Post-Nargis Periodic Review IV

The fourth and final report prepared by the Tripartite Core Group comprised of representatives of the Government of the Union of Myanmar, the Association of Southeast Asian Nations and the United Nations with the support of the Humanitarian and Development Community.

July 2010

The goal of the Periodic Review assessments is to generate quantitative data that humanitarian actors can use in strategic planning and in targeting assistance, thereby accelerating recovery.

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Foreword

Cyclone Nargis struck the coast of Myanmar on 2 May 2008, and affected more than 7 million people. Many lost family members, homes and livelihoods.

Two years after Cyclone Nargis' destructive and deadly winds struck Myanmar, the impact of the extensive response by the Government of the Union of Myanmar, the United Nations, local and international non-governmental organizations, local community-based organizations, communities, businesses, the donor community and private citizens can be seen. A number of these actors continue to work in some affected communities that have yet to fully return to pre-Cyclone Nargis levels of economic stability.

The Tripartite Core Group (consisting of the Association of Southeast Asian Nations, the Government of the Union of Myanmar and the United Nations) initiated a series of assessments among Cyclone Nargis-affected populations in September 2008. These assessments, called 'Periodic Reviews', offered snapshots of the situation of Cyclone Nargis-affected populations at the time its data were collected. The report of the first Periodic Review was produced in December 2008, with subsequent Periodic Reviews published in July 2009 and February 2010.

This publication is the report of the fourth and final Periodic Review. All Periodic Reviews drew on the methodology of the Village Tract Assessment undertaken in June 2008. Each Periodic Review gauged relief and recovery efforts, identified people's ongoing needs and facilitated strategic decision making on further support based on the situation during its data collection period.

Data were collected for this final Periodic Review between 4 May and 29 May 2010 in townships in the Ayeyarwady and Yangon Divisions that were most affected by Cyclone Nargis.

As the two-year mandate of the Tripartite Core Group ends, its members wish to thank all those involved with the fourth Periodic Review. The Tripartite Core Group hopes that this final report on the situation of affected populations will enable humanitarian actors to continue the momentum of the response to alleviate the hardships brought to the people of the Ayeyarwady Delta by Cyclone Nargis.

On behalf of the Tripartite Core Group,

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The Tripartite Core Group wishes to express its appreciation for the continued participation and contributions of our partners in the essential process of monitoring and assessing the relief and recovery efforts in Cyclone Nargis-affected areas.

The ASEAN Humanitarian Task Force, Government of the Union of Myanmar Ministries, UN Agencies and many national and international non-government and community-based organisations (see Annex 5.1) were instrumental in making the Periodic Review IV and previous Periodic Reviews successful. The Delta Recovery Working Groups also provided valuable expertise to the Periodic Review process.

The Tripartite Core Group extends its thanks for the generous financial support to ASEAN and its donors for the Periodic Review IV and would like to thank the Periodic Review team members who compiled, analysed and produced the data in this report.

We particularly give our heart-felt thanks to all the people in the affected communities for participating in the surveys that form the basis for Periodic Review IV. As with all Periodic Reviews, this report would not have been possible without their contribution.

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Sida

Australian Government
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List of acronyms and abbreviations

ASEAN	Association of Southeast Asian Nations
CMA	Credit Market Analysis
CSAS	Centric systematic area sampling
DALA	Damage and loss assessment
DPT3	Full coverage of Diphtheria, Pertussis and Tetanus
GoUM	Government of the Union of Myanmar
GPS	Global Positioning System
km	kilometres
m	metres
mm	millimeters
MUAC	Mid-Upper Arm Circumference
NGO	Non-governmental organisation
NRC	National Registration Card
ORS	Oral rehydration solution
PDF	Portable Document Format
PONJA	Post-Nargis Joint Assessment
PONREPP	Post-Nargis Recovery and Preparedness Plan
PR I	Periodic Review I
PR II	Periodic Review II
PR III	Periodic Review III
PR IV	Periodic Review IV
SIM I	Social Impacts Monitoring I
SIM II	Social Impacts Monitoring II
SIM III	Social Impacts Monitoring III
SQL	Structured Query Language
Sq	Squared
TCG	Tripartite Core Group
UN	United Nations
VTA	Village Tract Assessment
XML	Extensible Markup Language

Conversions

1,000 kyat	=	approximately US$1
1 pyi	=	2.13 kg of milled rice (approximately 2 litres or 4.69 pounds)

Executive summary

Two years after Cyclone Nargis struck the Ayeyarwady and Yangon Divisions of Myanmar, sweeping across over 50 townships and hitting Yangon, the country's most populous city, the fourth Periodic Review (PR IV) examines the status of households in the most affected area.

In this context, PR IV details the present status of households and the progress or lack of progress made by the households towards recovery. Where information allows, this assessment compares the current situation to that before the Cyclone. The assessment relies on the responses of 1,400 sampled households living in the most devastated areas, the Ayeyarwady and Yangon Divisions. The results are presented in three interlinked chapters: Healthy Lives, Productive Lives, and Protected Lives.

The PR IV is the fourth in a series of assessments conducted with households in the affected areas following the Cyclone. PR I was published six months after Cyclone Nargis and was based on an assessment conducted between 29 October and 19 November 2008. The PR I used refined indicators and analysis methods from the Village Tract Assessment carried out in June 2008. The following year, the PR II was released in July 2009, and was based on data collected between 7 May and 2 June 2009. PR III was printed in January 2010 and presented data that had been collected between 21 October and 19 November 2009.

Within days of the Cyclone's landfall, the humanitarian community began delivering goods and services to meet immediate needs; later recovery efforts addressed medium and longer-term requirements. Life stabilised and improvements occurred since the first Periodic Review in November 2008.

Households need for health care services stabilised by November 2009. Maternal and infant health care, child nutrition and adequate treatment of drinking water improved incrementally with each successive assessment. Food security improved, although areas of weakness remained at the time of the PR IV assessment. Crop producing households largely farmed about the same acreage in the most recent season as in the previous season.

These signs of stabilization and improvement notwithstanding, ownership of critical livelihoods assets remained below pre-Cyclone Nargis levels. Most households lived in weaker dwellings in May 2010 than before Cyclone Nargis, and available housing was highly vulnerable to severe storms.

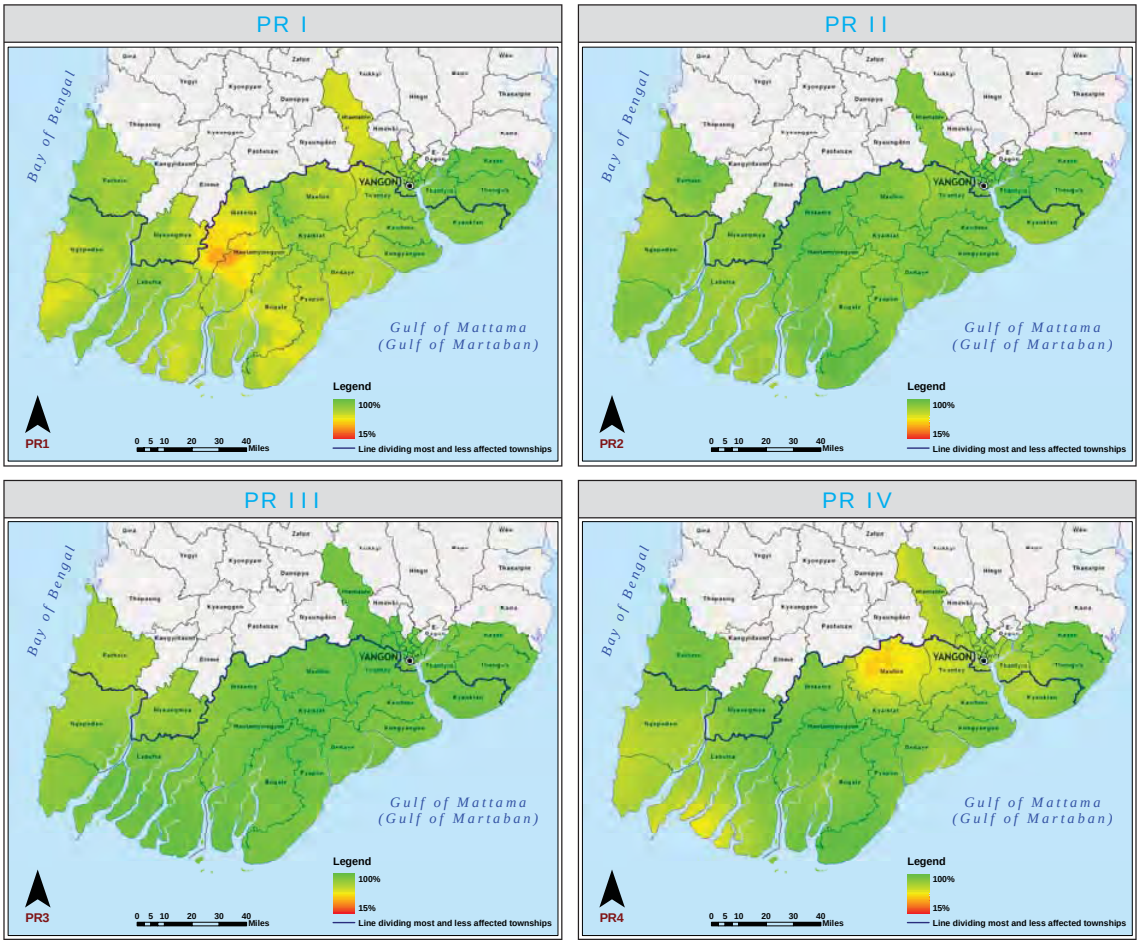
However, despite intensive humanitarian work the devastation of Cyclone Nargis is still felt two years on, particularly by households that had their dwellings completely destroyed by the Cyclone. These households fared worse as a result of the Cyclone; their ability to produce crops and undertake other livelihoods have been limited, they are less likely to have enough food, more likely to be living in poorer quality housing and their children are less likely to be in school.

Healthy lives

Cyclone Nargis severely impacted the health system and its capacity to deliver essential services, destroying some health facilities and damaging others. At the same time, the Cyclone increased healthcare needs and decreased the ability of families to pay for treatment.

By May 2010, when the data for PR IV were collected, the physical health of the people living in cyclone-affected areas had stabilised. Compared to the first Periodic Review in November 2008 household heads were more likely to have access to health facilities, and less likely to indicate that facilities needed medicine and trained health personnel (see Map i).

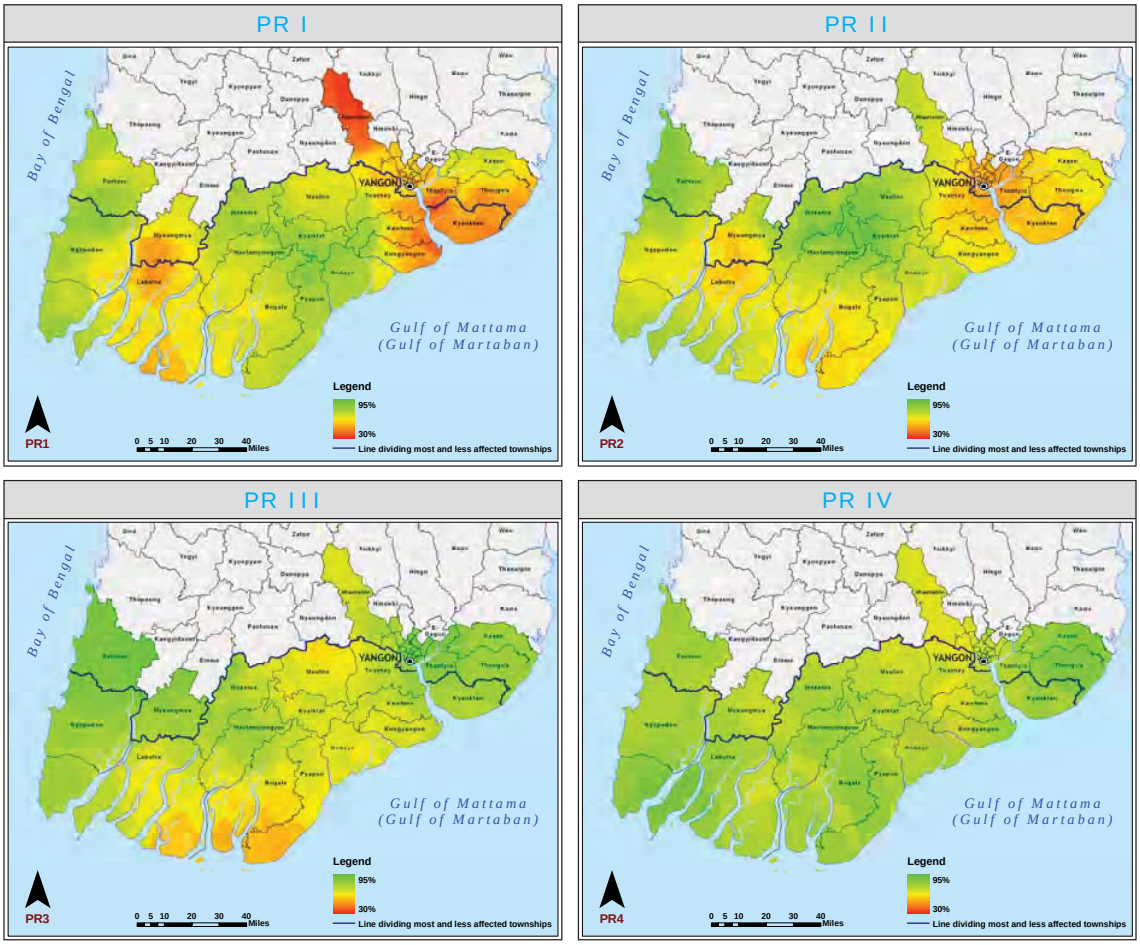
Map i: Households that reported that medicine is available all or most of the time at the nearest health facility across all Periodic Reviews



Household health, as measured by the health of children and pregnant women improved. The percentage of households which do not visit health facilities because they perceive themselves to be healthy increased. Immunisation for childhood diseases improved, although progress was not consistent across all areas.

There was a general improvement in the ability of households to access safe drinking water, during both the rainy and dry seasons; more households treated their drinking water and there was a greater capacity to store water compared to previous Periodic Reviews. Nevertheless, many households still lacked safe drinking water, particularly in the dry season (see Map ii).

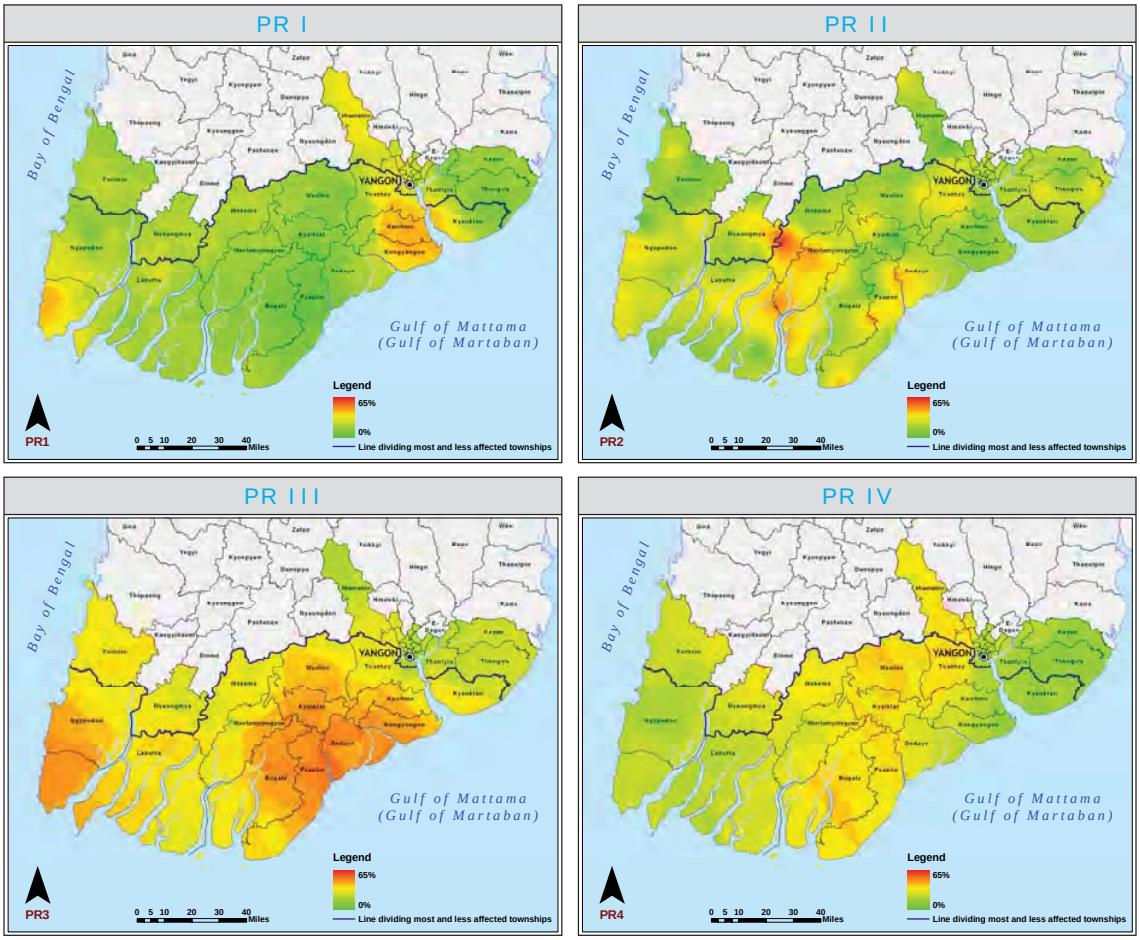
Map ii: Households that reported treating water adequately across all Periodic Reviews



Hygiene practices have improved since the first Periodic Review as household use of improved sanitation facilities increased. However, the devastation brought by Cyclone Nargis was still being felt, as households whose dwellings had been completely destroyed were less likely to have access to these facilities or to have soap compared to other households.

