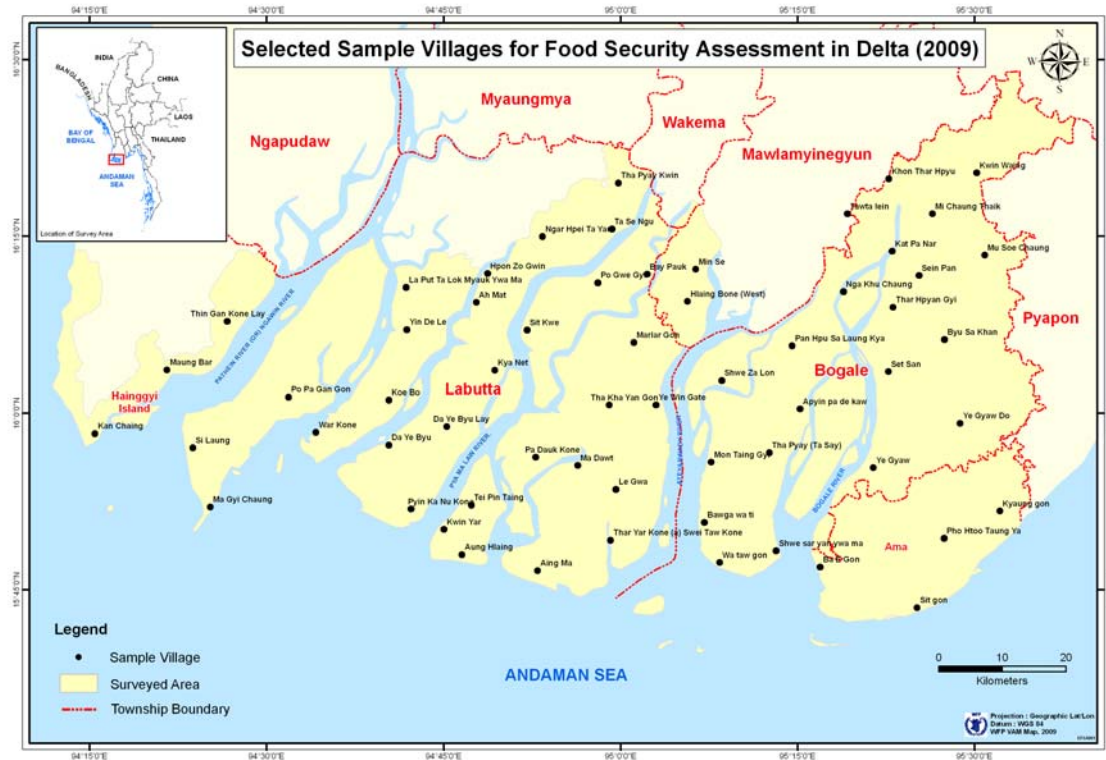
In December 2008, WFP VAM carried out an extensive secondary data analysis in order to get a better idea of the collective analysis from various reports assessments carried out in the Delta. Information was also obtained from the organization's own staff in the field. A list of assessments / reports consulted is available in the annex. From this exercise it was ascertained that 6-7 months post-Nargis the areas that continued to be vulnerable were the townships of Bogale and Labutta.

WFP is committed to providing food aid across areas affected by Nargis till April 2009. However beyond this date, it needs to be determined if WFP continues its general food distribution, provide other forms of food assistance or phase out. And if so, in which areas? *Thus the purpose of this assessment is to (1) provide a snapshot of the food security situation across the 2 townships (widely identified as being the most vulnerable); (2) analyze the role & relevance of food assistance and (3) to provide information / recommendations to decision makers with respect to the future of WFP programs in the delta.* At the same time, it is hoped that findings will help the efforts of other development organizations in Myanmar.

Methodology

Due to time constraints, it was decided that the sample would comprise of 600 HHs across Bogale & Labutta (later increased following feedback from CPs) which is the minimum representative sample (albeit with lower precision). Based on Probability Proportional to Size (PPS) a sample of 25 villages in Bogale & 35 Villages in Labutta was formulated. Villages were randomly selected and households in villages were selected by systematic random sampling based on village lists obtained from village / community leaders. The proposed sampling area, methodology and sample list was shared with the Food and Livelihood clusters well in advance of finalization and based on received feedback modifications were made. A detailed village list can be found in the annex.

Map 2: Area Covered by Assessment



Data collection was undertaken by 35 enumerators (20 in Labutta & 15 in Bogale). The fact that WFP could access the services of this significant number of qualified field enumerators is largely due to the timely assistance of our CPs and the efforts of our sub-office staff (see Acknowledgment).

WFP VAM conducted the field enumerators training over the course of 3 days at our sub-office in Labutta. The training included a module on food security, intensive training on the questionnaire, field testing and feedback session. Following this improvements were made to the questionnaire and upon finalization of the same, teams began the data collection process.

Data entry & cleaning was carried out by 5 data entry personnel under the supervision of VAM in Yangon.

Note: Ama Sub-township is covered in this survey as it comes under Bogale WFP Sub-Office area. Similarly 8 village tracts from Mawlamyinegyun township, which comes under WFP Labutta Sub-Office, is covered in this assessment.

Household Demography

Ethnicity of the sample was largely Burmese (83%) followed by Kayin (14%). Less than 1% of the sample was Muslim.

Across the sample it was seen that approximately 9% of households were headed by women. Furthermore, 10% of the households sampled in Labutta reported being headed by women – this relatively high percentage is almost certainly due to the loss of life to Nargis.

Regarding HH size the average figure for the sample was 5 (mean of 4.5) members per HHs with very little difference between the 2 townships. Approximately 18% of the households reported having 7 or more members.

Dependency Ratio: Disaggregating by age it is seen that 40% of the sample reported having at least one child under the age of 5. Data on age of members in the household was used to calculate the dependency ratio. The dependency ratio relates the number of children (0-14 years old) and older persons (65 years or over) to the working-age population (15-64 years old). By relating the group of the population most likely to be economically dependent (net consumers) to the group most likely to be economically active (net producers), the dependency ratio can provide an indication of the potential social support requirements. A high dependency ratio indicates that the economically active population faces a greater burden in terms of achieving food security and maintaining a comfortable life-style for the household. The dependency ratio for the sample was 65 – however the figure for Bogale is markedly higher at 72. To give the reader an idea of scale it can be seen that the dependency ratio for Laos is 81 and for Netherlands is 42 (WHO, 2007).

Education

Households having one or more child in the primary-school attending age-group were asked if their child attended school regularly. Amongst HHs with at least one child attending primary school; 26% of these HHs reported that the child could not regularly attend school. Disaggregating the results it is seen that the most common reasons for regular absenteeism amongst boys and girls were:

Table 1: Primary School Absenteeism

Most Common Reasons Offered for Lack of Regular Attendance to Primary School	
Girls	Boys
HH unable to afford Transportation costs / school too far away	HH cannot afford school fees
Child needed for domestic household chores	Child needed for work
HH cannot afford school fees	HH unable to afford Transportation costs / school too far away

While there is slight difference in the most common reasons for absenteeism amongst girls and boys; the common factor is that a sizeable percentage of HHs are unable to afford the cost of sending children to school. It can be seen from the above that reasons such as sickness, poor school facilities, disinterest of child etc are not factors impeding attendance. However the costs – direct (transportation costs, school fees) and opportunity (child needed for work or household chores) result in 26% of HHs (who have a child in primary school) being unable to send their child to school regularly. This also strongly implies that for these households food security is the main concern and in order to source food or incomes, they are forced to save money by cutting on education expenses or are forced to maximize the household’s earning potential by relying on children.