Food security in the Cyclone-affected areas stabilised. As Map iii shows, food security was relatively good at the time of PR I, when food aid was relatively abundant, but deteriorated a year later when the PR III assessment was carried out and when major food assistance programmes were winding down or had ended. The final map in the series shows improvements from PR III, but also shows that a quarter of households over a broad area still had insufficient food in the seven days prior to the assessment.

Map iii: Households that reported not having enough food for four or more days out of the last seven days across all Periodic Reviews



Productive lives

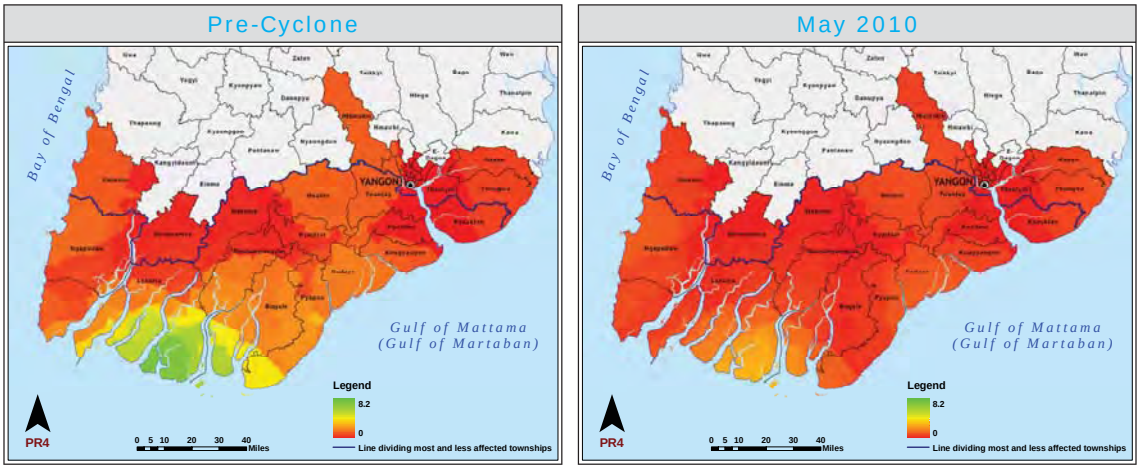
Two years on, the Cyclone–related destruction of sources of livelihood and the capacity of people to generate income and sustain their families continued to impact households.

Those involved in agriculture (the lifeblood of not only households but of the regional economy) had their livelihoods devastated by the disaster. These households, which have the knowledge, experience and management ability to re-start the economy, are yet to come near the level of asset ownership prior to the Cyclone. Among PR IV-sampled households there was a decrease in the following:

- Fishing gear-namely nets and traps: down by 58 per cent.
- Fish processing-down by 77 per cent for fish/shrimp drying equipment and 66 per cent for fish/shrimp paste equipment.
- Boats owned-down on average by a third.
- Buffalo ownership-down by nearly two thirds.
- Poultry-down by half for ducks and over half for chickens.

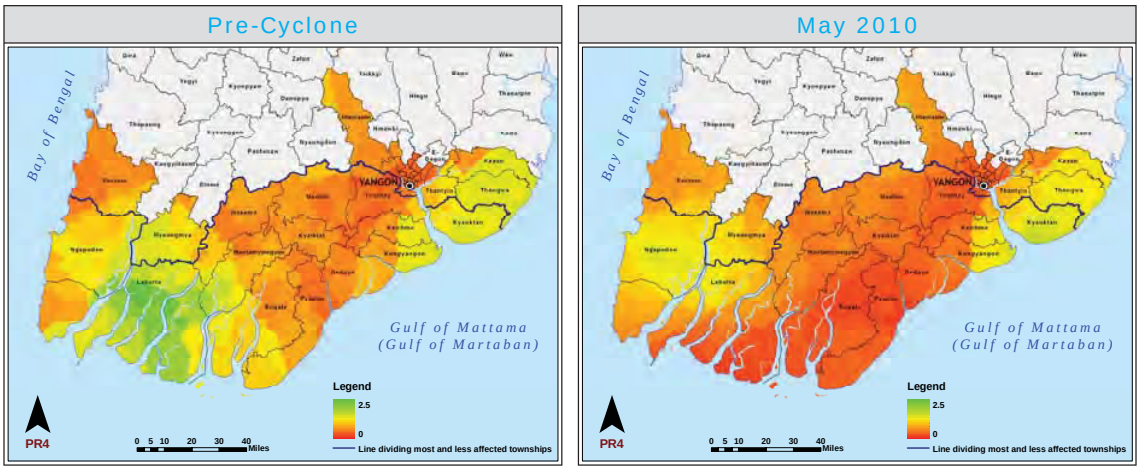
Maps iv and v show the limited recovery among pre-Cyclone households owning two critical categories of livelihoods assets surveyed in Periodic Review IV: commercial fishing gear and draught animals. The recovery of these households is critical to future economic growth and robust livelihood recovery.

Map iv: Average number of commercial fishing gear owned by households pre-Cyclone Nargis and May 2010



Households whose dwellings were completely destroyed by Cyclone Nargis, accounting for about half of those surveyed, were at a distinct and continuing disadvantage in their ability to produce crops and to have household gardens, further reducing opportunities to earn money and to provide food for their families. Furthermore, these same households were less likely to have arable land. Reflecting their limited labour, farming and gardening options, these households are much more likely to use severe coping strategies to deal with household food shortages.

Map v: Average number of draught animals owned by households pre-Cyclone Nargis and May 2010

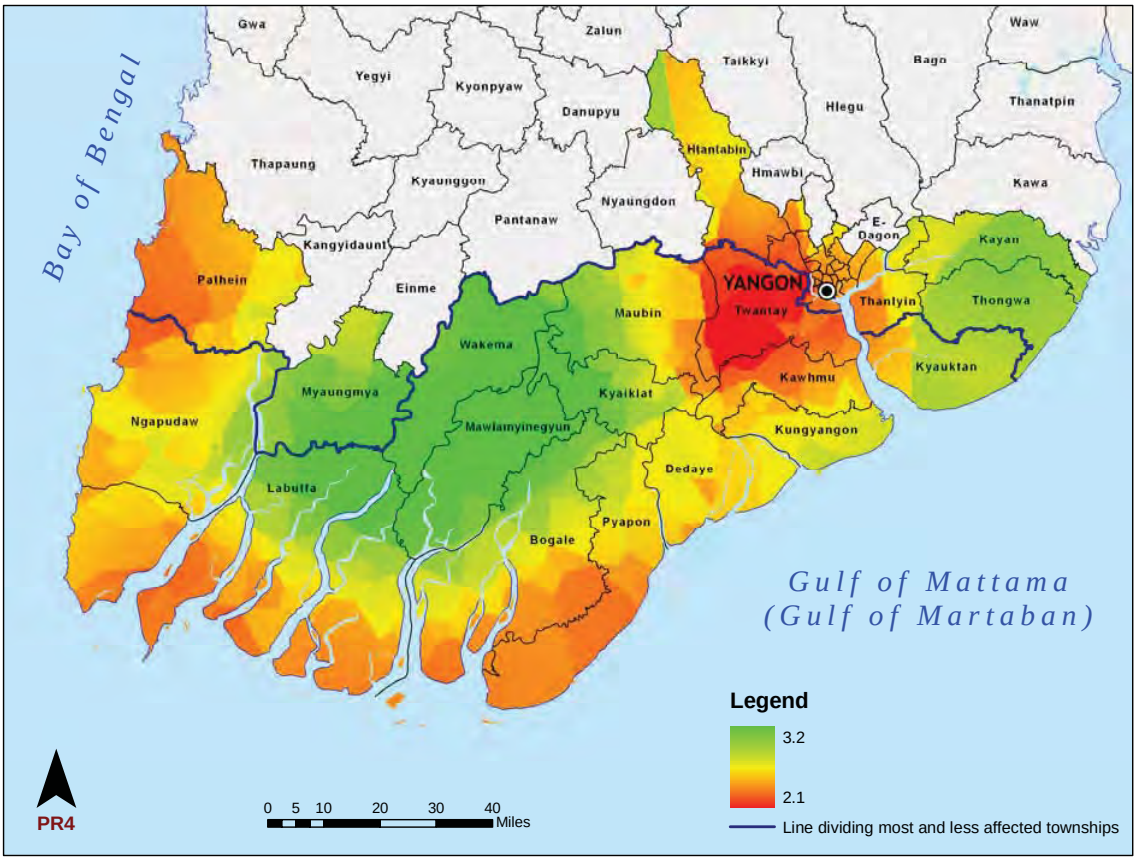


Although nearly two thirds of households reported that their dwellings were fully repaired, their dwellings were repaired to a conditi-on highly vulnerable to storms. Three quarters of dwellings lack adequate foundations and nearly all lack adequate reinforcing of walls and roofs. The absence of these features contributes to weak storm preparedness scores in many vulnerable areas (see Map vi).

The majority of the household heads indicated that their housing was poorer at the time of the assessment than before Cyclone Nargis. This is particularly the case for households that had their dwellings completely destroyed by the Cyclone; they were far more likely to report that their present dwellings were hotter, wetter and more crowded compared to before the Cyclone.

School attendance was up among children aged 11 and above, but down among those aged 5-10, compared to earlier Periodic Reviews. Cyclone damage to household dwellings continued to influence the likelihood of whether children attend school, particularly among younger children, reflecting the larger negative impacts on livelihoods observed among households which suffered total loss of their pre-Cyclone dwellings.

Map vi: Preparedness scores of household dwellings for storms or flooding



Protected lives

Cyclone Nargis not only affected individuals and families in special circumstances or with special needs, it also created many more. Many people lost their spouse as well as extended family members. Children were orphaned. Some were disabled, and others already disabled were left without supporting family to assist them. Elderly couples or individuals who lost their children or extended families found they were unable to support themselves. These people and others like them made up a special category of those left most vulnerable by the disaster.

One of the most important factors influencing the post-cyclone outcomes was whether a household dwelling was completely destroyed or not.

Women respondents were increasingly likely to report knowledge of women offered employment opportunities which can indicate vulnerability to human trafficking. Knowledge of violence against women in their village stayed constant at one in five respondents reporting knowledge of such incidents.

Cyclone Nargis disrupted lives, orphaned children and left many with new responsibilities. Two years after the disaster, about one in ten children aged 15 or less in the sampled households were not living with either parent, and were less likely to be in school than those living with both parents.

Since the disaster, an increasing proportion of households had moved from their pre-Cyclone dwellings. This movement results from the destruction caused by the Cyclone and those who moved were disadvantaged on a range of indicators; however it may be a sign of households starting afresh as younger- and male-headed households were more likely to be making the move.

The Cyclone left many people without documents, such as national registration cards (NRCs). In particular, households that had their dwellings completely destroyed were still, two years on, more likely to be without these cards compared to those whose dwellings had not been completely destroyed.

Since Cyclone Nargis, the Government of the Union of Myanmar along with international and local organisations and agencies undertook interventions to improve disaster preparedness. Despite this, only 1 per cent of household heads indicated they were completely prepared or felt completely safe in the case of another disaster. That assessment largely coincides with the reality of dwellings inadequately constructed to withstand severe wind and rain, in an area where such storms, though of less destructive power than the Cyclone, are a frequent occurrence.

Current situation

Progress is uneven across sectors and across geographic areas impacted by the Cyclone. Although the situation has stabilised in many respects, conditions are at a level lower than prior to the disaster. Health sector indicators stabilised, particulary in maternal and child health. These efforts now appear ready for transition to the longer-term development phase. However, water and sanitation interventions have yet to reach many households in need, and the potential for the spread of water-borne disease remains. Food security remains a goal rather than a reality in at least one quarter of households, which reported not having enough food to eat during the seven days prior to the assessment.

Maintaining momentum in maternal and child health, however, depends on the fundamental capacity of households to meet basic needs of food, clean water and shelter. Turning around depressed livelihoods is essential to re-building capacity for household-driven development. This calls for increased efforts to achieve recovery of livelihoods and to build back better in housing.

As this summary and report indicate, households which suffered a complete loss of housing are among those in greatest need. Single-parent and female-headed households, elderly widows and other elderly persons living without household members of working age, and those with a disability, also remain in need. Those among these vulnerable groups who lost housing to Cyclone Nargis require a particular focus.

Needs remain greatest in the most affected areas defined in the PONREPP of the Ayeyarwady and Yangon Divisions (see Map 1.6). On a range of measures, from water and sanitation to schooling of children and to occupations, these households remain at a marked disadvantage.

Chapter I: Introduction

www.aseanhtf.org/periodicreview.html

Chapter 1:

Introduction

1.1: Background

Map 1.1: Map of Myanmar

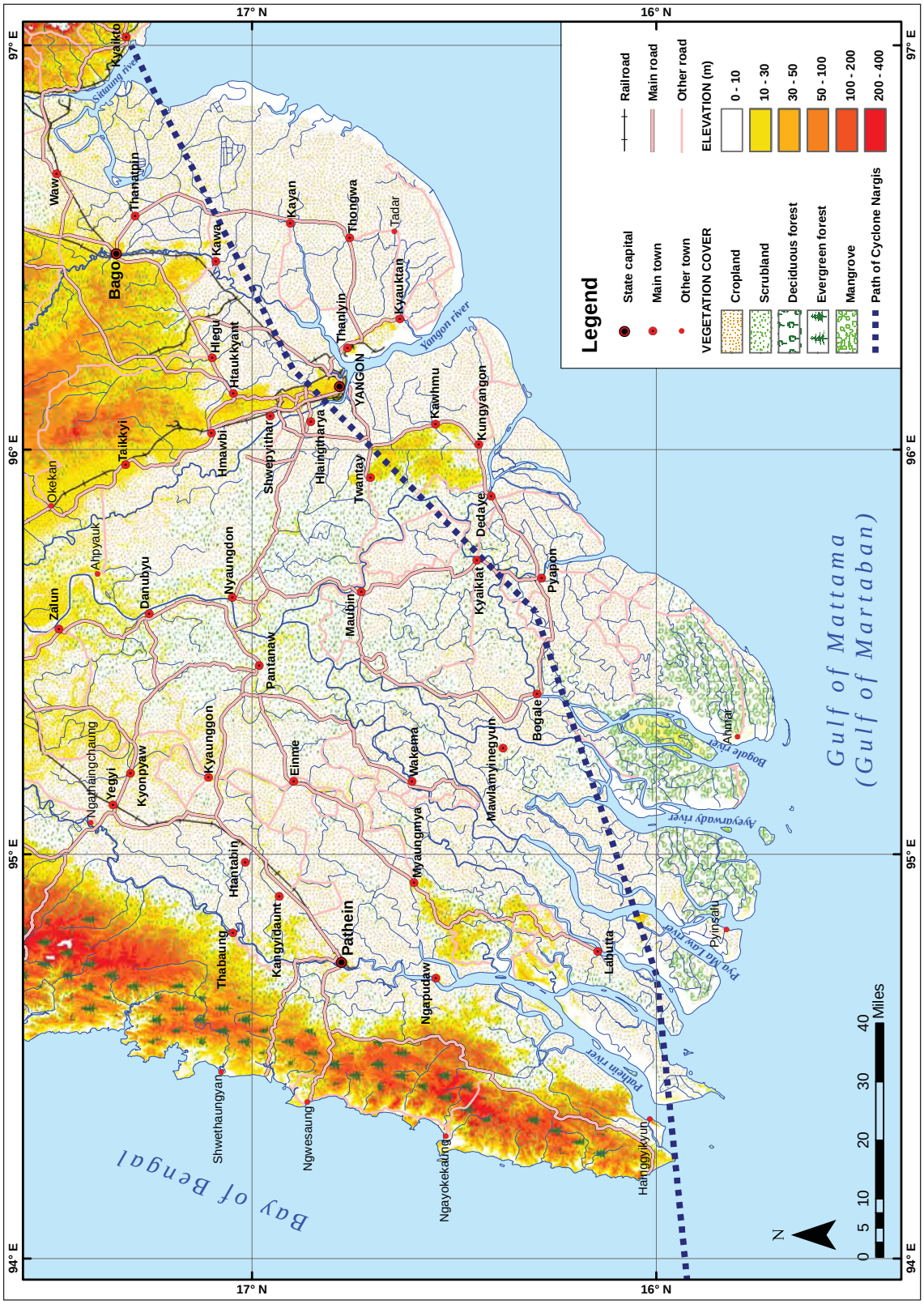
Cyclone Nargis struck the Ayeyarwady Division of lower Myanmar in the late afternoon of 2 May 2008 (see Map 1.1). The raging storm brought winds of up to 200 kilometres per hour (108 knots) and a tidal storm surge up to 3.6 metres (12 feet) high, each caused different types of damage. Over the next day and a half, Cyclone Nargis spiralled eastward, sweeping across over 50 townships and hitting Yangon, the country's most populous city and its outskirts (see Map 1.2).

Only when the winds and rains ended did the true scale of Nargis' devastation become apparent. Of the more than 7 million people affected by Cyclone Nargis, more than 2.4 million were severely affected. An estimated 140,000 people were killed or went missing[1] and approximately 800,000 people were displaced. 450,000 homes and large numbers of infrastructure components such as jetties, roads and piers were destroyed. Substantial amounts of food stocks, seed for the coming monsoon planting season, livelihood related equipment such as boats and farming implements, merchants' stock and household goods, all key to community livelihoods, were lost or ruined. The storm surge degraded soil fertility and left brackish water in the fields. The Cyclone-affected regions rapidly went through many unique and challenging transitions. For instance, as a result of the significant loss of draught animals during and after the Cyclone, some farmers had to mechanize within one season, moving from traditional tillers drawn by cattle or buffalo to modern power tillers.

Affected communities have proved resilient and resourceful in rebuilding their lives and livelihoods after the devastation caused by Cyclone Nargis. To deal with destruction of such a scale and scope, a sustained humanitarian response was planned to support the population's ability to rebuild. Within days of the Cyclone's landfall, the humanitarian community, tasked with the management of the emergency relief phase of the response, began delivering goods and services to meet immediate needs; later recovery efforts addressed medium and longer-term requirements. Despite two years of intensive and coordinated work, the devastation of Cyclone Nargis was such that continued assistance is vital for the sustained, longer-term recovery of a number of these communities.

1 Government of the Union of Myanmar (31 October 2008) Integrated Monitoring Matrix, Myanmar Information Management Unit

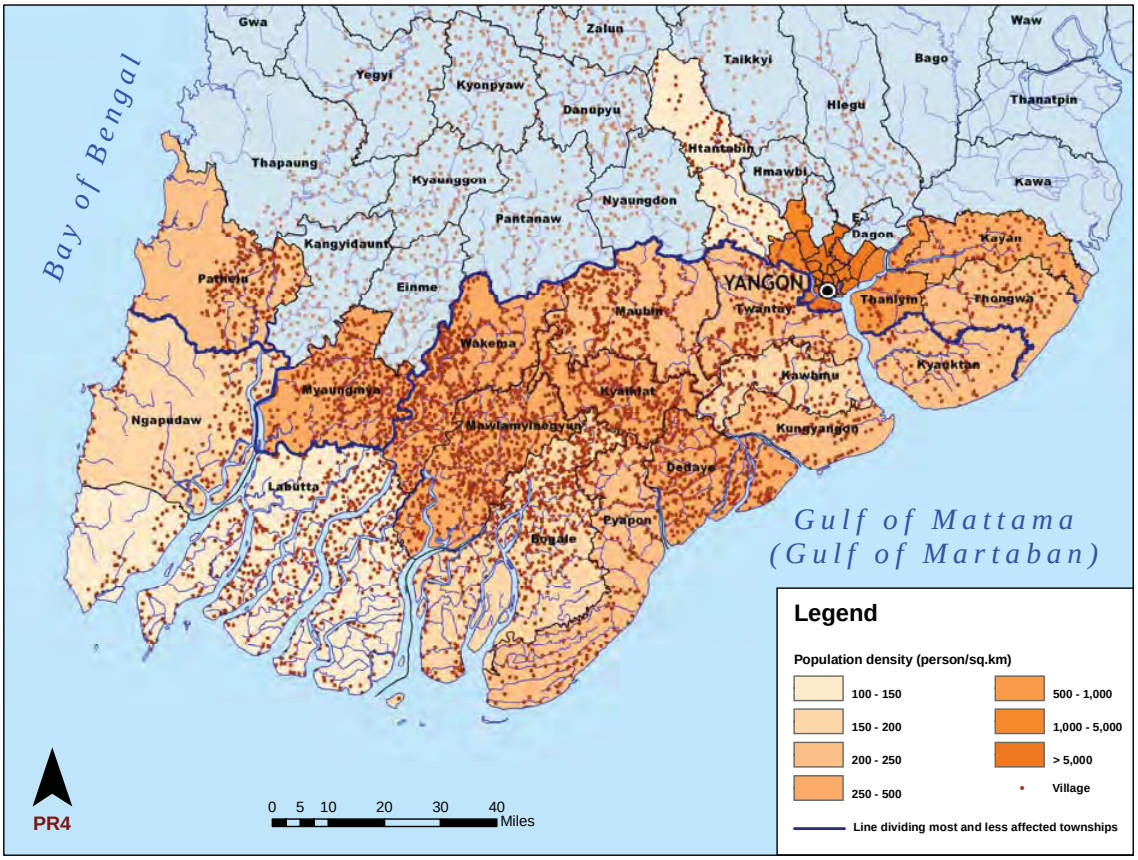
Map 1.2: Topographic map of the affected area and Cyclone Nargis' path



1.2: The Cyclone Nargis Response

The Association of Southeast Asian Nations (ASEAN), the Government of the Union of Myanmar (GoUM), the United Nations (UN), local and international non-governmental organisations (NGOs), small community based organisations, businesses and thousands of civic-minded individuals made concerted efforts to meet the relief and recovery needs of the affected population (see Map 1.3) for population distribution). Many individuals throughout the country spontaneously joined together and formed community groups to provide quick assistance. The Tripartite Core Group (TCG), consisting of the GoUM, ASEAN and the UN, was formed to help ensure smooth and strategic coordination between all actors. It was the first time that a group comprising two key international organisations working with the government to manage a humanitarian emergency had been formed.

Map 1.3: Population distribution and density



Note: Data for this map was compiled and provided by the Myanmar Information Management Unit

Close cooperation between authorities, relief agencies and communities meant that considerable progress was made in easing the hardships inflicted by Cyclone Nargis. At policy and implementation levels, the work of the TCG members supported the successful coordination of the largest joint relief and recovery effort in the history of Myanmar.

The GoUM responded to Cyclone Nargis with a number of programmes and coordinated closely with the humanitarian community to enable the response and to provide aid in affected townships. ASEAN and the UN facilitated needs assessments and follow-up on recovery plans and provided coordination support and technical assistance to the GoUM and the humanitarian community. The TCG, using ASEAN's post-Cyclone regional response strategy, provided relief and recovery intermediary models that other regional bodies could replicate in emergency situations in other geographic regions.

From the early days of the coordinated Cyclone Nargis response, the UN led the implementation of the humanitarian emergency 'Cluster System', which included participation from the GoUM, UN

agencies, international and local NGOs, as well as the private sector. Under this system, organisations working in a specific response sector or 'Cluster' work within the remit of a coordinating body which is headed by one or more lead agencies. The Cyclone Nargis response benefitted from Cluster coordination of its Agriculture; Early Recovery; Education; Food; Health; Logistics; Nutrition; Protection; Telecommunications, and Water, Sanitation and Hygiene sectors. This multi-sector Cluster approach was managed by the Inter-Agency Standing Committee, which is convened by the UN, and was used to coordinate the on-the-ground implementation of the humanitarian assistance emergency rollout. As interventions progressed, some Clusters such as the Education and Logistics Clusters became dormant and ceased to function.

By the end of the response's first year, the focus of the humanitarian effort shifted towards medium term recovery and the re-establishment of safe and sustainable livelihoods. The humanitarian emergency Cluster System ended in June 2009 and Delta Recovery Working Groups, supported by a Recovery Coordination Centre, were formed to continue effective implementation coordination. Still-operating clusters were consolidated into three Delta Recovery Working Groups: Basic Services (incorporating the Health; Water, Sanitation and Hygiene, Education and Nutrition Clusters), Livelihoods (incorporating the Agriculture and Food Security Clusters) and Social and Physical Protection (incorporating the Shelter, Disaster Risk Reduction and Protection Clusters).

1.3: Post-Nargis Recovery and Preparedness Plan (PONREPP)

In February 2009, the TCG, with the assistance of the humanitarian community, launched and implemented an indicative three-year recovery plan called the Post-Nargis Recovery and Preparedness Plan (PONREPP)[2]. PONREPP was designed to promote recovery in the affected townships over the three years from January 2009 to December 2011. As an indicative plan, the PONREPP is not a detailed programme of response or action. Instead, it is a framework to ensure a smooth transition from the emergency relief response to medium and long term recovery programming. The development of PONREPP led to the evolution from the Cluster system to the development of the Delta Recovery Working Groups based on the thematic divisions described in the PONREPP.

PONREPP's purpose is to provide a framework and sufficient information so stakeholders can effectively consolidate progress and promote durable recovery in the area affected by Cyclone Nargis. The PONREPP framework identifies medium term needs of affected populations to provide humanitarian partners with information for the review and implementation of activities designed to meet those needs. The PONREPP implementation complements the Government's natural disaster preparedness and protection plan[3], and is designed to foster community based approaches and consultative mechanisms to strengthen aid coordination and effectiveness.

To fund critical needs quickly and immediately after the Cyclone struck, a Flash Appeal for Cyclone Nargis was launched on 9 May 2008, followed by a Revised Consolidated Flash Appeal in July. The Revised Flash Appeal updated the figures in the initial Flash Appeal to US$481.8 million for the period May 2008 through April 2009 (which included the first four months of the PONREPP). As of 2 June 2010, the Financial Tracking Service Report for Myanmar Flash Appeal (Revised) 2008 for the Office for the Coordination of Humanitarian Affairs listed total contributions of US$348.7 million, including monies pledged for PONREPP[4]. PONREPP's indicative funding requirements for the period January 2009 through December 2011 totalled US$690.5 million, including funding identified for cash grant activities[5].

A Prioritized Action Plan for the PONREPP was launched in November 2009 to mobilise US$103 million in order to tackle critical gaps in five sectors up to July 2010. The five sectors targeted for support in the Prioritized Action Plan were education; health; livelihoods; shelter; and water, sanitation and hygiene. An ASEAN sponsored pledging conference was held in November 2009 to garner support for the Prioritized Action Plan. Since this ASEAN pledging conference, US$97.5 million was committed and US$76.6 million (78 per cent) was released by donors to implementing partners and to trust funds.[6]

2 Tripartite Core Group (December 2008) Post-Nargis Recovery and Preparedness Plan
3 National Disaster Preparedness Central Committee (NDPCC) of the Government of the Union of Myanmar (15 August 2008) Programme for Reconstruction of Cyclone Nargis Affected Areas and Implementation Plans for Preparedness and Protection from Future Natural Disasters
4 United Nations Financial Tracking Service Report for Myanmar Flash Appeal for the Office for the Coordination of Humanitarian Affairs, (Revised June 2010). Note this data is voluntarily contributed by donors and may not reflect all pledges or funds committed
5 Tripartite Core Group (December 2008) Post-Nargis Recovery and Preparedness Plan, p. 12.
6 Coordinating Officer for the ASEAN Humanitarian Task Force (July 2010) PONAC Delivery Update, p. 1.

1.4: The TCG Assessment and Monitoring System

In September 2008, the TCG initiated a comprehensive results framework and monitoring system to ensure that the relief and recovery efforts of all partners would effectively address the needs of the affected population and to provide a reporting system for the TCG analyses of the response. The framework included three components: results monitoring, aid tracking, and community monitoring[7].

The first TCG assessment efforts were the Village Tract Assessment (VTA) and the Damage and Loss Assessment (DALA), which together comprised the TCG-led Post-Nargis Joint Assessment (PONJA). The PONJA was a multi-party, multi-sectoral assessment initiated under the auspices of the TCG in the immediate aftermath of Cyclone Nargis. The goal of the PONJA was to determine the full scale of the disaster and to assess the needs for both immediate humanitarian assistance and medium-to-long term recovery. The DALA and the VTA were conducted in the southern parts of Ayeyarwady and Yangon Divisions from 10-19 June 2008. The DALA assessed the damage and loss to physical property and to infrastructure at the macro level. The VTA identified relief and early recovery priorities at the household level in a number of affected areas to be addressed by the various Clusters. The VTA provided the foundation for the Periodic Reviews that followed.

The TCG initiated two complementary monitoring assessment processes to provide data for the analysis of the response. The Social Impacts Monitoring (SIM) surveys were developed to examine the impact of Cyclone Nargis and the aid effort via qualitative social monitoring. The Periodic Review (PR) series of assessments were developed to focus on change at the household level as reflected by quantitative data. With the end of the TCG mandate in July 2010, it was suggested that the GoUM continue the work of the SIM and the PR assessments in some form in order to assess the longer-term impact of the Cyclone Nargis response.

1.4.1 Social Impacts Monitoring Surveys

Three Social Impacts Monitoring surveys have been undertaken to date to examine the impact of Cyclone Nargis using qualitative data. The first SIM report was made public in January 2009, SIM II became available in December 2009, and the third SIM is due to be launched in July 2010. SIM studies use in-depth qualitative interviews, focus groups, and discussions to gather data from affected communities.

Social Impacts Monitoring (SIM I)

SIM I[8] used qualitative research to examine the impact of Cyclone Nargis on 40 villages in 8 townships six months after the storm's landfall and the start of the relief effort. The social dimensions of the impact of both the Cyclone and of subsequent aid delivery was examined from the perspective of affected communities. Aid effectiveness, the impact on the socio-economic structure of village life of both the Cyclone and the aid effort, and the impacts of both on social relations and cohesion were the foci of the study. Villages and villagers were selected to be representative of affected areas based on livelihoods, distance from urban centres, and level of cyclone damage criteria.

Social Impacts Monitoring (SIM II)

The second SIM[9] was conducted a year after the Cyclone, in July 2009. The focus of the Report remained on the same areas as those focused on in SIM I: aid effectiveness, the socio-economic impact of the disaster, and the impact on social relations within and between communities.

The analysis of the data collected for SIM I raised concerns about the possibility that villages may fall into debt traps, and the data collected from over 2,450 villagers in 40 villages in 8 townships, and analysed for SIM II also highlighted the continued importance of the debt issue. SIM II included an in-depth study of the credit market in the affected areas the Credit Market Analysis (CMA). The CMA collected data from discussions involving 320 people and focused on borrowers and lenders at the township level. The CMA analysed different aspects of borrowing and lending including credit supply, demand and shortfalls; terms and use of credit; and default implications.

7 Tripartite Core Group (December 2008) Post-Nargis Recovery and Preparedness Plan, p. 68-69.
8 Tripartite Core Group (2008). Post-Nargis Social Impacts Monitoring I (SIM I).
9 Tripartite Core Group (2009). Post-Nargis Social Impacts Monitoring II (SIM II)

Social Impacts Monitoring (SIM III)

The third SIM[10] study was undertaken in March and May 2010. Like its predecessors, SIM III examined aid effectiveness, the disaster's socio-economic impact and its impact on social relations within and between communities in 40 villages in 8 townships. The study used focus groups, group discussions and in-depth interviews to gather information. However, unlike SIM I and SIM II, which covered six month time periods, the third SIM covered one year. Livelihoods remained a key focus of the study, which was released coinciding with the end of the TCG mandate.

The SIM III showed that aid to the sampled villages continued to decline over the past year and local coordination remained minimal. At the same time, a significant disjuncture between aid provision and the needs of certain groups in the community was observed. There were signs of a recovery in the farming sector though output in the majority of villages was still over 30 per cent below pre-Cyclone Nargis levels. The situation of fishermen deteriorated significantly over the year preceeding the study due to a decline in fish stock and a lack of credit and livelihood support. Debt continued to undermine the prospects for recovery, with the poorer groups (small farmers, fishermen, and labourers) carrying the greatest debt burden. In most aspects of village life, there was little change over the year preceeding the study and social relations within and between villages were good. Relations between villagers and their leaders were good or fair in the majority of the villages studied. The research showed that the capacity of individual leaders, and the strength of the relations between them, played a central role in determining aid effectiveness.

1.4.2 Periodic Review Assessments

The TCG instituted the PR series of monitoring assessments in September 2008 to provide objective appraisals of relief assistance received, status and current needs at household level of people across the area affected by Cyclone Nargis. The goal of the PR assessments was to generate quantitative data that humanitarian actors could use in strategic planning and in targeting assistance, thereby accelerating recovery. The first Periodic Review (PR I) report was released in December 2008, with subsequent reports released in July 2009 (PR II) and February 2010 (PR III). The present report is the fourth Periodic Review (PR IV).

While each Periodic Review shows needs at a particular point in time, the series shows the progress of the recovery in the two years since Cyclone Nargis. As with earlier assessments such as the VTA and the DALA, which informed the PONJA, the PRs were designed to assist all stakeholders involved in Cyclone Nargis related humanitarian assistance, including donors, to aid in strategic planning for their interventions and activities.

Inclusiveness, cooperation, consultation and transparency with stakeholders were fundamental components of the preparation and production process of the PRs. PR teams consulted closely with representatives from the Clusters and the subsequent Delta Recovery Working Groups throughout the PR process. These consultations covered the creation and review of the survey design, selection of indicators, setting of thresholds where appropriate, and analysis of data.