Food Availability

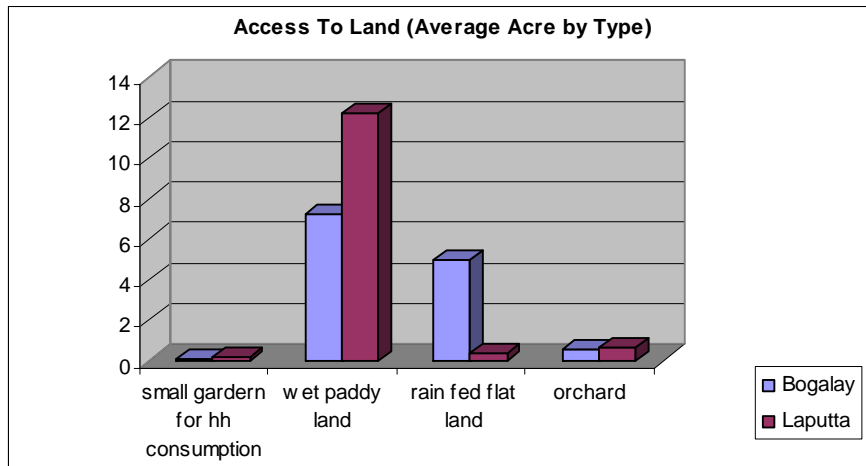
Agriculture

Approximately 42% of the sample had some access to agricultural land. This figure seems to be close to pre-Nargis levels – in terms of percentages of HHs with access to land. The Periodic Review determined that prior to Nargis; 40 – 45% had access to agricultural land which then decreased to 30 – 32% post-Nargis. Thus, now, 10 months after the disaster, access to land seems to be recovering. Land access patterns are similar across townships with 44% of the sample in Bogale reporting access as compared to 40% in Labutta.

Land Access by Type

Households were asked to list the type of land they had access to and the approximate size of the land. Local measures of scale were then recalculated to obtain average figures for type of land (in acres) for each township.

Figure 1: Access to Land by Type



The average land size for a household with access to land in Labutta is marginally higher than for households in Bogale

Small Gardens: A difference of nearly an acre is seen in the average small garden holdings for Bogale (1 acre) and Labutta (1.8 acres).

Wet Paddy Land: A significant difference in average size of wet paddy land holdings are seen across townships with households in Labutta on average accessing 5 more acres as compared to Bogale. The main reason for this could be land pressure in Bogale which results in lesser land available for agriculture as compared to Labutta.

Rain-Fed Flat-Land: This type of land is mainly access only in Bogale where the average size of plot was 5 acres.

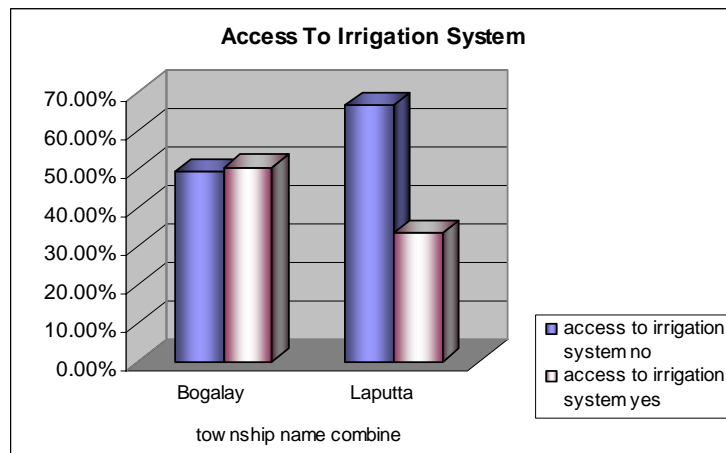
Orchards: This was of the smallest average size across all land types with the average size in Bogale being 0.5 acres and in Labutta being 0.7 acres.

Eighty six percent (86%) of households accessed land by virtue of ownership. The remaining HHs accessed land by renting. It is interesting to note that almost all households renting land did so primarily “in-kind”. Thus, a portion of the harvest would be given to the owner in lieu of rent. Four percent (4%) of HHs also reported using land from relatives, free of charge. Most probably in such cases the owner had moved out of the area following Nargis or was incapable (too old) to farm.

Irrigation

Only 41% of HHs (with access to land) reported having access to irrigation with considerable variation between the townships. Thirty three percent (33%) of agricultural HHs in Labutta had access to irrigation as compared to 51% in Bogale. Thus any delay in rains or change in weather conditions would have direct and far-reaching effects on

Figure 2: Access to Irrigation



livelihoods of majority of the HHs practicing agriculture. The lack of access to irrigation would also indicate that HH members would have to spend significant time and effort to source water for agriculture (esp. during the planting season). *Finally relatively high land access need not translate into high food production since lack of water would mean HHs are forced to cultivate lesser areas.*

Constraints to Agriculture

In VAM Food Security assessments across other parts of the country it is seen that the main constraints to farming / land access are usually:

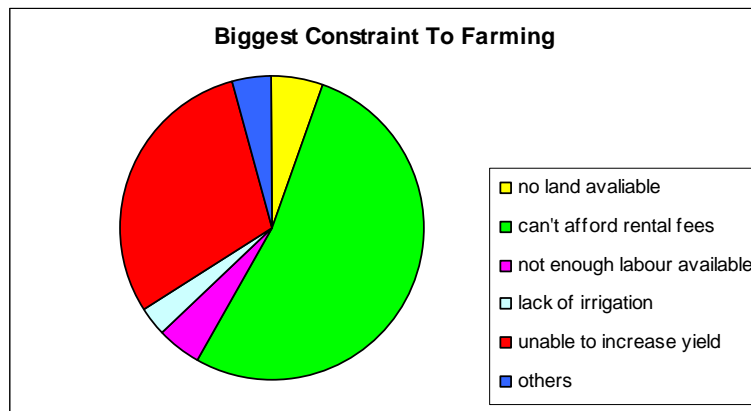
- (1) Lack of available land
- (2) Lack of available labor
- (3) Lack of irrigation

However in Bogale & Labutta were farming HHs were asked to list their major constraints to farming it was seen that the most common constraints were:

- (1) HH unable to afford rental fees to access more land – 49%
- (2) HH unable to increase yield – 28%
- (3) Lack of availability of land – 5%

Figure 3: Main Constraints to Farming

It is crucial to note that the main constraint is not lack of available land but rather the lack of income in order to buy / rent land. This is directly related to the second most common constraint – HHs in Bogale & Labutta are unable to increase yields (see following section). The lack of income from agriculture means that for most HHs, farming is largely a subsistence activity.



The damage to fishing and agriculture sectors resulted in an increased supply of casual labor, thus driving labor prices down. However HHs are unable to take advantage of high labor availability or cheaper labor rates since HHs are unable to access more land and thus have no need for more labor.

The lack of credit / income to lease or rent land is currently a major constraint to higher food production. Labor and land are available; however it is the lack of sufficient monies in the economy which prevents farmers from accessing these resources.

Constraints to Agricultural Productivity

An increase in access to land is not to be equated with a corresponding increase in food availability in Bogale & Labutta. The main reason for this is low agricultural productivity. A couple of factors that adversely affect rice productivity in the Delta are discussed below.

While agriculture seems to be recovering - to the extent that households are once again practicing agriculture – the sector is affected by 2 factors.

- I. Salinity – Cyclone Nargis resulted in wide-spread salinization of agriculture land. This has resulted in crop yields being reduced. To offset the adverse effects of salinization requires farmers to use fertilizers which are either (a) unavailable or (b) unaffordable. Thus across the delta crop yields are far below pre-Nargis levels.
- II. One harvest – In some areas across the delta farmers obtain only one major harvest per year, as opposed to 2 which is usually the case.

With respect to agriculture production; the worst affected areas are those areas that both (a) traditionally produce one major harvest, and (b) highly affected by salinization. Thus in these areas households have been forced to depend on only one agricultural season and the harvest thus obtained has been low. It is crucial to note that because of these 2 factors a higher access to land will not lead to a corresponding increase in food availability. Households living in these areas are therefore deemed to be more vulnerable than those areas where two harvests are possible; and areas where land has not been affected by salinity. It is thus recommended that WFP identify such areas across Bogale & Labutta and target the same for food assistance.