The PR I benefited from the lessons learned in the PONJA, and the VTA indicators and analysis methods were further refined for PR I. Periodic Reviews II, III, and IV undertook a 'lessons learned' process from the preceding PR to review methodology and questions and make any necessary changes. These reviews and changes were designed to improve the quality of data and to reflect the stage of the response in each new round of household assessments. Viewed as a series, the PR survey instrument gradually shifts emphasis from emergency needs to medium-term recovery requirements.

Data developed for the first PR was designed before PONREPP and around the Cluster system that facilitated the implementation of the immediate relief response. At the end of the first year of the response, the Cluster system ceased and Delta Recovery Working Groups that reflected the thematic areas of the PONREPP were established as coordinating mechanisms. Data was developed for the second, third and fourth PRs in a structure that reflected the three thematic areas in the PONREPP (Healthy Lives, Productive Lives, and Protected Lives) rather than in a structure designed around the Clusters; however, data for the later PRs stayed consistent with the overall data design of PR I and the VTA. Final editorial control for all PRs rested with the TCG.

10 Tripartite Core Group (2010). Post-Nargis Social Impacts Monitoring III (SIM III)

Periodic Review teams were guided by two advisory boards, members of which represented the three components of the TCG. The first of these, the Technical Advisory Group, provided technical advice and background information to the PR teams on methodology, on the scientific aspects of specific indicators and on potential uses for PR data. The second, the Strategic Advisory Group, provided strategic advice to ensure that the PR stayed within its mandate of assisting, with the mobilisation of resources in a timely manner and effectively communicating relief and recovery progress to various stakeholders.

Periodic Review I

The first PR Report[11], was published six months after Cyclone Nargis ravaged lower Myanmar, based on data collected between 29 October and 19 November 2008. The results showed that while access to health care and child nutrition had improved in the affected areas, a substantial number of households still lived in inadequate shelters and had not fully recovered their livelihoods. Many households would take several years to fully recover from the devastation.

Although humanitarian assistance was significant, PR I found that the depth and geographical coverage of the response was yet to be sufficient to meet all needs. PR I found that many challenges were linked and cut across sectors: for example, interactions between the health system, nutrition, food, shelter and sanitation led to improved health outcomes. PR I recommended greater coordination and horizontal integration of programming to address the complexity of that interdependence when addressing the needs of cyclone-affected communities.

Periodic Review II

Data collection for the PR II[12] assessment was undertaken from 7 May to 2 June 2009. The PR II report, released in July 2009, included new sections on protection and women. The analysis found that while the effort to support basic needs such as food, nutrition, water, sanitation and hygiene had made significant progress, sectors such as shelter and agriculture had received insufficient assistance, had not returned to pre-disaster conditions and required increased and immediate efforts, as determined by the needs of the households. Livelihoods of all types remained insecure compared to before Cyclone Nargis.

PR II found that while assistance since the Cyclone had resulted in a reduced number of needs, efforts were geared toward restoring conditions to the same level as before the storm. Since pre-Nargis conditions had been weak and in need of further strengthening in many sectors, PR II identified several opportunities for meeting the longer term challenge of 'building back better'. The report reinforced support for the various multi-sector efforts led by the members of the TCG in collaboration with the wider humanitarian community that were seen as essential for successfully addressing the longer-term challenges of recovery in the affected areas.

Periodic Review III

The PR III[13] report analysed data that had been collected between 21 October and 19 November 2009. This was the first Periodic Review that looked at the needs and activities on disaster risk reduction since Cyclone Nargis. The PR III found that health, sanitation and food assistance had reached the most affected townships and that health improved as measured by child mortality, child nutrition and the availability of clean water and health care. The study found that 14 per cent of school-children aged 11-15 had not attended school prior to Cyclone Nargis. Young people in this age group who were not currently going to school cited the need to work as the main reason for not pursuing their education. Shelter continued to need ongoing support. The study found that livelihood related needs especially needed to be addressed, since loss of land, chronic unemployment and economic stagnation created the potential for a second crisis in cyclone-affected communities.

Periodic Review IV

The PR IV is the final Periodic Review exercise undertaken under the TCG mandate. Data for the PR IV was collected from 3 May to 29 May 2010 representing the same 30 Cyclone Nargis-affected townships including a township near Yangon City, which was used to represent 15 townships in Yangon Division with similar conditions.

11 Tripartite Core Group (November 2008) Periodic Review I
12 Tripartite Core Group (July 2009) Periodic Review II
13 Tripartite Core Group (January 2010) Periodic Review III

1.5: Interpreting Periodic Review IV Results

As in previous Periodic Reviews, the fourth monitored the status of Cyclone Nargis-affected households on a number of dimensions in the two years since the disaster, looking at the worst-affected areas. The purpose of this monitoring was to show change or progress in affected areas that can inform decisions on developing, evaluating or adjusting assistance strategies.

Findings are primarily presented grouped by the PONREPP themes of Healthy Lives, Productive Lives and Protected Lives. Where possible, results from PONJA and previous Periodic Reviews are used for comparison to show trends at the household level, demonstrating progress in some areas and continuing needs in others.

1.5.1 Comparisons with previous periodic reviews

Annex 5.2 shows the similarities between questions used in the four different Periodic Reviews. Revisions to the survey instrument were carried out through consultations with key stakeholders from the Clusters or Delta Recovery Working Groups, UN agencies, NGOs and the GoUM. These consultations ensured that the assessment tools would be appropriate to specific stages of the Cyclone Nargis response, to local culture and language, and would best serve the needs of the broad humanitarian community. The prime example of the latter is the addition in PR III of a Disaster Risk Reduction component, enlarged for the PR IV. The Periodic Review assessments consistently tracked 46 dimensions of household life through all Reviews.

1.5.2 Indicators – Definition and use

An 'indicator' is a measurement of the variation in responses from households in the Periodic Review assessment of a dimension or attribute. Sometimes an indicator requires only the response to a single question, while in other cases an indicator is developed from a set of questions. Many Periodic Review indicators are of the single-question type, and expressed as frequencies or percentages, as for example, the percentage of households reporting health personnel available at the nearest health facility. Compound indicators incorporate multiple responses. For instance, assessing whether households are eating well involves combining information regarding the types of food eaten, frequency of meals, and borrowing as well as other coping strategies to obtain food.

The enumerators collected the PR IV information through interviews of household heads and of one woman per household. The interviews were conducted by trained enumerators using a questionnaire with mostly closed questions that required 'yes' or 'no' responses, numbers, quick and straightforward physical measurements, and observation. The questionnaire can be found in Annex 5.3.

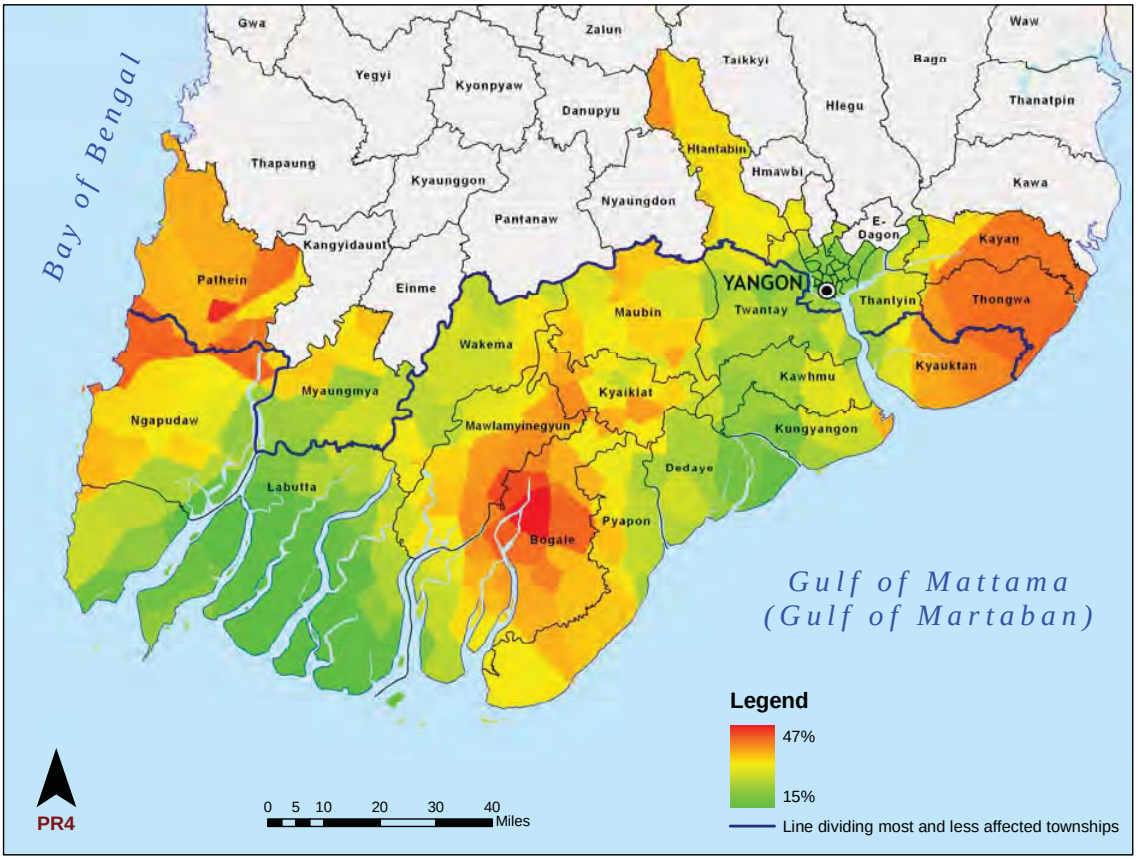
1.5.3 Data interpretation and use

This report presents results both in text and in visual formats (charts and maps). Maps show the distribution of indicator estimates over the assessment area. To enable the reader to quickly distinguish between better- and worse-off areas, the maps contain colour shadings that reflect the variation of the estimates over the geographic area (see Map 1.4 for an example).

Each map contains the following elements:

1. Title - General description of the mapped indicator.
2. Legend - A gradated legend goes from green to red on each map. Green is meant to convey a positive message, and red means there is room for improvement. For maps showing needs, red indicates the highest level of need. For maps depicting delivery of aid, behaviours, or possession of assets, green represents the most positive level. A gradation of light green, yellow and orange represent values between the extremes of the indicator in the area.
3. Data range - The legend shows the highest and lowest values in the indicator range for the mapping area. Each map has a range of measurement specific to the data that it depicts.
4. Scale bar - The scale bar shows how a distance on the map corresponds to a distance on the ground.
5. Maps series - Selected attributes are mapped across the Periodic Reviews providing a clear visual demonstration of change over time.

Map 1.4: Children aged 6 months to 5 years with fever in the prior 14 days

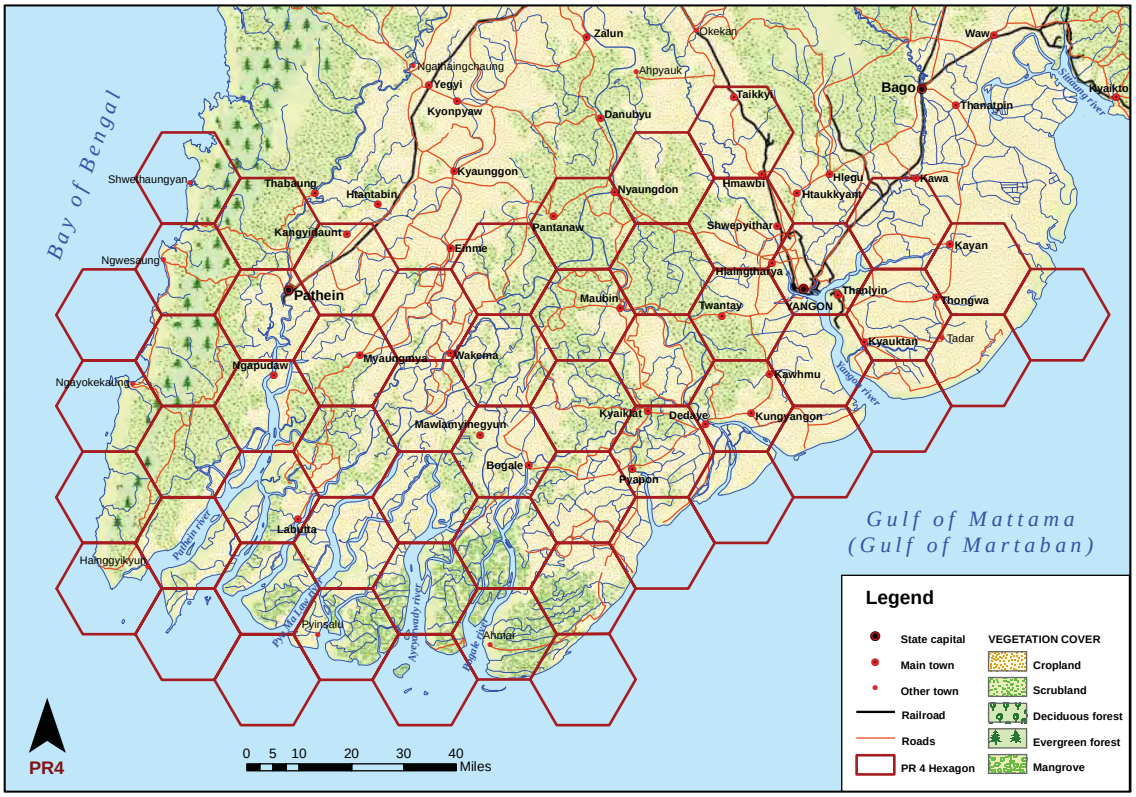


1.6: Assessment design

The PR assessment series, like the VTA, defined its sampling area as the worst-affected townships (listed in Annex 5.4). 'Worst affected' areas are those that experienced a loss of life and/or property that had an impact on the livelihoods of individuals, families or communities. Trend analysis, which asks the same questions of different samples of the population over time, was employed in the series of PR assessments.

Like its predecessors, the PR IV used a two-stage sampling design. The primary sampling units were communities sampled from the Cyclone-affected area (30 townships) and the secondary sampling units were households within the selected primary sampling units. Primary sampling units were selected using Centric Systematic Area Sampling, which divides the sample area into 56 non-overlapping and equal-sized hexagonal areas (see Map 1.5).

Map 1.5: The sampling area of townships worst affected by the Cyclone, covered by 56 non-overlaping equal-sized hexagons



The community located closest to the centre of each hexagon was selected for the sampling and data from one community, in each of the 56 hexagons, was used to develop analyses shown on maps and for overall estimates. However, in order to ensure that each township was represented adequately in the data, 12 extra communities were sampled to ensure that data from 75 households per township were available. Information from the additional communities is included in annex 5.5. For consistency with the geospatial sampling applied in all other Periodic Reviews, the additional communities are not included in mapping. The hexagonal sampling method provided a way in which variations in a situation and the continuing needs of communities could be represented in easy-to-understand maps, presenting results for a strategic audience. Annex 5.6 provides greater detail of the sampling methodology.

A total of 1,400 households in 56 communities in 18 townships were selected and assessed during May 2010. Then 25 households were sampled per community, except for two communities with fewer than 25 households. The sample of 1,400 households included a total number of over 6,000 household members, with an average of 4.55 members per household.

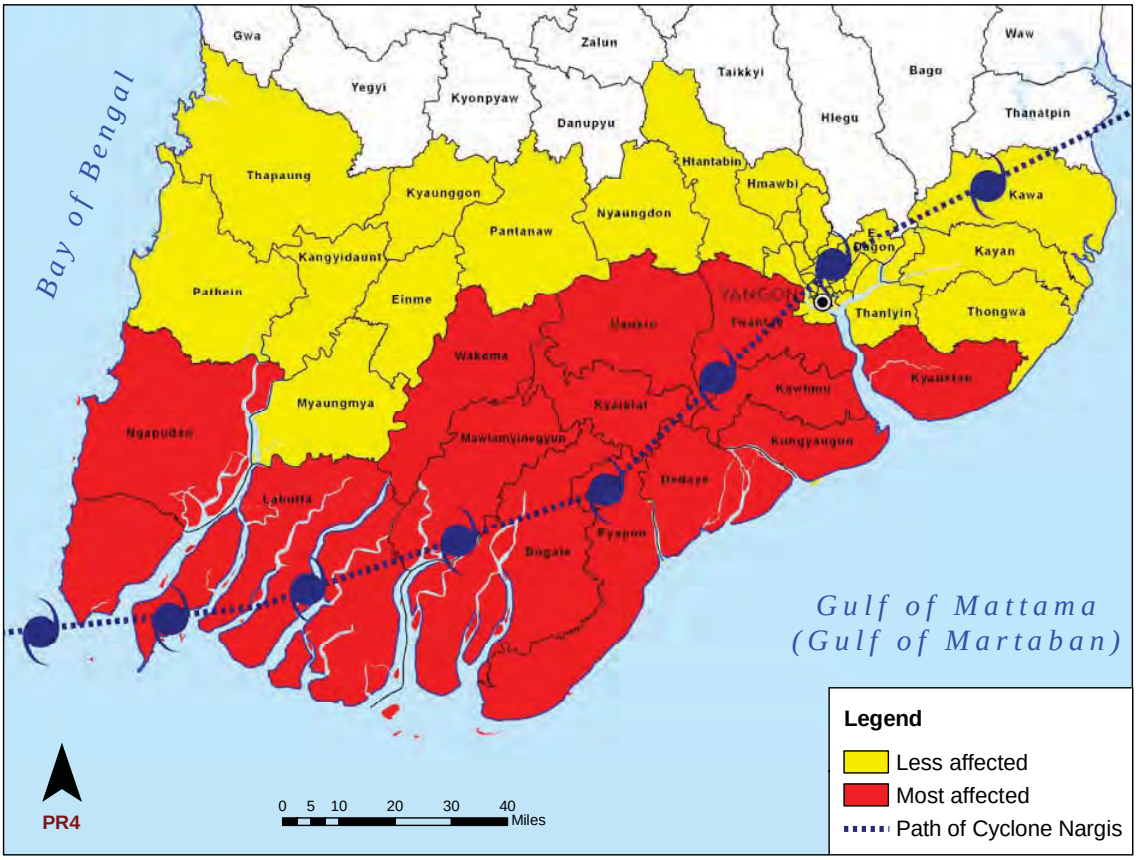
1.7: Disaggregation of data

PR IV covers the same overall geographical area as the previous Periodic Review assessments. PR IV also calculates township estimates for the townships sampled (see Annex 5.5).

1.7.1 'Worst affected' and 'Less affected' areas

Map 1.6 shows the division of 'most affected' and 'less affected' areas as defined in the PONREPP Handbook. Out of the townships sampled in PR IV, the 'worst affected' area in this case is defined as the 13 townships located in the path of Cyclone Nargis and immediately nearby. Most, if not all, of the most affected townships in the PR IV sample are located in the southern parts of Ayeyarwady and Yangon Divisions.

Map 1.6: Townships most and less affected by Cyclone Nargis



PR IV defines 'less affected' area as those townships located neither directly along the path of Cyclone Nargis nor immediately nearby. The townships covered by PR IV are listed in Annex 5.4.

1.7.2 Township level

The PR IV data was disaggregated at township level in order to provide an overall picture specific to a certain township. In some cases, a second village was included in a hexagon to ensure that each township had data from at least 75 households.

1.7.3 Demographic groups

To better understand vulnerability within the larger sample, PR IV also disaggregated data by demographic groups of the sampled population based on household heads:

- Male and female-headed households
- Elderly- and younger-headed households
- Housssehold heads in dwellings completely and not completely destroyed by Cyclone Nargis

The PR IV sample included no households headed by minors.

1.8: PR IV SAMPLE CHARACTERISTICS

The following table provides more details on the PR IV sample characteristics.

					n	% (of total)
Total townships sampled					25	
Total villages sampled					56	
Average village population sampled					1029	
Total persons sampled					6,370	
Total population of the sampled villages					57,609	
Household types						
Total households sampled					1,400	
	Male	(%)	Female	(%)		
Female-headed households	-	-	189	100	189	14
Elderly-headed households	160	66	83	34	243	17
People with disability-headed households	36	84	7	16	43	3
Household with disabled members	71	54	61	46	132	9
Landless households	806	86	133	14	939	67
Average household size					5.5	
Age structure	Male	(%)	Female	(%)		
Children					3,698	58
6 months or younger	30	45	37	55	67	1
6 months - 5 years	499	50	499	50	998	16
5-10 years old	382	49	398	51	655	12
11-15 years old	328	49	338	51	666	10
16-18 years old	196	50	195	50	391	6
Between 65 and 110 cm	384	48	412	52	796	13
Young adults (19-35 years old)	915	49	946	51	1,861	29
Middle-aged persons (36-44 years old)	339	48	361	52	700	11
Elderly persons (60 years or older)	667	48	725	52	1,392	22
Sex					6,370	
Men					3,108	49
Women					3,262	51
Languages	Male	(%)	Female	(%)		
Bamar	2,730	49	2,869	51	5,599	91
Kayin	275	50	275	50	550	8
Rakhine	102	47	117	53	219	<1
Economic activities	Male	(%)	Female	(%)		
Seasonal casual labour	819	70	353	30	1,172	27
Household	16	2	944	98	960	22
Farming	593	75	192	25	785	18
Jobless	189	36	331	64	520	12
Other	264	65	143	35	407	9
Trader	77	22	266	78	343	8
Fishery	202	90	22	10	314	5

Findings

www.aseanhtf.org/periodicreview.html

www.aseanhtf.org/periodicreview.html

Chapter II: Healthy Lives

www.aseanhtf.org/periodicreview.html

Chapter 2:

Healthy lives

2.1: Health

Cyclone Nargis had a severe impact on the health system and its capacity to deliver essential services, destroying 130 health facilities and significantly damaging another 500. At the same time, the Cyclone increased healthcare needs and decreased the ability of households to pay for treatment.

Two years after Cyclone Nargis, the physical health of the people living in the Ayeyarwady Delta and Yangon Division has stabilised in many aspects because of Government and humanitarian agencies efforts to improve access to food, health care, disease-prevention activities, clean water and sanitation. Despite this stabilisation, unequal health impacts were still seen across geographical areas among more vulnerable households. Those who lost dwellings due to Cyclone Nargis were less likely than others to have access to adequate water supply and sanitation.

This chapter provides a snapshot of the physical health status of people surveyed, but does not include any information on their psychological health, such as the extent of trauma resulting from loss of family members. Further, it details comparative figures from earlier Periodic Reviews regarding the following:

1. Access to and use of health care services
2. Child health
3. Water and sanitation
4. Nutrition, including food security and assistance.

'Children' in this chapter refers to those aged between 6 months and 5 years unless otherwise indicated. Children from this age group were identified as having a height of between 65 and 110 centimetres, as measured by survey enumerators.

2.1.1 Health facilities

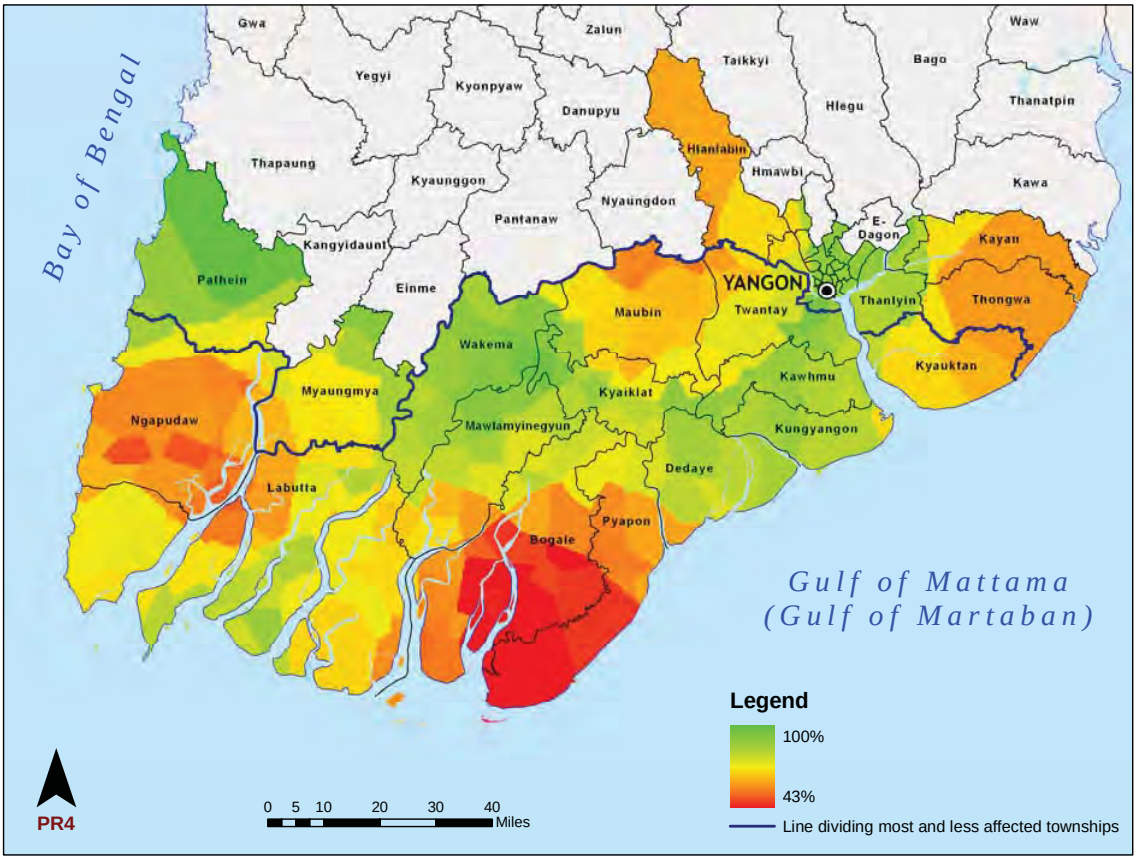
Cyclone Nargis destroyed many health facilities and limited household access to health services due to the destruction of bridges, roads, paths and means of transport, including the loss of boats, making travel to remaining health facilities difficult and time consuming. Recovery efforts have worked to overcome these problems.

Access to health facilities

To determine the extent of health care services the Periodic Reviews looked at the percentage of households reporting that the nearest health facility is within one hour travel from their homes. The most common way to reach the health facility was to walk. Among the 1,361 household heads answering this question, 60 per cent reported walking. The next most common method was to use a motorised boat, with 22 per cent of the households using this method. Reaching health services in a timely manner remains difficult for some PR IV respondents given that a single trip may require walking, a boat ride and use of a taxi or motorcycle.

Each Periodic Review has shown a similar pattern, with around three-quarters of the respondents indicating that they could reach a health facility within one hour. At the time of PR I, this was true for 77 per cent of those interviewed; PR II, 75 per cent; for PR III, 72 per cent; and in PR IV, 78 per cent. Spatial variation, however, is evident. In PR IV, coastal areas illustrated in red travelled longer to reach health facilities (see Map 2.1). As many as 43 per cent of households reported that it took over an hour to reach a health centre. Among communities close to Yangon City and Pathein Township all households had access to a health facility within one hour.

Map 2.1: Households that indicated a health facility was within an hour of their dwellings



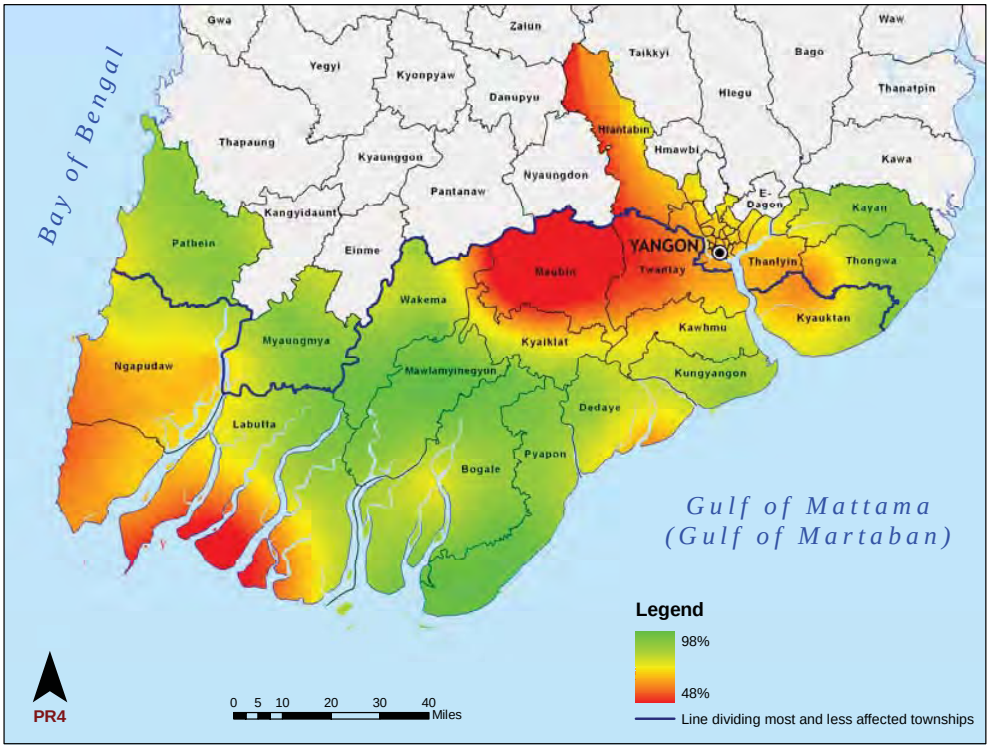
Service availability at health facilities

The Periodic Review assessed the availability of health care providers and medicine. In the PR I and PR II assessments, 91 per cent of households indicated that health personnel were available all or most of the time at the health care facilities closest to their communities. In PR III, the figure was 94 per cent, while in PR IV, among the households who answered the question, it was 93 per cent. The consistency over time for this indicator suggests that health services in the surveyed areas have stabilised.

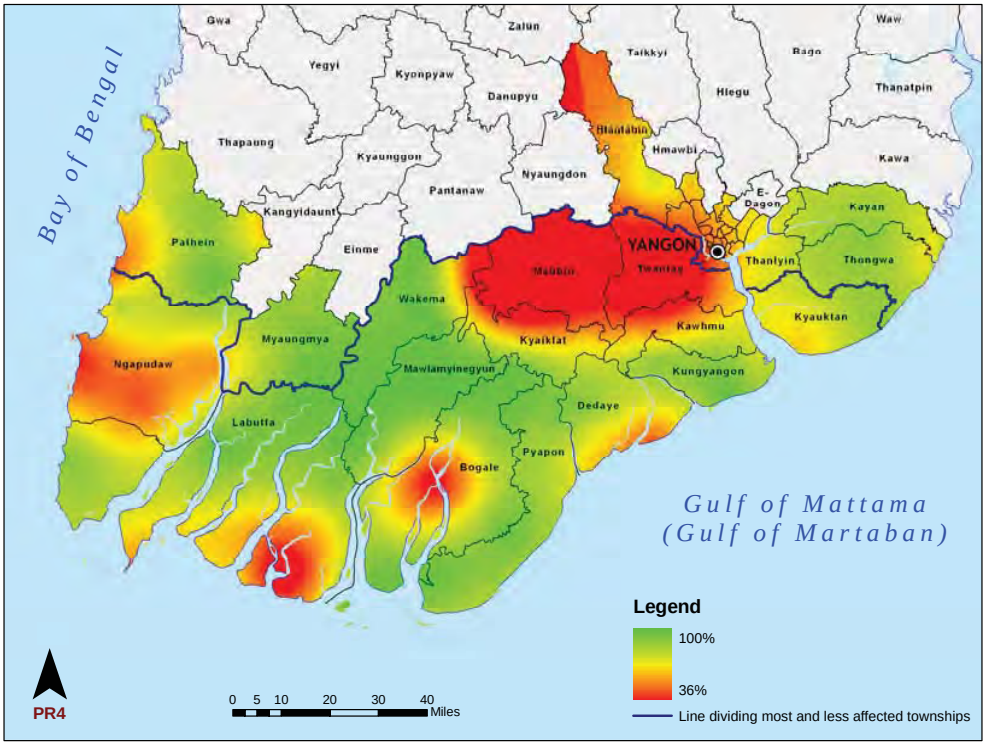
Another sign of improvement of the health facilities since Cyclone Nargis is a steady rise in the percentage of households that responded that their nearest health facility had medicine all or most of the time. In the PR I, 76 per cent of respondents indicated this; PR II, 85 per cent; PR III, 88 per cent and in PR IV, 92 per cent.

Although the Periodic Review series of assessments indicates an overall improvement in services at health facilities, some communities still lack services, 1 per cent of respondents said the nearest health clinics never had medicine. Communities west of Yangon City were more likely to report that there was a lack of medicine in their nearest health facility, with only 48 per cent of households believing there was adequate medicine available at their nearest health centres, compared to 98 per cent of households perceiving this to be the case in other areas surveyed (see Map 2.2). These communities were also less likely than other communities surveyed to report that health personnel were available at their nearest health facility all or most of the time, 36 per cent of Maubin households, compared to 98 per cent across the affected area, and a high of 100 per cent in Mawlamyinegyun Township (see Map 2.3).