Food Access

Frequency of Meal Consumption

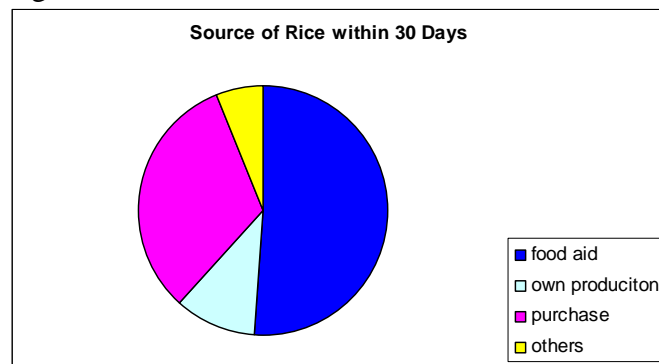
Respondents were asked to report on the frequency of meals consumed by their HH in a day. The majority of the HHs (98%) reported the consumption of 2 or 3 meals a day with half of these HHs reporting 3 meals consumed a day.

Source of Staple Food

Households were asked the source of rice consumed during the prior month. The most common means by which HH sourced rice for household consumption was:

1. Food Aid – 51%
2. Purchase – 32%
3. Own Production – 11%

Figure 4: Source of Rice



The fact that half the sample relies on food aid for rice combined with the fact that majority of HHs with access to land reported the cultivation of rice; yet only 11% of these HHs are able to meet their rice needs from cultivation is further testimony to the relevance of food aid.

Note: The Joint Food & Nutrition survey which collected data from across the Delta in September 2008 reported 7% of HHs accessing rice from own production.

A significant difference in access to rice is seen between the 2 townships. In Labutta 58% of the sample depended on food aid for their rice needs followed by 25% who purchased rice. The dependence on food aid is less in Bogale – 41% of the sampled sourced rice via aid and 43% of the sample purchased their rice.

Livestock

Slightly more than half the sample (53%) reported ownership of livestock. As can be expected poultry was the most commonly owned livestock. Amongst HHs reporting ownership of animals; 72% reported ownership of poultry.

Pigs were the next most commonly owned livestock with half of all HHs with livestock reporting ownership.

Ownership of cows and buffalo was low – 4% & 12% respectively - amongst HHs reporting livestock ownership. This is far below pre-Nargis levels and indicates that HHs have been unable to replace animals lost to the disaster. Poultry is the easiest to replenish and thus is the most commonly owned livestock. Furthermore, aid agencies & NGOs have also been helping HHs in Nargis-affected areas re-stock poultry.

Cows and buffalo are the most valuable assets and efforts are needed to help ensure that stocks across Bogale and Labutta once again reach pre-Nargis levels.

Approximately 32% of HHs owned more than one kind of livestock; for example poultry and pigs.

Assets

Assets, be they are physical, natural, social, financial or human, are essential elements of household livelihoods. A greater variety of current asset holdings usually indicates that a household has more purchasing power.

Some assets have a greater inherent value than others insofar as they facilitate economic productivity (e.g. land, livestock, credit, tools) whereas others can be considered nonproductive or basic assets as they relate more to living standards (e.g., beds, tables, televisions).

Productive Assets

Across the sample it was seen that 26% of HHs did not own *any* productive assets. This is a telling statistic as it implies that HHs have been unable to replace lost assets in the 10 months following Nargis and also these HHs are deprived of a coping mechanism wherein they could sell assets in times of crisis.

A little over half the sample reported ownership of 1 or 2 assets. The most commonly owned productive assets were:

1. Agricultural Tools (58%)
2. Boats (without engine) (28%)
3. Cash / Savings (23%)
4. Ploughs / Ox-carts (22%)
5. Fishing Nets (22%)

More expensive productive assets such as boats with engines (5%), sewing machines (5%), motorcycles (1%) and cars (< 1%) displayed very low levels of ownership.

Based on ownership of assets related to fishing, it can be stated that approximately one-fourth of the sample depended on fishing to source food and / or incomes. Keeping in mind the areas sampled, this is a low dependence on fishing and indicates that the sector has yet to recover and many HHs have not yet been able to replace lost assets.

It should also be noted that approximately 23% of the sampled HHs reported access to savings / cash. As majority of HHs have reported insufficient incomes, this relatively low percentage is not surprising.

Non-productive Assets

Approximately 54% of the HHs reported not owning any non-productive assets. Amongst HHs reporting the ownership of assets, almost all HHs owned a radio. Television ownership amongst these HHs was 14% followed by bicycles (6%).

Sources of Income

Households were asked to list their sources of income and it is seen that the most common source for households was income derived from wages. Thirty Six percent (36%) of the sample reported wages being one of their main sources of income.

The 4 most common sources of income reported by HHs can be seen in the below table.

Table 2: Most Common Sources of Income Reported

	Income Activity	Percentage of Sample (%)
1	Casual Labor	36
2	Fishing	28
3	Agriculture	13
4	Petty Trade	11
5	Others	12
		100%

'Other' income sources include business (3%), income derived from livestock (2%) and remittances (1%). Keeping in mind that the area sampled has always been highly dependent on fishing; a relatively low percentage of 28% of the sample sourcing income from fishing indicates that HHs primarily practice fishing to source food for own consumption and are unable to do so for income generation.

Households typically generate income (& food) from a combination of activities. More often than not, a combination of specific activities is utilized by households to meet one or more household priorities (e.g., food, income, access to services). The greater the number of income generating activities generated by a household the easier the ability of the household to cope with shocks and stress.

Looking at the average number of income earners per HH it is seen that 54% of HHs across the two townships relied on only one HH member. This implies that in case of any shock, these HHs will be unable to adapt or cope easily by sourcing income from a secondary source. Thus a HH dependent on only casual labor for income will, in the event of a member's unemployment, be unable to source income and be forced to rely on subsistence farming / fishing and aid.

Furthermore, 29% of the HHs reported 2 members earning an income – typically a combination of casual labor and fishing.

Approximately 10% & 5% of the sample reported the employment of 3 or more members per HH. These HHs would typically be larger HHs with a lower number of dependents thus enabling HHs to source income from a variety of activities.

Data was collected on the number of HHs members currently earning an income and the number of members earning an income 6 months ago. This information was then analyzed to ascertain if there had been an increase in employment. The data for the sample shows negligible change in average number of earners.

Eight five percent (85%) of the sample reported no change in numbers of earners over a 6 month period. Eight percent (8%) of HHs reported an increase in number of members earning an income. However this gain is balanced by a similar percentage of HHs reporting a decrease in earners with the net result of no change for the sample. This overall stagnation in employment rates over a 6 month period implies that various sectors (agriculture, fishing, business, industry) have not yet been able to recover sufficiently so as to become a source of employment and economic growth. This hypothesis is strengthened by the fact that across the sample, 28% of HHs reported having at least one able member currently unemployed and looking for work with no difference in this percentage between townships.

Sources of Expenditure

Data on expenditure for food and non-food items, such as education, health transport, etc. were collected to better understand household resource allocation.

Approximately 90% of HHs reported some monthly expenditure on food; with 60% of these HHs reporting food to be their main expenditure.

After food the second most commonly reported expenditure was on health with 56% of HHs reporting expenditure on medicines and / or health services.

A similar percentage of HHs reported expenditure on utilities. This would include paying for water, fuel, charcoal, candles etc. Keeping in mind that 20% of the sample depended on 'Other' sources for drinking water; for these HHs the buying of water would probably be the single biggest expenditure with respect to utilities.

Only 32% of HHs reported some expenditure on education and less than 18% of HHs reported expenditure on agricultural inputs.