Map 2.2: Households that perceived that medicine is available all or most of the time at the nearest health facility



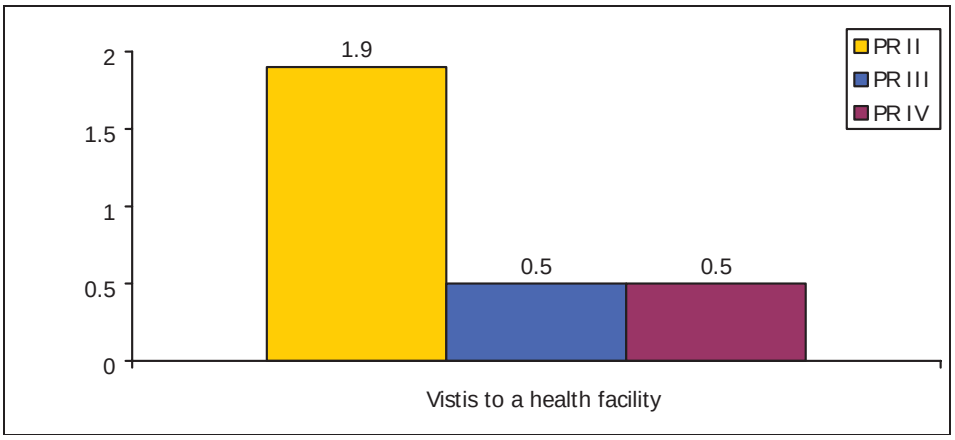
Map 2.3: Households that perceived health personnel are available all or most of the time at the nearest health facility



Use of health facilities

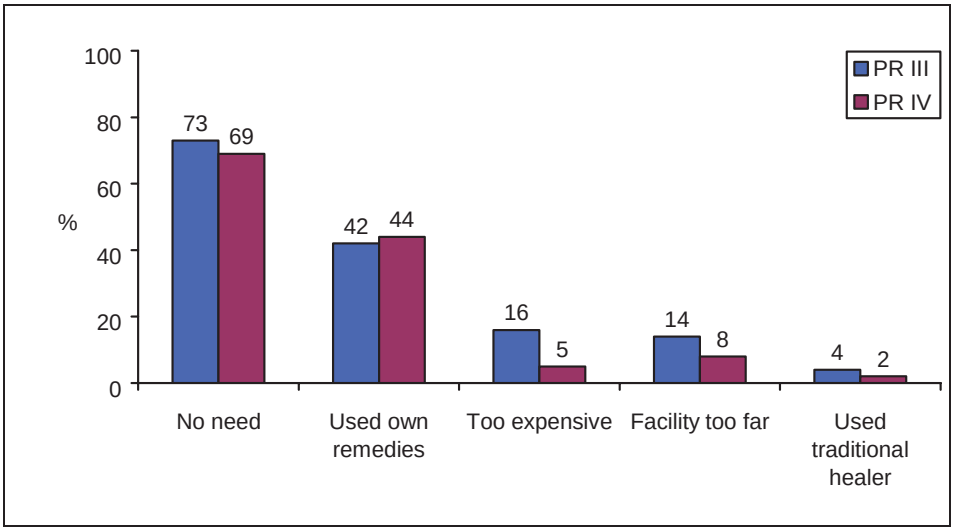
How often household members go to a health facility is a guide to their health problems, although some households will not visit health facilities even when a family member is sick because of financial barriers, facilities are too far, and a range of other reasons. In PR II, households visited health facilities an average of 1.9 times in the 12 months before the assessment (see Graph 2.1). In PR III, this had fallen to approximately 0.5 times, equal to household-reported health facility visits in PR IV.

Graph 2.1: Average number of health facility visits per household in the last 12 months (PR II, PR III and PR IV)



Household heads offered various reasons why family members did not visit a health facility in the last 12 months (see Graph 2.2). Excluding the respondents who had visited a health facility and thus did not answer this question, in both PR III and PR IV the main reason why household members had not visited a health centre in the previous 12 months was that they felt healthy or saw no need. Close to three quarters of PR III respondents indicated this, while this was the case for 69 per cent (n=653) of the households that did not visit a health facility in the last year in PR IV.

Graph 2.2: Main reported reasons why household members did not attend a health facility in the last 12 months (multiple responses allowed) (PR III and PR IV)



For households that had health problems but whose members did not attend a health facility, the main reason in PR III and PR IV surveys was that they used their own remedies to address health

problems (42 per cent and 44 per cent). A lesser proportion of PR IV respondents indicated that they did not attend a health facility because the services were too far or too expensive compared to PR III. The percentage of respondents mentioning the lack of medical staff and medicine as reasons for not attending a health facility was low.

Reproductive health services

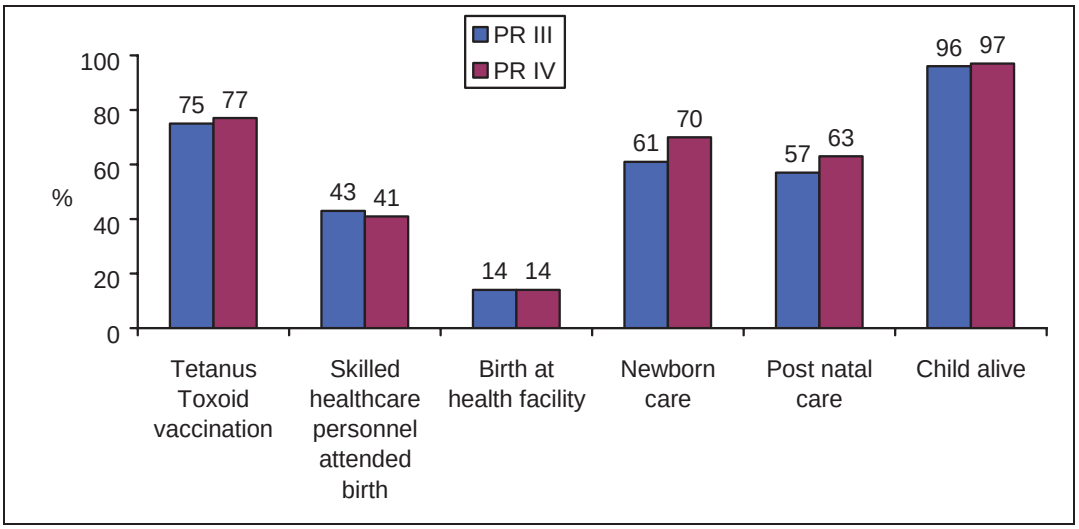
Unattended birth at home poses risks for a pregnant woman and her child. Public health practitioners strongly recommend that pregnant women deliver their babies in a health facility supervised by a qualified health provider (including auxiliary midwives) to reduce the incidence of morbidity and mortality during and after childbirth of both the newborn child and the mother.

Pregnancy

Data from PR IV suggests improvements in reproductive health of both mothers and their newborn children since PR III (see Graph 2.3). Among PR IV respondents, indicators for child and maternal health either equalled or exceeded those of PR III. One important difference between PR III and PR IV, is the extent of newborn care in the first four to six weeks. In PR III, 61 per cent and PR IV, 70 per cent of the 274 newborn children were examined within the first six weeks of life.

In PR IV, of the 335 women who became pregnant in the two years since Cyclone Nargis, 82 per cent delivered a child. At the time of the survey, 12 per cent of the women were currently pregnant, and another 7 per cent of the women aborted the pregnancy or had a still birth. Post-Nargis child mortality remains roughly comparable to previous Periodic Reviews; 3 per cent of the 274 children born in the two years since Cyclone Nargis died compared to 4 per cent of births reported in PR III.

Graph 2.3: Maternal and child health care services and child survival outcomes (PR III and PR IV)



Teenage pregnancy heightens the health risks to both the mother and the child and reduces the opportunities that young women can pursue. Only two births occurred among mothers younger than 18 in the surveyed households in the past two years and there were no reported pregnancies among girls younger than 17.

An important finding in PR III was that the communities in the areas most affected by Cyclone Nargis tended to have better reproductive health care compared to those in areas less affected. This finding was striking and can possibly be explained by the efforts of the humanitarian community targeting health aid to the most affected areas.

In PR IV, the differences in reproductive health between the most and less affected areas have disappeared.

2.1.2 Child health

To assess the health status of children in the affected areas after Cyclone Nargis, the Periodic Reviews looked at nutrition, exclusive breastfeeding of babies younger than 6 months, the coverage of immunisations against Measles and Diphtheria, Pertussis and Tetanus (DPT), and the incidence of diarrhoea and fever among children aged between 6 months and 5 years.

Child nutrition

Providing adequate nutrition during the crucial neo-natal, infancy and childhood periods is an important pre-condition to optimal physical and mental development of children. Inadequate nutrition is a key risk factor and frequent cause of death among children younger than 5 years. The absence of malnutrition is an important indicator of development status and a precursor of future development.

The World Health Organisation recommends that all babies are exclusively breastfed during the first 6 months of life. Exclusive breastfeeding was measured by principal caregiver reports of feeding patterns in the prior 24 hour period. Children who received breastmilk and no water or solids during the period were "exclusively breastfed". The number of caregivers responding to the PR IV survey exclusively breastfed at about the same rate as those responding to PR III. Of 67 children aged 6 months or younger included in the PR IV survey, 31 per cent were exclusively breastfed, while in PR III the figure was 38 per cent.

Children aged 6 months to 5 years were assessed for malnutrition based on a mid-upper arm circumference (MUAC) of less than 125 mm and or the presence of bilateral pitting oedema (retention of water in body tissue in feet). This is consistent with the definition of global acute malnutrition when measured using MUAC.

The extent of global acute malnutrition measured in PR IV fell compared to previous Periodic Reviews, indicating another possible sign of health conditions stabilising. The incidence of child malnutrition was estimated at 5 per cent in PR I, 3 per cent in PR II and 4 per cent in PR III, respectively. In PR IV the level fell to 2 per cent. Although the proportion of children with malnutrition had fallen, in PR IV, 10 per cent of households with a child, had a child with malnutrition or at risk of malnutrition as defined as having a MUAC less than 135 mm and or the presence of oedema. Although malnutrition seems to be stabilising, any level of child malnutrition is of concern.

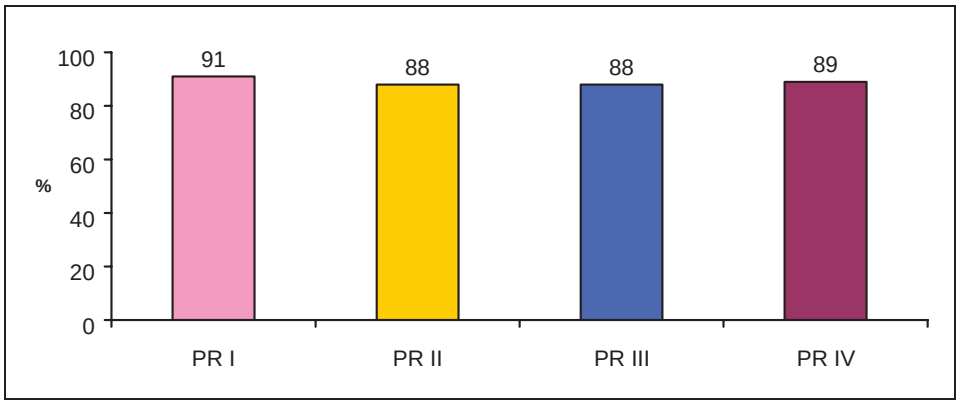
Childhood vaccination

Vaccination is a crucial disease-prevention tool, particularly among young children. The PR IV assessed vaccination coverage among young children living in cyclone-affected townships. After the disaster, health officials and humanitarian agencies undertook concerted efforts to immunise children in the most affected areas.

Measles, a highly contagious respiratory viral infection, is easily transmitted between persons through airborne droplets. The disease results in a high mortality rate among children younger than 5 years. During the acute phase of the disease, co-infection with Pneumonia often leads to long-term chronic chest disease. Thus, Measles immunisation is critical to ensure the protection of young children's health. Full Measles immunisation coverage requires two doses; the Myanmar Ministry of Health protocols provide for the first dose to take place at 9 months and the second at 18 months, although the second dose could be given up to the age of 5 years. This report assesses the percentage of children aged between 6 months and 5 years who had been vaccinated at least once against Measles.

Children in households surveyed in PR I had the highest rate of child immunisation for Measles with 91 per cent of them covered. This could be because of a post-cyclone campaign to immunise children for Measles. Among the household heads who knew their children's measles immunisation status, 89 per cent of 792 children had been immunised, similar to other Periodic Reviews (see Graph 2.4).

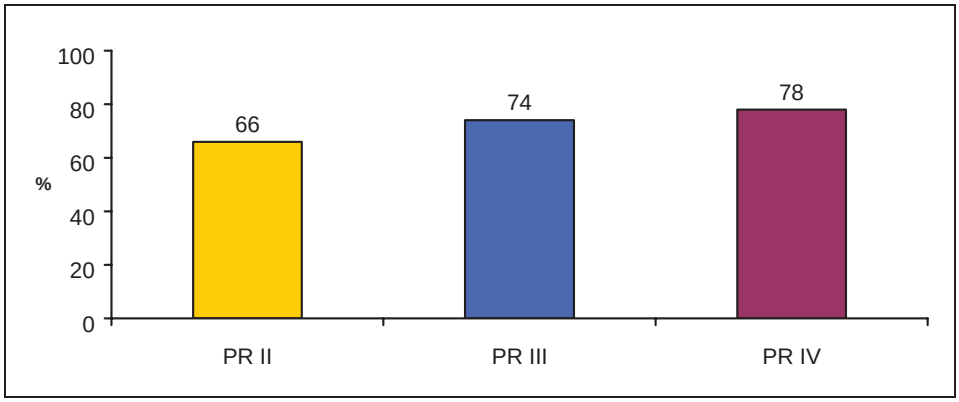
Graph 2.4: Children aged 6 months to 5 years immunised against measles (PR I, PR II, PR III and PR IV)



PR IV assessed full immunisation coverage for Diphtheria, Pertussis and Tetanus (DPT3) for children aged between 6 months and 5 years. Full immunisation coverage requires three doses, administered at the ages of 6 weeks, 10 weeks and 14 weeks.

The Periodic Reviews indicate that immunisation coverage for DPT3 steadily increased (see Graph 2.5). In PR II the coverage was 66 per cent, by PR III the level was 74 per cent and by PR IV it had reached 78 per cent. Once again, these results suggest steady improvement in the health of children since Cyclone Nargis.

Graph 2.5: Children aged 6 months to 5 years immunised against DPT3 (PR II, PR III and PR IV)



Disease incidence among children

The Periodic Reviews monitored reported episodes of diarrhoea and fever during the 14 days prior to the survey interview, as proxy indicators for the health status of children. Both of these diseases can provide an indirect estimate of the communicable disease burden among children.

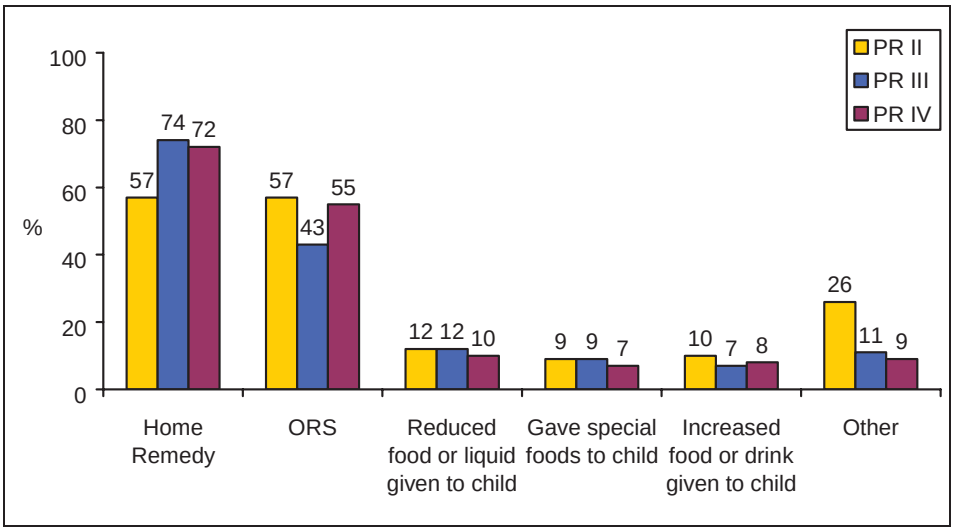
The percentage of children aged 6 months to 5 years reported to have had diarrhoea in the prior 14 days slowly declined since PR II when the rate was 16 per cent. Subsequently, the rate declined to 14 per cent in PR III, and to 13 per cent in PR IV. Because of the low number of cases, this measure is not mapped.

If treated inappropriately, diarrhoea in children can cause under-nutrition and death. Appropriate treatment methods focus on maintaining the consumption of liquids and oral rehydration solution (ORS) therapy, which consists of salt, sugar and clean water and which is recommended by the World Health Organisation.

While the incidence of diarrhoea improved over time, incidence of appropriate treatment varied across the Periodic Reviews. PR II found that 51 per cent of children with diarrhoea during the 14 days preceding the assessment interview received ORS. In PR III, 41 per cent of caregivers reported administering ORS. In PR IV the proportion of children receiving ORS increased to 55 per cent of the 100 children with diarrhoea.

It is not clear why variations in ORS treatment between the different Periodic Reviews exist (see Graph 2.6). The decision to administer ORS is influenced by the caregiver's knowledge of the benefits of ORS, their availability, cost, and the severity of the complaint. Respondents in PR III had the lowest use of ORS and the highest use of home remedies.