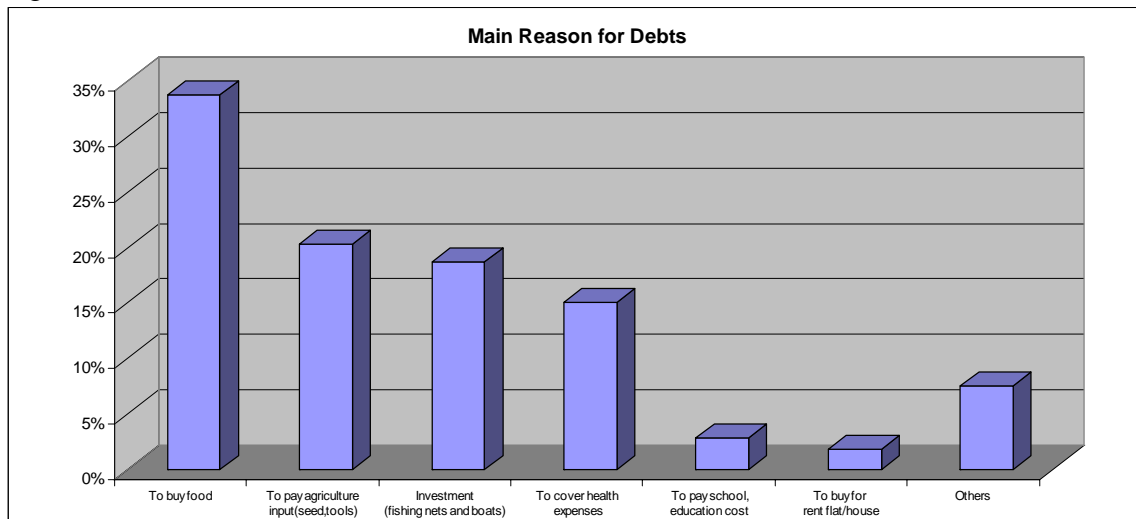
Looking at the average number of expenditure items per HHs it is seen that 75% of the sample reported between 3 and 4 expenditure items per month. These would most commonly be on food, health and utilities. Expenditure patterns are similar across the 2 townships.

Access to Credit

Eighty three percent of the sample reported currently being in debt and needing to repay their loan. This is an extremely high figure and indicates that the majority of HHs are unable to source enough food or incomes in order to meet basic needs. Borrowing generates temporary capital for the household not an income. Hence households that regularly depend on borrowing in order to meet household expenses have to now source the same amount of money plus the interest rate albeit over time.

The main reasons for sampled HHs obtaining loans can be seen in the below figure.

Figure 5: Main Reasons for Household Debt



It is clear that the main reasons for HHs to undertake debt can broadly be classified as

1. To buy food
2. To help source incomes from agriculture & fishing (credit required to buy agriculture input and fishing nets, boats)
3. To meet health expenses.

Loans undertaken for educational expenses, livestock, land and even social expenses (weddings, funerals) constitute less than 5% of all HHs reporting debt.

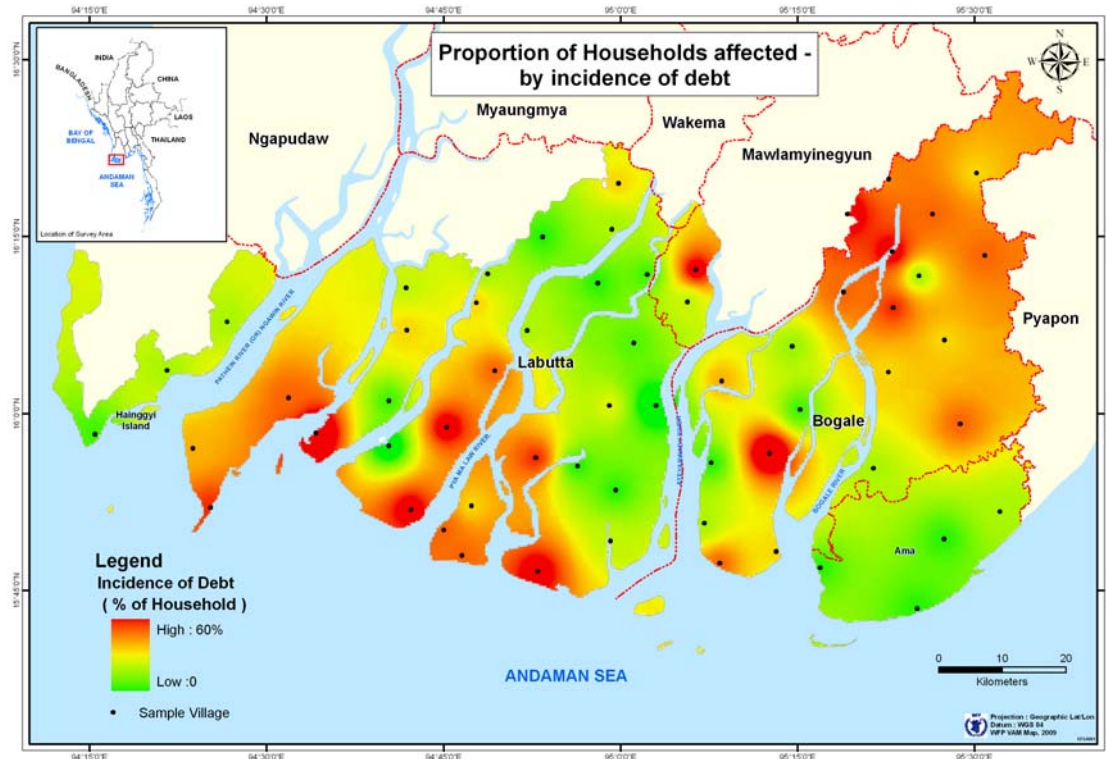
Loans are thus taken to buy food (other than rice which would be obtained from food aid & cultivation) or to source incomes so HHs can buy food and meet other essential non-food expenses. It can be recalled that in terms of severity the second most widely reported shock affecting HHs was the repayment of debt.

Further analyzing reasons for obtaining loans across the 2 townships:

- Taking a loan in order to buy food is reported as the primary reason by a similar percentage of HHs in Bogale and Labutta – approximately 33%
- However the difference in relevance of agriculture and fishing in the 2 townships results in the following patterns
 - a) 28% of HHs in Bogale reported taking loans to buy agricultural inputs as compared to 14% in Labutta.
 - b) 28% of HHs in Labutta reported taking loans to buy inputs related to fishing as compared to 19% in Labutta.
- 16% of HHs in Labutta relied on loans to cover health expenses as compared to 13% in Bogale.

Regarding source of credit amongst HHs with debt; 97% of HHs reported obtaining money from informal sources. Keeping in mind the dearth of formal lending institutions, this is expected. The most common source for loans was from traders / shopkeepers (37%) and money lenders (31%). This would almost certainly mean a higher than normal rate of interest thus increasing the burden of HHs dependent on these sources for loans. Approximately 23% of HHs obtained loans from relatives. It could be expected (though by no means definite) that the rate of interest charged for this group would be lower than that charged by money –lenders and shop-keepers. What is certain is that there is an urgent need to increase formal and semi-formal access to credit across Bogale and Labutta.

Map 3: Percentage of HHs Affected by Debt



Food Consumption

Analysis of food consumption data presents a clear paradox. Across the sample food consumption scores are good with a negligible number of HHs falling into the Poor food consumption category. This is surprising given that majority of the HHs reporting insufficient income as a major obstacle to food security and amongst farming HHs low agricultural productivity is stated as a major hindrance. These issues are analyzed in detail elsewhere in this report.

Food Consumption Score (FCS)

Information was collected on the dietary diversity of the HH with respondent being asked to list the number of days a particular food item was consumed by the HH in the 7 days prior to the interview. Thus a '0' for Fruits would indicate that a HH did not consume any fruit in the previous 7 days while a '4' would indicate consumption 4 days out of 7 etc. The mean food consumption score for a 7 day period for the sample was then calculated

Table 3: Mean FCS Scores for the Sample

	Poor	Borderline	Adequate	All
Rice	6.3	6.9	7.0	7.0
Other cereals (wheat, maize)	0.0	0.3	0.5	0.5
Potatoes/ Tubers	0.7	0.3	0.7	0.7
Beans / Peas	0.0	0.9	2.5	2.3
Vegetables	2.7	2.8	3.6	3.5
Fruits	0.0	0.3	0.9	0.8
Meat and Poultry	0.0	0.2	0.9	0.8
Eggs	0.0	0.2	1.0	0.9
Fish	0.0	1.5	4.1	3.8
Milk and Milk Products	0.0	0.1	0.4	0.3
Oils & Fats	5.7	5.9	6.7	6.5
Sugar	0.2	0.6	1.7	1.5

From the above tables it is seen that:

- a. The only item regularly consumed by HHs is Rice with a mean consumption of 7 times a week.
- b. Rice, Vegetables, Fish & Beans / Peas are the only items consumed. The consumption scores for all other items are negligible.
- c. There is almost no consumption of food groups such as meat & poultry, eggs and milk products.