Graph 2.6: Diarrhoea treatment methods used by households with children aged 6 months to 5 years (PR II, PR III and PR IV)

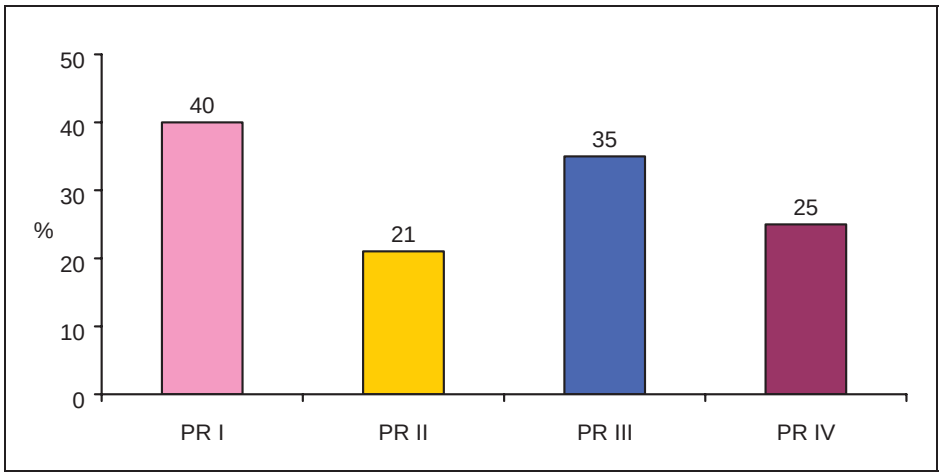


The proportion of children aged 6 months to 5 years who had a fever in the 14 days before the survey varied across the different Periodic Reviews. PR I, which was conducted 6 months after the Cyclone struck, reported the highest level, 40 per cent of children (see Graph 2.7). Among PR IV households, 25 per cent of children reportedly had a fever in the previous 2 weeks.

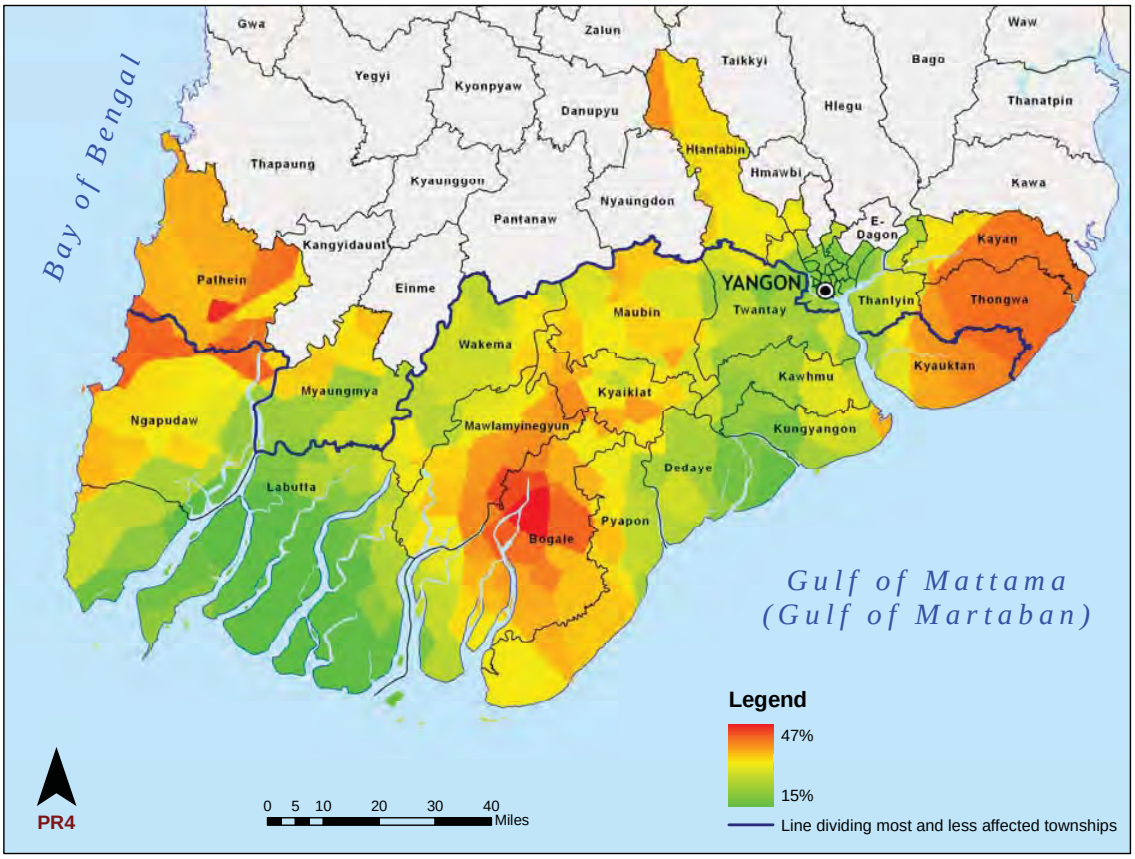
Data from the four Periodic Reviews suggested that childhood fevers could be related to seasonal conditions. Data for PR I and PR III, with the highest levels of child fever, were collected in November at the end of the rainy season, while in PR II and PR IV the data were collected in May during the dry season.

Fever reports among children aged 5 and under, 14 days before respondents were interviewed, were limited in geographic scope. Labutta Townships had the lowest levels of reported fevers among children (see Map 2.4).

Graph 2.7: Children aged 6 months to 5 years with fever in the prior 14 days (PR I, PR II, PR III and PR IV)



Map 2.4: Children aged 6 months to 5 years with fever in the prior 14 days



2.2: Water, sanitation and hygiene

2.2.1 Water

The Periodic Reviews examined whether households in the affected areas had access to sufficient quantities of potable drinking water.

Drinking water quality

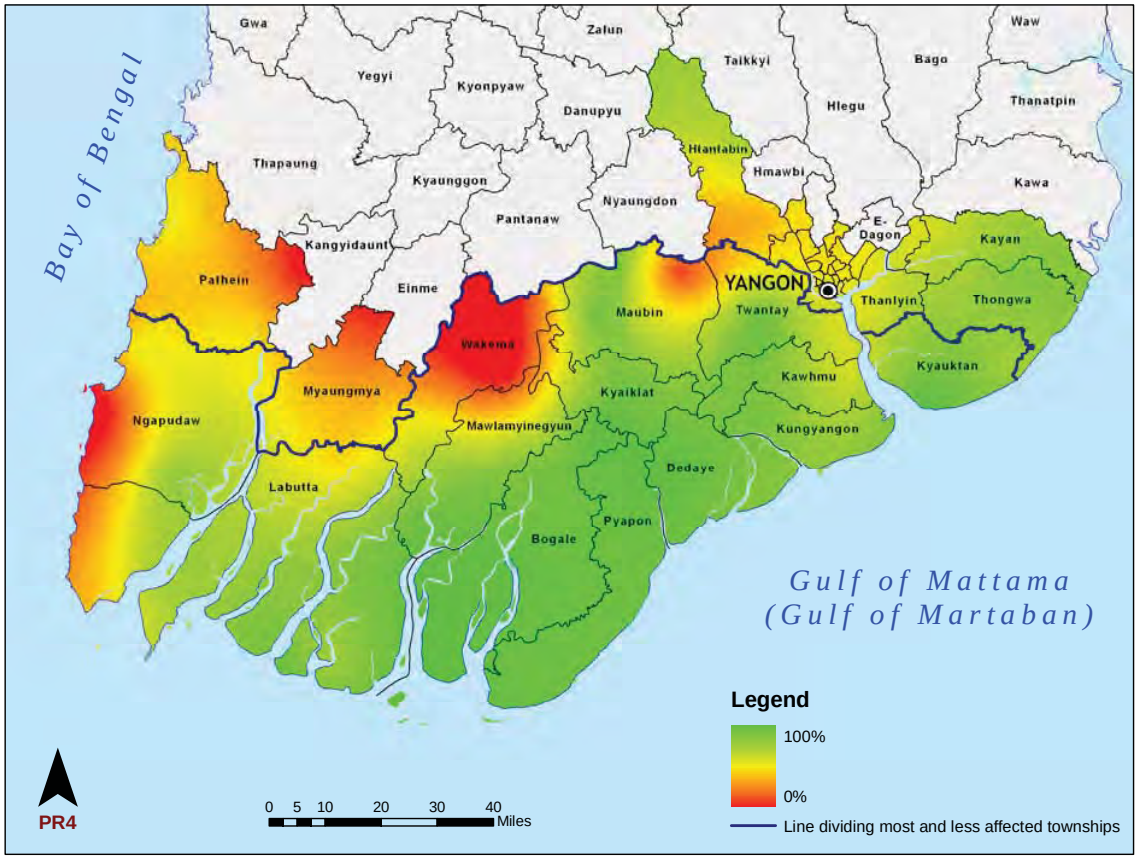
To determine household drinking water quality, water sources were divided into two types: improved and unimproved sources. Improved water sources include water piped into the dwelling, plot or yard; public tap or standpipe; borehole or tube well; protected dug well; protected spring water; rainwater collection; and bottled water. Unimproved water sources refer to unprotected wells; unprotected spring and water provided by carts with small tanks; water provided by a tanker truck; and water taken directly from rivers, ponds, streams, lakes, dams or irrigation channels.

Households in Myanmar typically rely on multiple water sources, some of which are seasonal. The Periodic Review field teams interviewed heads of households regarding drinking water sources, in both dry and rainy seasons.

Rainy season

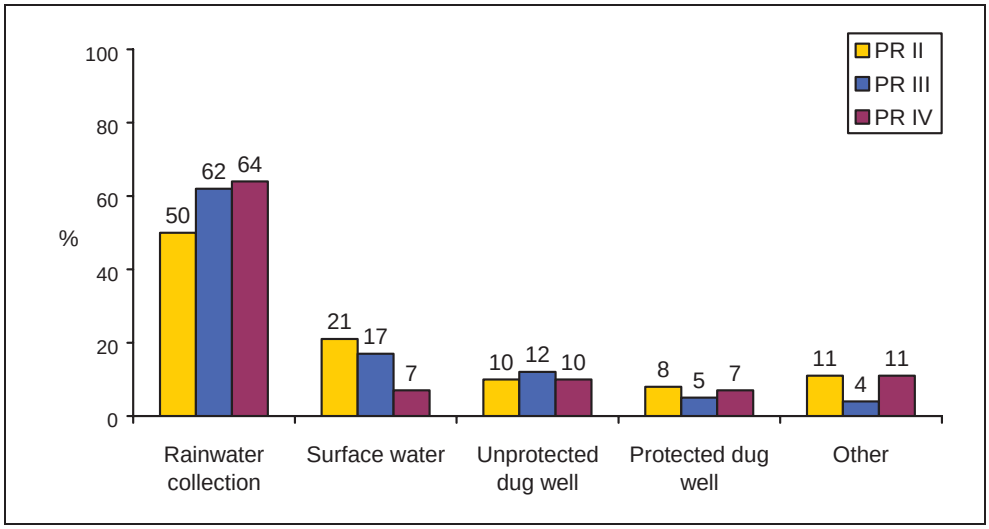
Maps 2.5 and 2.6 demonstrate the seasonality of improved drinking water sources, which refers to piped water, public taps, tube wells, protected dug wells, protected springs, collected rainwater and bottled water. The PR IV findings indicate an increase in the proportion of households using improved drinking water sources, increasing from around 66 per cent in PR II and PR III to 72 per cent in PR IV. Upper areas of the mapped portion of Ayeyarwady Division had the poorest access to improved drinking water sources, as shown in orange and red. Unprotected surface water was frequently used in these areas.

Map 2.5: Households that reported using improved drinking water sources in the rainy season



As in earlier Periodic Reviews, the main source of drinking water during the rainy season was rainwater collection. Of the 1,400 interviewed households, 64 per cent collected rainwater for drinking, roughly equal to the 62 per cent found in PR III, and much higher than the PR II and PR I-recorded levels of 50 and 20 per cent respectively. Unlike the previous Periodic Reviews, an unprotected dug well was the second most common rainy-season source of drinking water, accounting for 10 per cent of households. In PR II and PR III the second most common rainy-season water source was surface water, accounting for 21 and 17 per cent of the households. In PR IV, this source of drinking water was ranked third and accounted for 7 per cent of households (see Graph 2.8). Variation in responses between the different Periodic Reviews is affected by weather; the heavier the rains, the more rainwater collected in any one year. This will determine to what extent households need to seek other drinking water supplies.

Graph 2.8: Main sources of drinking water in the rainy season (PR II, PR III and PR IV)

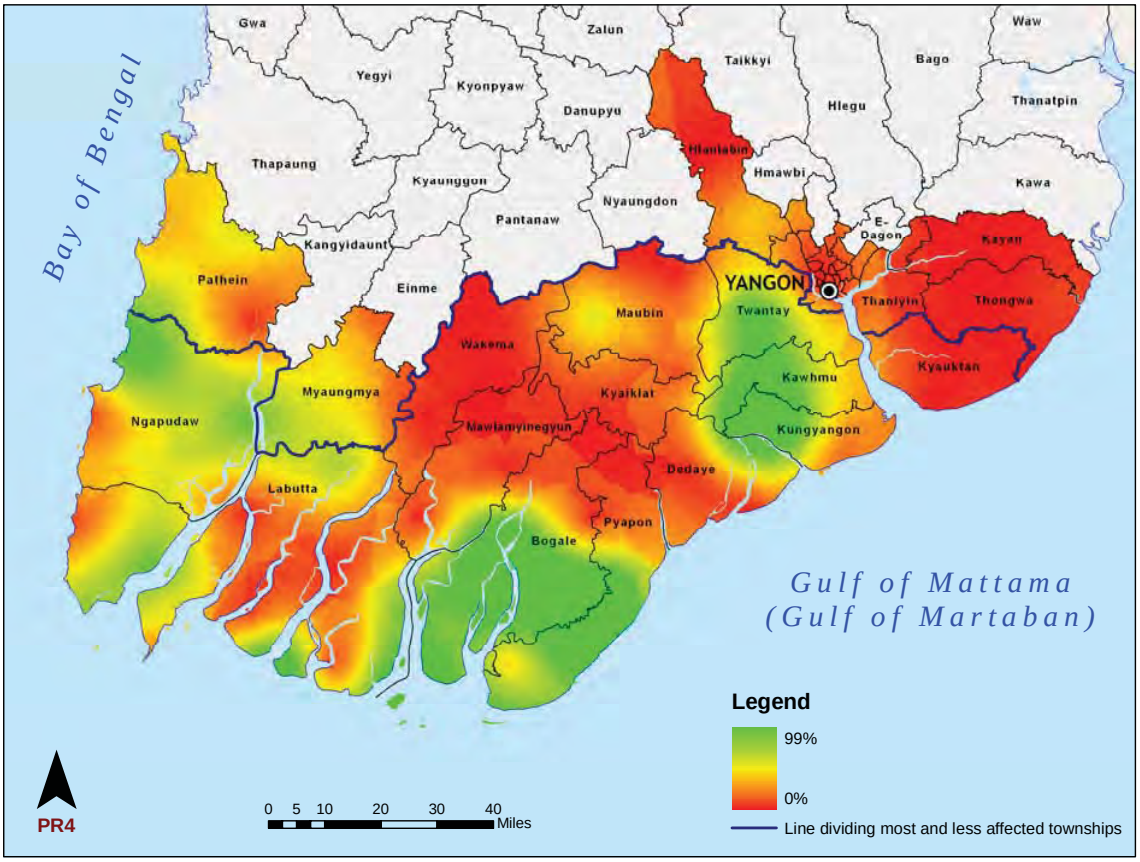


Dry season

In the dry season, with supplies of collected water dwindling, the proportion of the 1,400 households using improved drinking water sources was 20 per cent, an improvement from around 15 per cent in both PR II and III. However, in Htantabin, Kawhmu, and Pyapon Townships few interviewed households had access to improved water (see Map 2.6). Households interviewed in Myaungmya, Thongwa, and Wakema Townships also had limited dry season access to improved drinking water sources. Survey enumerators indicated that many households which do not use improved drinking water sources are along year-round streams and therefore may see no need to invest in other water sources.

In the dry season, many households switch to unimproved water sources, particularly surface water. In PR IV, less than 1 per cent of households used collected rainwater for their dry season drinking water, in contrast to the dominance of rainwater collection in the rainy season. The main source of drinking water in the dry season was unprotected ponds, used by 22 per cent of households. In the rainy season, only 3 per cent of households used unprotected ponds for drinking purposes. The next two most common sources of drinking water during the dry season were protected ponds and unprotected dug wells.

Map 2.6: Improved drinking water sources in the dry season

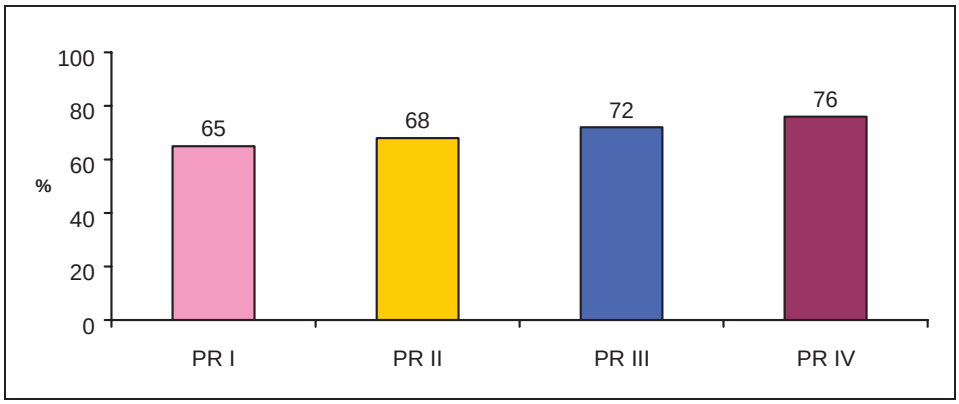


Water treatment

Households can improve their water quality by treating water before use. The Periodic Reviews asked the surveyed households if they treated drinking water adequately by boiling, bleaching, filtering or using solar disinfection to reduce bacterial contamination.