Based on above scores, Food Consumption Groups were formulated and it is seen that approximately 78% of the sample can be classified under the ‘Adequate’ food consumption group and 21% as ‘Borderline’. This finding is similar to the results obtained by the Joint WFP / UNICEF / GoM survey. Map 1 identifies geographic areas with high percentage of HHs with Poor, Borderline and Adequate food consumption.

When food consumption scores are analyzed with reference to food aid, the following is seen:

- In Bogale there is slight difference in percentage of HHs classified as Poor/Borderline amongst HHs that receive WFP food aid and HHs that do not receive any WFP assistance.
- In Labutta, a considerable difference in food consumption scores can be seen. Amongst HHs that do not receive any WFP assistance; 43% of HHs are classified as having Poor or Borderline food consumption. By contrast, amongst HHs that received food aid only 16% are classified as Poor or Borderline

Shocks

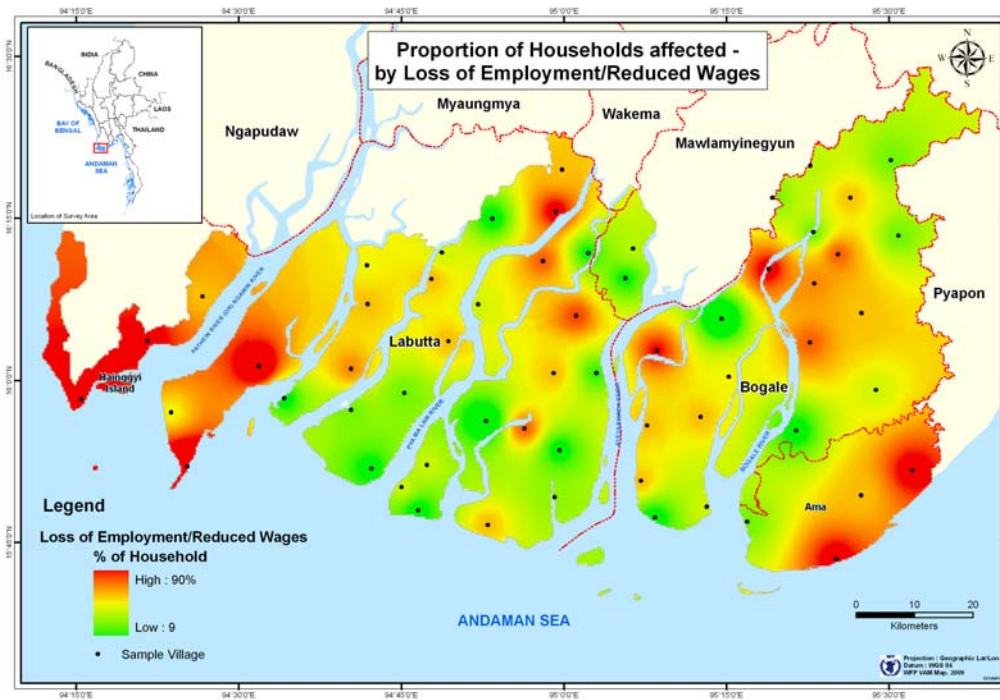
Respondents were asked to list the 3 main shocks or difficulties faced by their household in the past 6 months. Once the respondent had listed the shocks he or she was then requested to list the shocks in order of severity from 1 (most severe) to 3 (less severe).

Table 4: Main shocks faced by Households – Across Townships

	Shock	Bogale	Labutta	Overall
1	Loss of employment/ reduced salary/ wages	47%	45%	46%
2	Sickness of HH member/ Health Expenditures	37%	30%	33%
3	Debt to reimburse	30%	27%	28%
4	Unable to practice fishing	18%	21%	20%
5	Unable to practice agriculture	18%	18%	18%
6	Damage to housing	22%	13%	17%

Note: Figures exceed 100% as figures are cumulative based on multiple responses.

Map 4: HHs Affected by Loss of Employment and Reduced Wages



Disaggregating responses based on priority the following pattern is seen:

Table 5: The 3 Main Shocks Identified on Basis of Severity:

	Bogale & Labutta
1 ST Shock	Loss of employment/ reduced salary/ wages
2 ND Shock	Debt to reimburse
3 RD Shock	Sickness of HH member/ Health Expenditures

The most common obstacle to food security is lack of employment and / or reduced incomes of HHs. This is due to a combination of factors (Refer section on Agriculture & Income) including:

- (1) HHs unable to rely on agriculture for incomes due to low agricultural productivity

- (2) Agriculture & fishing sectors yet to recover from the damage by Nargis resulting in lowered employment opportunities
- (3) Rise in supply of casual labor leading to depression of wage rates
- (4) Wide-spread damage to infrastructure leading to reduced employment opportunities resulting in unemployment and under-employment
- (5) HHs that have lost a wage-earning member to the cyclone now have one less member to contribute to HH income

The 3 most widely reported shocks are all closely related to each other. For example, the reimbursement of debt, the second most widely cited shock is closely related to the first. Nearly half the sample has reported lack of sufficient income or employment. Thus HHs are forced to resort to borrowing from informal sources. This can lead to an increasing number of HHs being trapped in a debt-cycle wherein in order to pay the high interest rates and the principle HHs are forced to borrow ever-increasing amounts of money.

Approximately 33% of HHs across the sample reported sickness of a family member as an obstacle to food security. The questionnaire was not designed to obtain further information on type of sickness, duration etc but given the high incidence reported there is an urgent need to obtain more relevant details. Irrespective of the sickness the widespread prevalence means that these HHs are adversely affected since (a) the HH's income generating potential is reduced, and (b) HHs need to divert scarce resources on health expenses.

With respect to the average number of shocks faced by HHs in the 2 townships there is a marked difference; more than half (51%) of households sampled in Bogale reported facing at least 3 shocks in the past 6 months to the survey. By comparison, 33% of HHs in Labutta reported facing 3 shocks. Four percent of the sample reported no shocks in the past 6 months while 35% of the sample reported having to cope with 2 shocks.

Coping Strategies

Respondents were asked to list any coping strategies that their HHs was forced to rely on and the frequency of this reliance. *The data on coping strategies clearly shows that the majority of the sampled households do not resort to practicing extreme coping strategies such as going entire days without eating, selling HH assets or even reducing number of meals a day.*

Among households that reported the use of coping strategies; the most common strategies were:

- **Reliance on Less Preferred Food:** This was the most common coping strategy (86%) employed amongst all HHs reporting the practice of coping mechanisms. The reliance on less preferred foods is probably a function of reduced household incomes thus forcing HHs to rely on cheaper less preferred foods. Fifty-two

percent of HHs reported reliance on this strategy between 12 to 24 days in a month.

- **Purchasing Food on Credit:** Amongst the common coping methods employed by the sample, this strategy holds the highest risk to household food security. Seventy five percent of HHs (75%) reported reliance on this mechanism. This clearly indicates that a sizeable percentage of HHs are unable to source enough food or income to meet their food requirements. Furthermore, 33% of these HHs reported resorting to borrowing food often (between 12 – 24 times a month).
- **Limiting the portion of meals:** Approximately 40% of the HHs reported limiting meal size. Not all food-based response strategies are “coping” in the strict sense of the term especially when such strategies, as is seen in the present case, is not widespread. Rather, these actions are mostly aimed at consumption smoothing and are likely to prevail regardless of whether households have faced a shock or not. Such strategies are practiced in high-income, food secure countries as well.

Coping Strategy Index / Multi-Indicator Analysis

Data on various relevant & related indicators were first analyzed to form groups and these groups were then compared to see if any concrete patterns were discernable.

Step 1: The 2 groups identified were:

- **Food Consumption Groups:** HHs with Poor / Borderline Food Consumption and HHs with Adequate Food Consumption
- **Reliance on Food Aid:** HHs which relied on food aid for their rice consumption over the previous month and HHs that relied on all other sources for their household rice consumption over the previous month.

Step 2: The above groups were then crossed with data on coping mechanisms

Table 6: CSI Performance for the Sample

Main source of rice	Food Consumption Groups	CSI (reduced to weekly)
Other sources	Poor & Borderline	13.4
	Acceptable	9.1
Food Aid	Poor & Borderline	9.5
	Acceptable	7.6
Total	Poor & Borderline	12.0
	Acceptable	8.3

Note: The reduced CSI has a minimum of **zero** (if the HH did not engage in any coping strategy) and a maximum of **56** (if the HH apply each strategy everyday).

The Coping Strategies Index (CSI) measures behavioral responses to food insecurity, such as reducing the frequency of meals, reducing the portions of food consumed during meals or shifting reliance to cheaper foodstuffs, shifting reliance to less preferred or cheaper food types and other food consumption-related coping strategies.

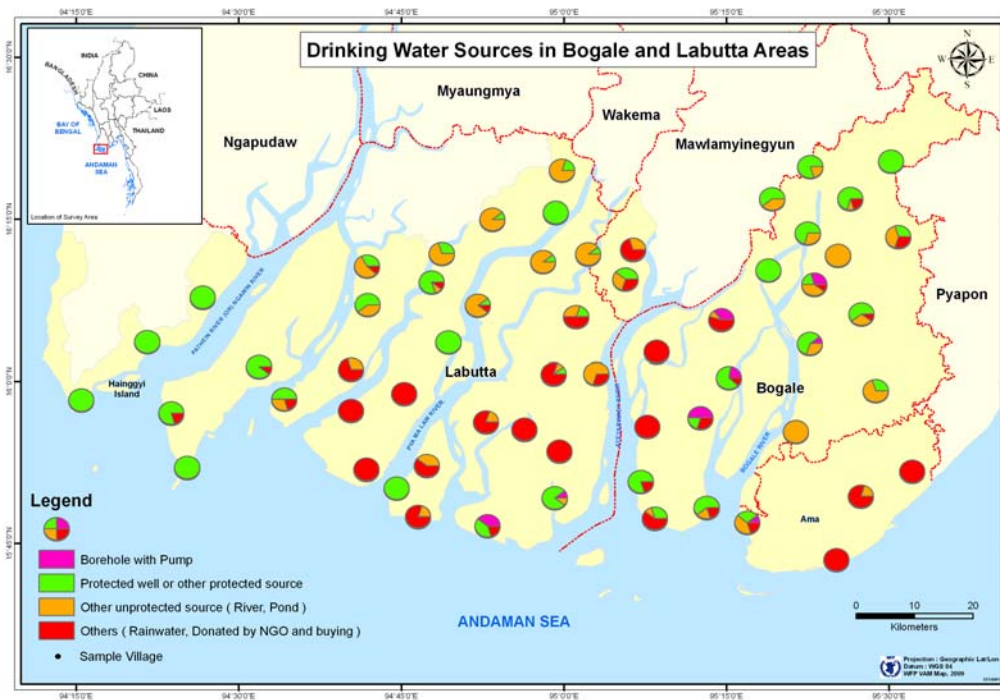
Based on the number, frequency and the level of difficulty perceived by the population in using a specific strategy, a numeric reduced coping strategy index (CSI) was calculated. The higher CSI indicates a higher level of vulnerability. It should be noted that the value thus calculated by itself is unhelpful. However the values when compared to each other tell us about the overall severity.

From the above CSI score, it is seen that there is a marked difference in CSI score between poor and borderline HHs that were unable to rely on aid for rice in the past 30 days and all other groups. In other words this group is the most vulnerable and under the most stress to be food secure.

There is a marked difference in the CSI between the group with poor & borderline consumption and the group with acceptable consumption. Poor and borderline HHs engage more frequently into stressful coping strategies compared with the acceptable consumption group. This is valid for both the HHs who mentioned "food aid" as main source of rice and for HHs who did not. However, the difference becomes larger for the "non assisted" households (13.4 versus 9.1). This suggests that food aid can play a role in reducing the gap between the poor & borderline households and the acceptable consumption households. In particular, it can limit the extent to which food insecure households adopt disruptive mechanisms.

Water and Sanitation

Map 5: Drinking Water Sources in Bogale & Laputta Township



Access to water – Households were asked about the source of their drinking water. Households relying on unprotected sources constituted 28% of the sample. Such a dependence on water from unprotected sources poses a serious health risk especially amongst children.

Piped water and boreholes was reported to be a source by less than 4% of the sample. However there was a relatively high percentage of HHs reporting the utilization of water from protected wells; 48%.

Approximately 20% of the HHs relied on ‘Other’ sources for their drinking water – this mainly consisting of relying on water being provided by agencies and buying water from vendors.

Households were also asked if they treated their drinking water and 95% of the sample reported the treating of drinking water either by filtering (63%) or by boiling (32%). Five percent of HHs reported the utilization of un-treated water.

Latrine Facilities – Thirty seven percent (37%) of the sample stated that they had no latrine facilities. Amongst the remaining HHs (that had access to latrines); fly proof latrines were the most common (42%) followed by surface pit latrines (15%). The proportion of HHs without access to latrines is similar to the figure reported in July 2008 in the Post Nargis Joint Assessment.

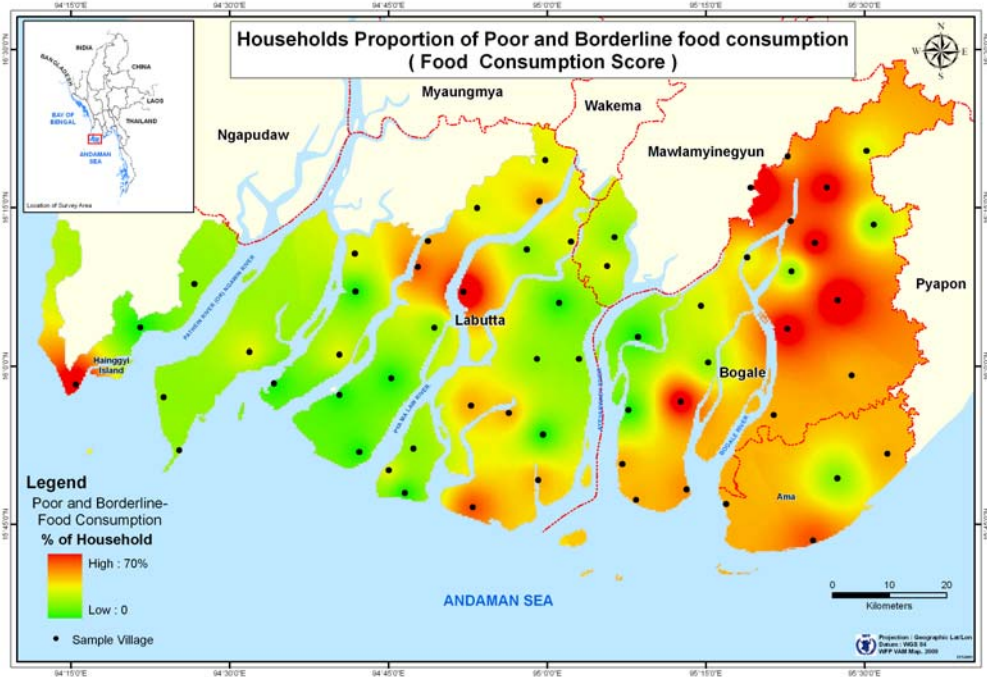
Health Education – A little over half the sampled household (54%) stated that they had received some health education on nutrition and hygiene.

The fact that 28% of the sample obtains their drinking water from unprotected sources combined with the fact that 37% of the households have no latrines facilities and approximately 46% of the sample has received no basic health education – holds severe potential health risks.

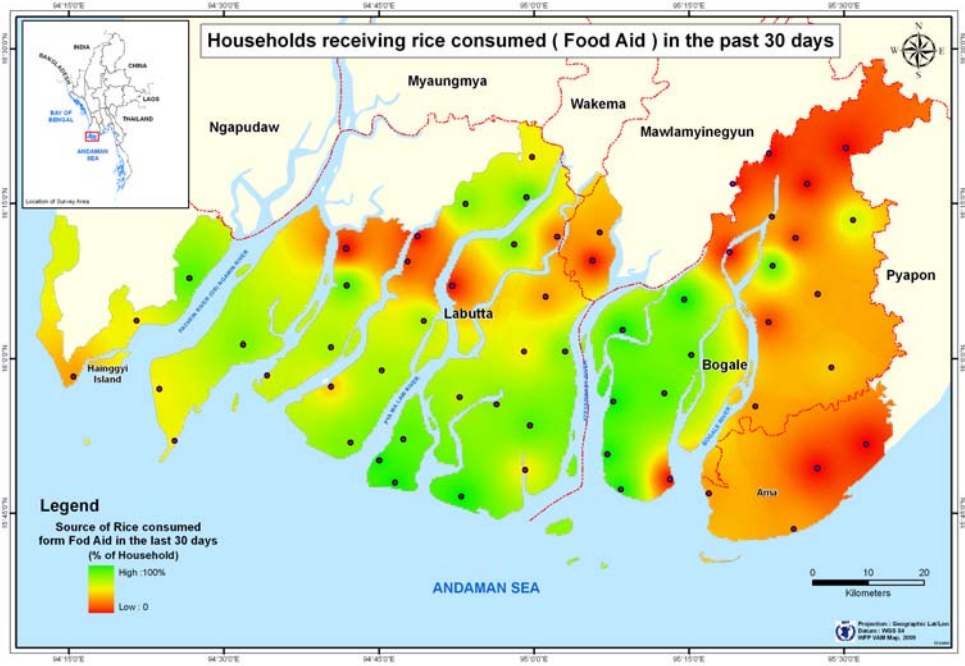
Spatial Analysis

The data was mapped and analyzed spatially to help identify the most vulnerable regions.

Map 6: Areas with Poor, Borderline & Adequate Food Consumption



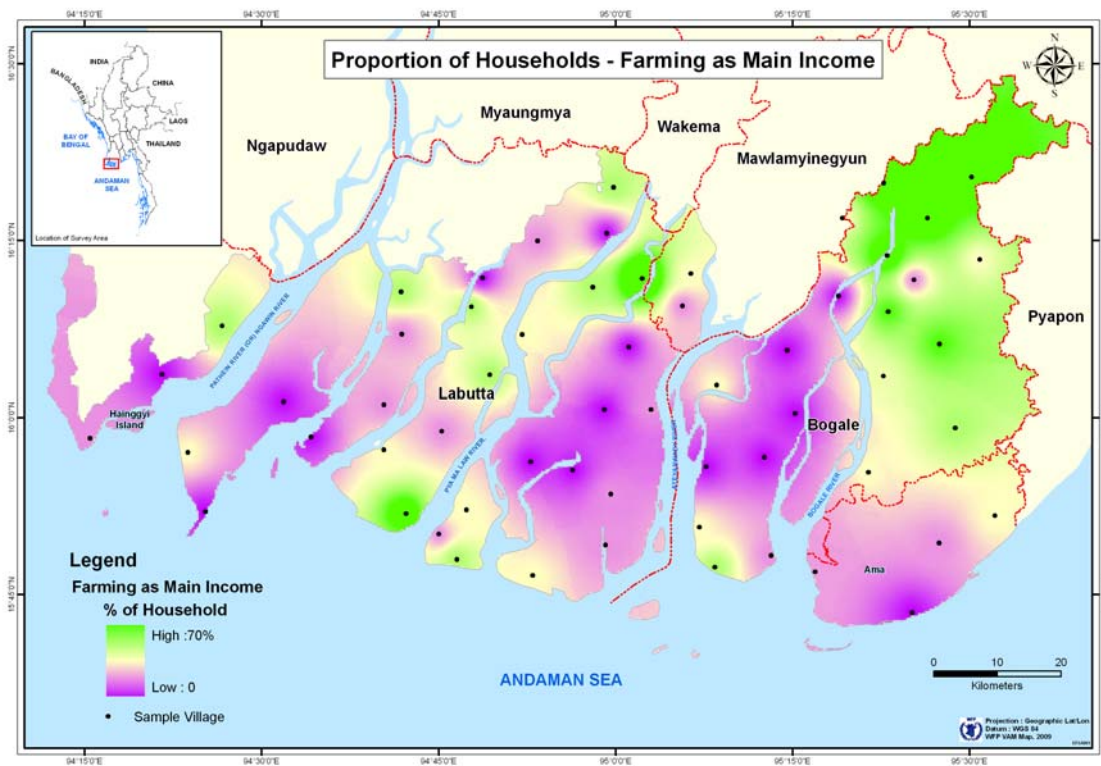
Map 7: HH Rice Consumption from Food Assistance



As can be seen from the above; *there is a direct correlation between areas with a high percentage of households that are unable to source all their rice from food aid and areas with a high percentage of HHs with Poor / Borderline Food Consumption. In other words, areas with highest inflow of food aid show the least percentage of HHs with inadequate food consumption.*

The above supports the findings of other indicators attesting to the relevance of food aid. This is not to say that food aid (or absence thereof) is the only contributing factor. However as is evident; food aid continues to have a direct positive influence on household food security and livelihoods.

Map 8: Areas with High Percentage of HHs Dependent on Farming

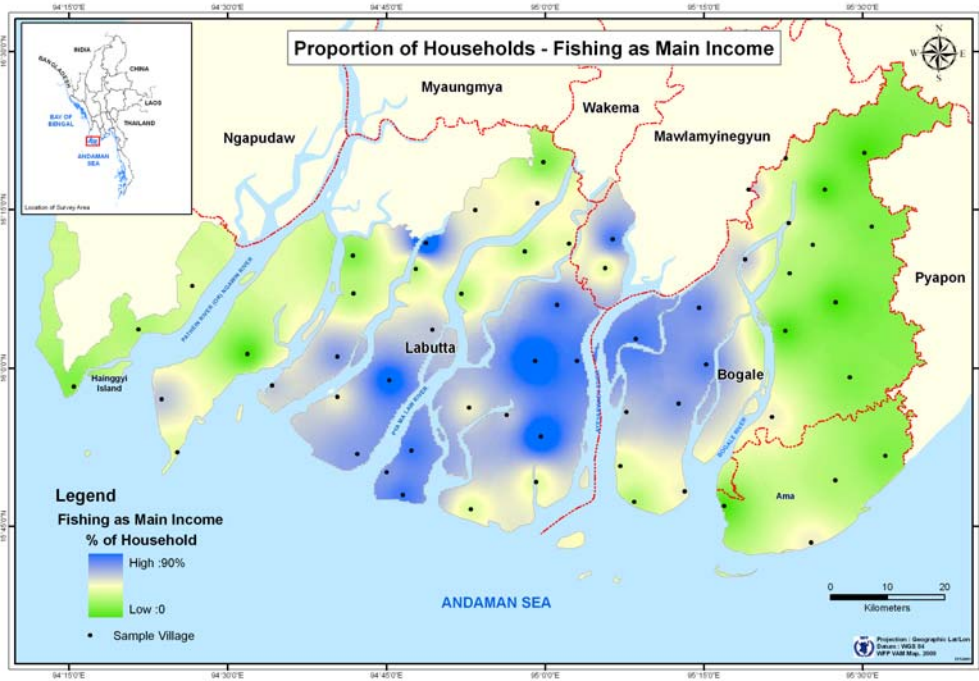


The effects of low agricultural productivity are clearly seen from the above. **Areas with a high percentage of HHs dependent on agriculture for their primary income are largely the same areas with high percentage of HHs with low food consumption.** This supports the earlier analysis on the adverse effects of present state of agricultural productivity on food security.

With respect to HHs mainly dependent on fishing as their primary source of income (see map below) - a **positive relation between areas with high percentage of fishing HHs and areas with high percentage of HHs with adequate food consumption is seen.**

This would mainly be due to the fact that these HHs would be able to source fish for their incomes and own consumption (providing a high nutrition input). This further attests to the relevance of fishing and the importance of this sector to livelihoods and food security in the delta. Thus increasing the percentage of HHs that can rely on fishing will increase food consumption and incomes for the household.

Map 9: Areas with High Percentage of HHs Dependent on Fishing for Income



Recommendations

Program Recommendations

- It is recommended that WFP continue its emergency operations in Bogale and Labutta beyond April 2009 but to extend no later than November 2009. However it is urged that the ‘mix’ of assistance programs be re-organized.
- The need to significantly scale down targeted food distribution while simultaneously ensuring that most vulnerable and food insecure populations continue receiving assistance
- From April 2009, targeted food distribution programs should be initiated in areas
 - a. That have a high percentage of population with poor or borderline food consumption (refer Map # 1)
 - b. Areas identified by WFP Sub Offices to be *both* (a) suffering from high soil salinity thus drastically reducing agricultural productivity and (b) having only one agricultural season.
- Post-April 2009, assistance programs should also include Food for Work (FFW) Programs. Food-for Work programs ought to be expanded from April as these programs have high relevance in the delta. It should also be noted that due to the onset of monsoons, FFW programs can only be effectively implemented until June 2009. Thus efforts should be taken to ensure that FFW programs are expanded at the beginning of April and completed successfully by June.
- The option for Cash-for- Work programs needs to be explored further.
- Explore the possibilities of how best to strengthen human capital. This is a recommendation that has also been stressed in the Post-Nargis Recovery and Preparedness Plan (December 2008). Therefore WFP needs to identify activities that would assist the strengthening of human capital

General Recommendations

1. Increasing Agricultural Productivity by
 - (a) Reducing input cost - Modern agricultural inputs such as fertilizers (organic and inorganic) and improved seed varieties are relatively expensive in Myanmar. This has resulted in low usage of agrochemicals /

improved varieties with farmers being unable to maximize productivity. It will be useful to explore what combinations of support instruments (for e.g. subsidies, input price support, modern technical services, extension services) will work best in the Myanmar context.

(b) Increasing crop productivity - Some of the other options by which crop productivity can be increased include:

- The propagation of newer innovations like System of Rice Intensification (SRI). SRI is a relatively simple and inexpensive method of rice planting that provides higher yields. Such an approach would be ideal for poor food-insecure farmers who can now try and increase yield without needing to invest large sums of money.
- Encourage the widespread adoption of aquaculture among small holding farmers.

2. Access to Credit: This is one of the most important needs given the high dependence on loans from informal sources. It is urged that development organizations and the government explore avenues by which rural populations can obtain loans at normal interest rates.
3. Encouragement of the non-food sector: With reduced incomes being posing the greatest obstacle to HH food security, encouragement of the non-food sector could result in HHs being able to source income from a varied number of sources. Activities in the non-food sector could include weaving, brick making, furniture making, rural electrification etc. They also hold an important key to reducing excessive dependence on agriculture and fishing. Hence it is recommended that this sector be studied more closely and efforts must be taken to increase the efficiency, effectiveness and productivity of the non-food rural sector.
4. Asset Replenishment: Asset replenishment particularly assets related to fishing would result in greater number of HHs being able to once again source food and / or income.
5. Livestock Replenishment: The replenishment of livestock particularly larger livestock is crucial and would greatly influence household level food security and increase resilience to shocks.

Annex: List of Villages

Division	Township	Village Tract	Village
Ayeyarwady	Bogale	(Kyun Nyo Gyi) Kyun Hteik	Nga Khu Chaung
Ayeyarwady	Bogale	Aye Yar	Bawga wa ti
Ayeyarwady	Bogale	Byu Sa Khan	Byu Sa Khan
Ayeyarwady	Bogale	Hay Man	Sein Pan
Ayeyarwady	Bogale	Hpa Yar Thone Su	Mu Soe Chaung
Ayeyarwady	Bogale	Kadonkani	Shwe sar yan ywa ma
Ayeyarwady	Bogale	Kadonkani	Wa taw gon
Ayeyarwady	Bogale	Kyaung gon	Kyaung gon
Ayeyarwady	Bogale	Kyein Chaung Gyi	Apyin pa de kaw
Ayeyarwady	Bogale	Kyein Chaung Gyi	Pan Hpu Sa Laung Kya
Ayeyarwady	Bogale	Kyein Chaung Gyi	Tha Pyay (Ta Say)
Ayeyarwady	Bogale	Kyun Thar Yar	Mon Taing Gyi
Ayeyarwady	Bogale	Kyun Thar Yar	Shwe Za Lon
Ayeyarwady	Bogale	Myin Ka Kone	Kwin Waing
Ayeyarwady	Bogale	Nauk Mee	Sit gon
Ayeyarwady	Bogale	Paik Sa Lat	Tawta lein
Ayeyarwady	Bogale	Pat Ta Myar Kone	Kat Pa Nar
Ayeyarwady	Bogale	Set San	Set San
Ayeyarwady	Bogale	Tha Zin Kone	Thar Hpyan Gyi
Ayeyarwady	Bogale	Tha Zin Ngu	Khon Thar Hpyu
Ayeyarwady	Bogale	Thit Hpyu Chaung (Kan Su)	Mi Chaung Thaik
Ayeyarwady	Bogale	unknown	Ba E Gon
Ayeyarwady	Bogale	unknown	Pho Htoo Taung Ya
Ayeyarwady	Bogale	unknown	Ye Gyaw
Ayeyarwady	Bogale	unknown	Ye Gyaw Do
Ayeyarwady	Hainggyi	Hpa Yar Hla	Thin Gan Kone Lay
Ayeyarwady	Hainggyi	Kan Chaing	Kan Chaing
Ayeyarwady	Hainggyi	Myo Thit	Maung Bar
Ayeyarwady	Hainggyi	unknown	Ma Gyi Chaung
Ayeyarwady	Hainggyi	unknown	Po Pa Gan Gon
Ayeyarwady	Hainggyi	War Kone	Si Laung
Ayeyarwady	Labutta	Ah Mat	Ah Mat
Ayeyarwady	Labutta	Ah Mat	Hpon Zo Gwin
Ayeyarwady	Labutta	Bay Pauk	Tha Pyay Kwin
Ayeyarwady	Labutta	Bi Tut	Sit Kwe
Ayeyarwady	Labutta	Da Ni Seik	Ma Dawt
Ayeyarwady	Labutta	Hlaing Bone	Hlaing Bone (West)
Ayeyarwady	Labutta	Hlaing Bone	Tha Kha Yan Gon

Ayeyarwady	Labutta	Hlaing Bone	Ye Win Gate
Ayeyarwady	Labutta	Hlya Zar	Da Ye Byu Lay
Ayeyarwady	Labutta	Htin Pon Kwin	Ngar Hpei Ta Yar
Ayeyarwady	Labutta	Ka Zaung	Min Se
Ayeyarwady	Labutta	Koke Ko	Kya Net
Ayeyarwady	Labutta	Kone Gyi	Aung Hlaing
Ayeyarwady	Labutta	Kone Gyi	Kwin Yar
Ayeyarwady	Labutta	Kyu Taw	Ta Se Ngu
Ayeyarwady	Labutta	La Put Ta Loke (North)	La Put Ta Lok Myauk Ywa Ma
Ayeyarwady	Labutta	Nyaung Chaung	Po Gwe Gyi
Ayeyarwady	Labutta	Pyin Ah Lan	Aing Ma
Ayeyarwady	Labutta	Pyin Ah Lan	Thar Yar Kone (a) Swei Taw Kone
Ayeyarwady	Labutta	Sa Lu Seik	Pyin Ka Nu Kone
Ayeyarwady	Labutta	Sar Chet	Pa Dauk Kone
Ayeyarwady	Labutta	Sar Kyin	Yin De Le
Ayeyarwady	Labutta	Shaw Chaung	Bay Pauk
Ayeyarwady	Labutta	Tei Pin Taing	Tei Pin Taing
Ayeyarwady	Labutta	Tha Pyu Kone	Koe Bo
Ayeyarwady	Labutta	unknown	Ale Bauk
Ayeyarwady	Labutta	unknown	Da Ye Byu
Ayeyarwady	Labutta	unknown	Marlar Gon
Ayeyarwady	Labutta	Yae Twin Seik	Le Gwa