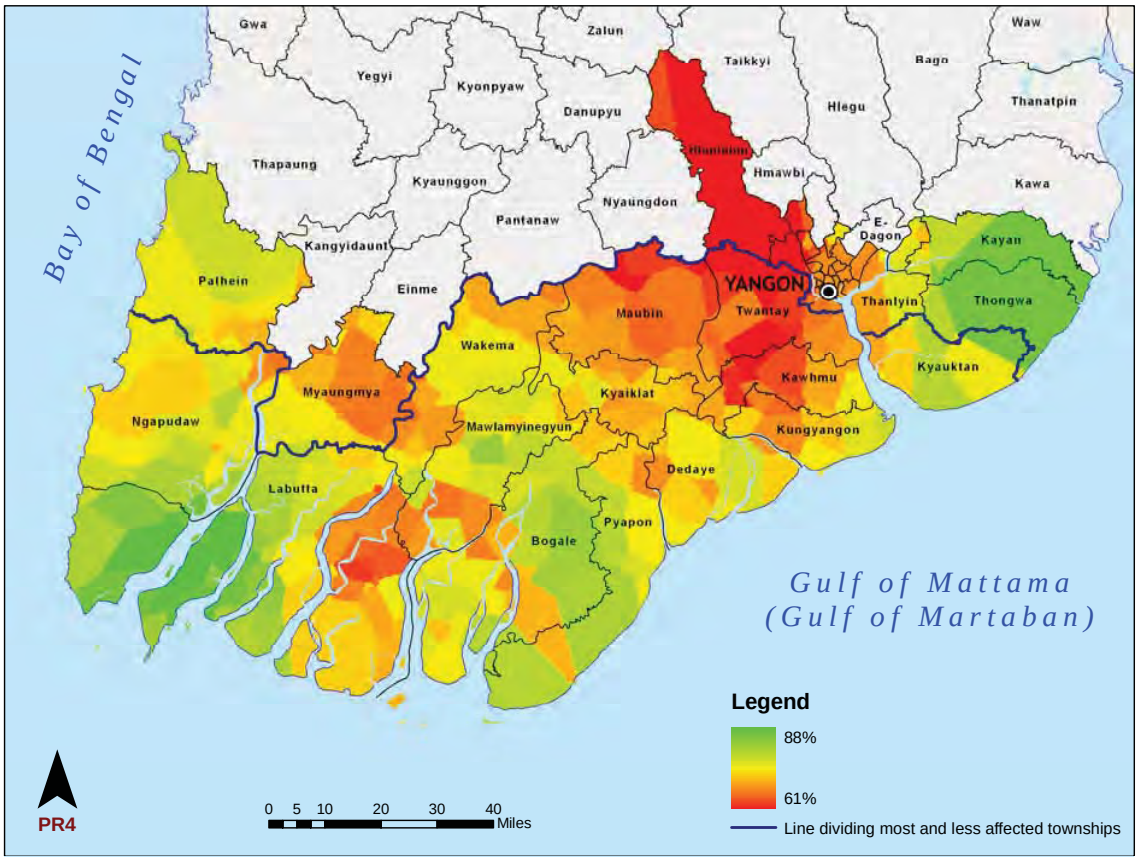
In PR IV, the proportion of the 1,400 households reporting treating water before using it was close to universal - 98 per cent. However, only 76 per cent of the households treated their water adequately to ensure it would be safe for drinking. In each Periodic Review there was an increase in the number of households treating their water properly, with PR IV having the highest level (see Graph 2.9).

Graph 2.9: Households' treating their drinking water adequately (PR I, PR II, PR III and PR IV)



Map 2.7 shows the geographical variation of households treating their drinking water adequately. Lower percentages of households in areas west and north of Yangon City treated their drinking water adequately, with around 60 per cent of them doing so compared to up to 88 per cent of households in other areas surveyed.

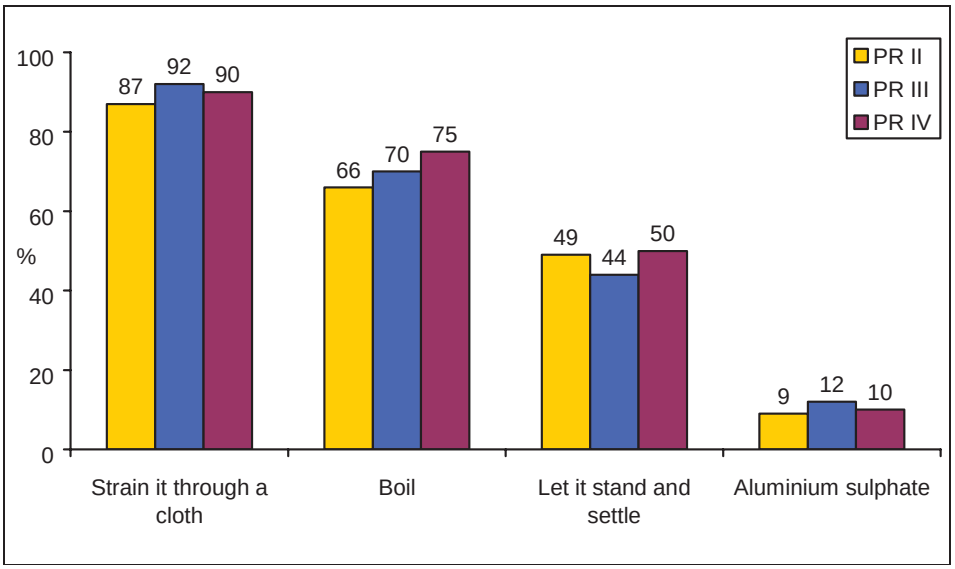
Map 2.7: Households that treated their drinking water adequately



Graph 2.10 shows the most common water treatment method, as reported in the Periodic Review assessments. Most households used a number of methods to treat their drinking water; the most common method was straining water through a cloth, a method inadequate to protect household

members against bacterial contamination (90 per cent). Over time, the proportion of households boiling their water to treat it increased, from a low of 27 per cent in PR I to 75 per cent in PR IV.

Graph 2.10: Top four main water treatment methods (PR II, PR III and PR IV)



Drinking water accessibility

Household accessibility to water sources is another important factor in measuring the adequacy of a water supply in an area. The Periodic Reviews assessed household accessibility to water, looking at the presence of a primary drinking water source within the home compound and average travel time from the household to the water source for those without it in their home.

Over 40 per cent of the 1,400 surveyed households indicated that they had a protected water source within their compound, while 56 per cent accessed a nearby unprotected well, a public tap, a tube well, spring, pond, dug well or a standpipe.

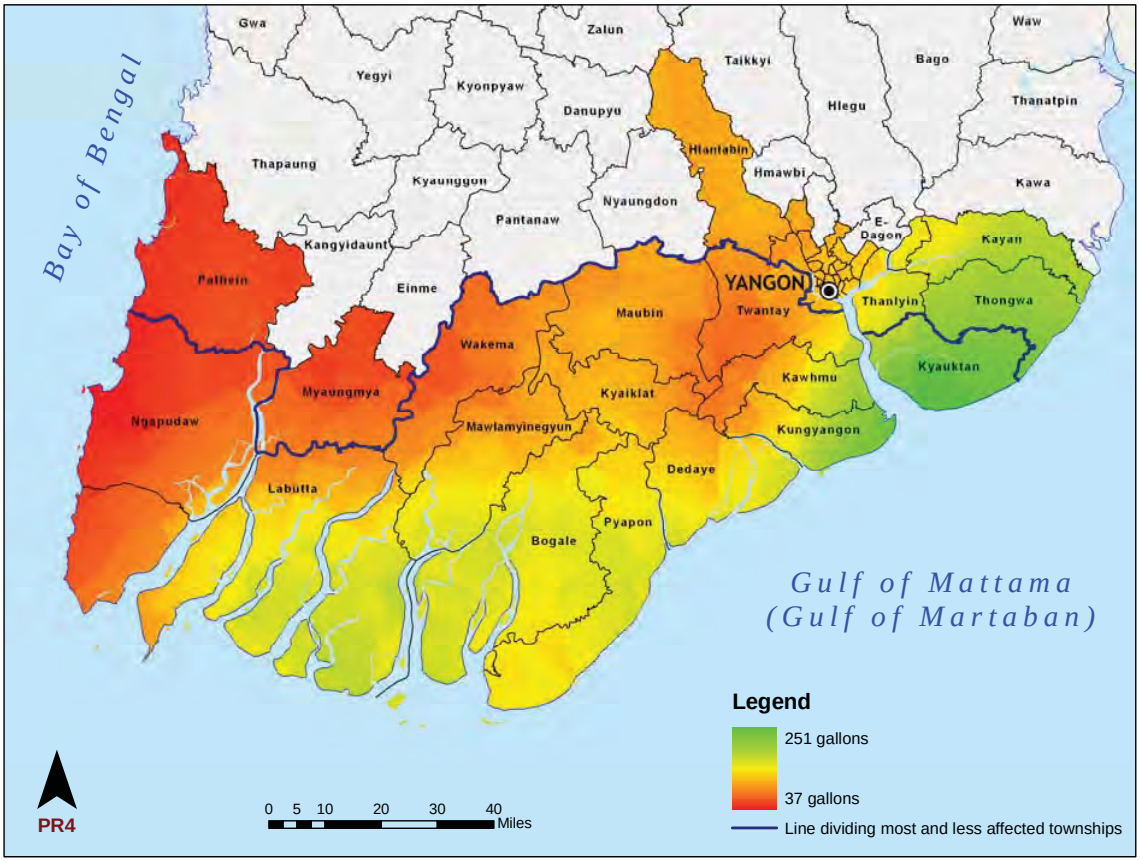
In PR IV the average travel time to fetch water and return home during the dry season was 27 minutes, while in the rainy season the average time to fetch water was only 6 minutes. The average time to fetch water in PR IV was much lower than in PR III, as the average time in that survey was over an hour. Spending less time fetching water frees family members, particularly females who traditionally are resposible for this task, to undertake other activities.

Water storage

Within an agrarian society, particularly one dependent on one rainy season, an ability to store water is important. The different Periodic Reviews show an increase of water-storage capacity by households. In PR II the average was 94 gallons, in PR III it was nearly 110 gallons, while in PR IV the average was 111 gallons.

Despite this improvement, there are large areas where household capacity to store water is limited, as shown in red (see Map 2.8). Available data do not allow for an independent determination of whether households with limited water storage capacity need to increase their ability to store water. Some households in the area rely on year-round streams that reduce the need for water storage capacity. A sign that households did not have a problem storing water is that of the 893 households owning animals at the time of the PR IV survey, 98 per cent of them had enough drinking water for their animals.

Map 2.8: Household water storage capacity

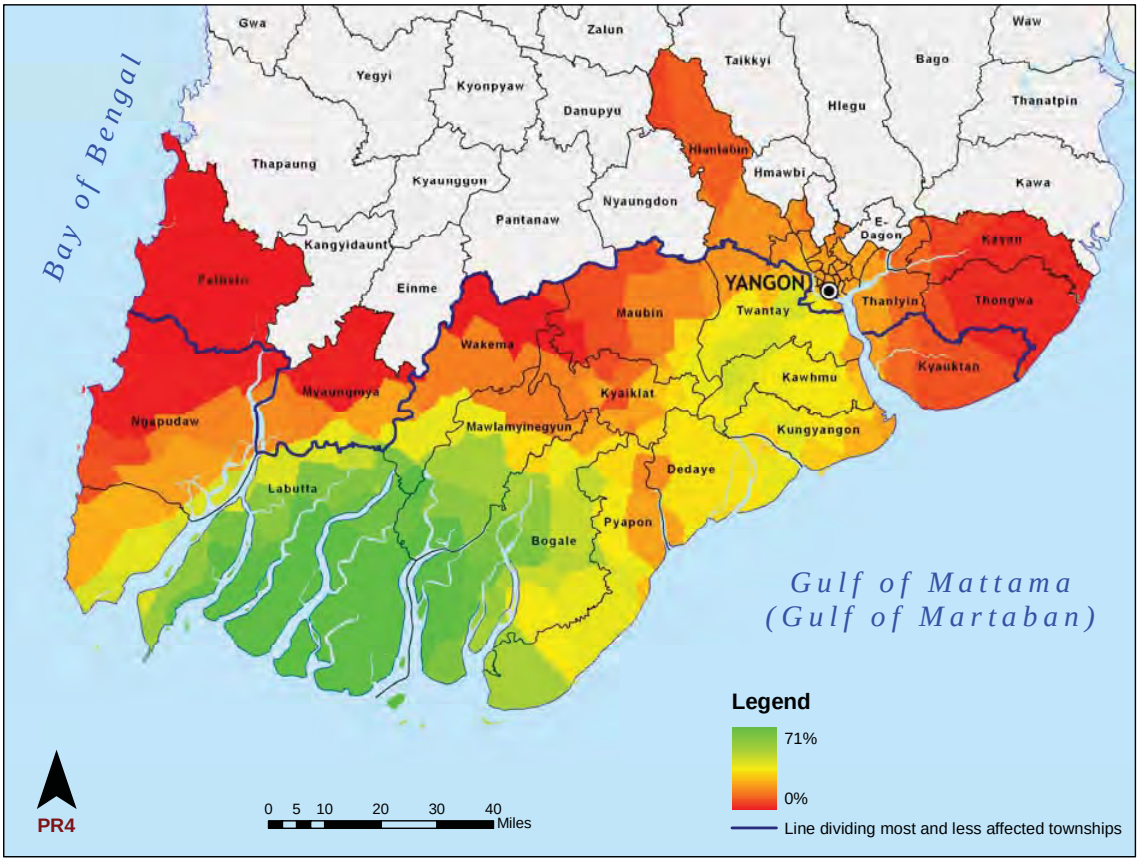


Relief efforts: water and water items

One of the earliest needs of those who were affected by Cyclone Nargis was to ensure that they were able to obtain clean water. Households were given water, water storage containers and water filters. The proportion of households receiving these items was similar in both PR III and PR IV, at 16 and 13 per cent respectively. The proportion of households indicating that they received water purification items was 13 per cent in both PR III and PR IV.

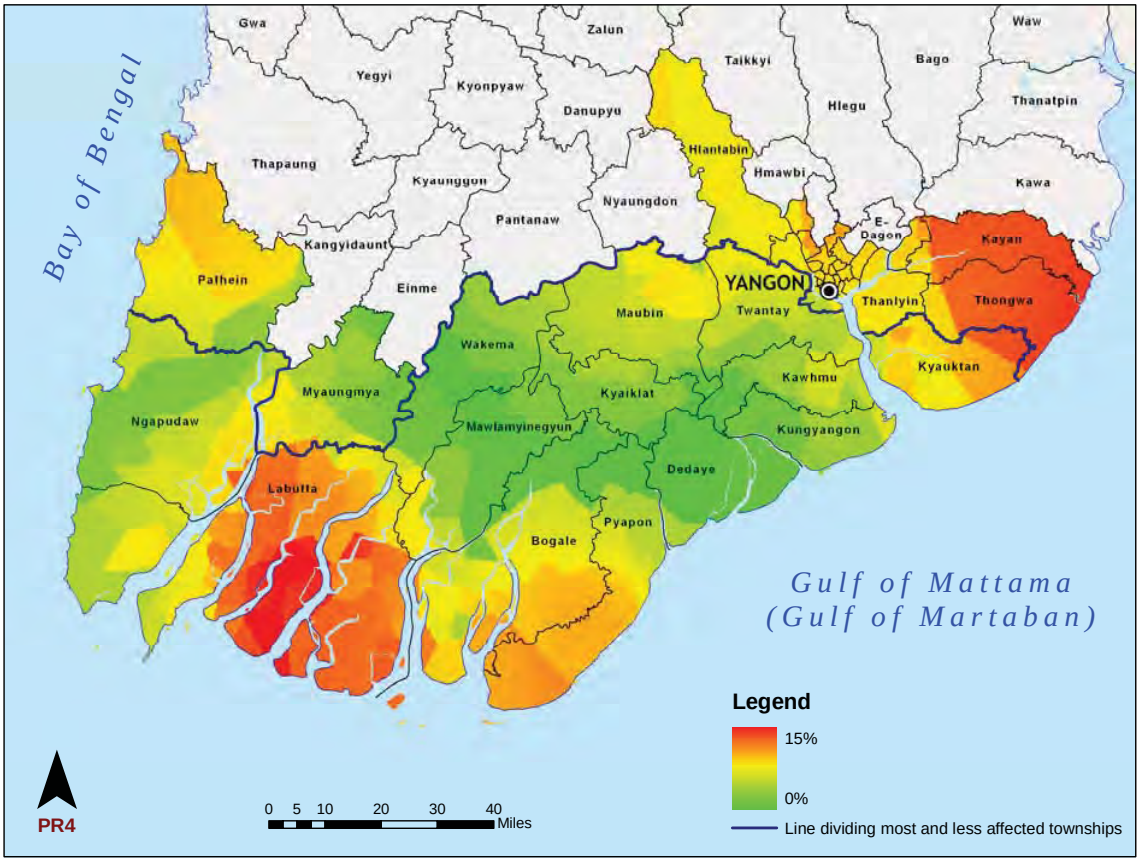
The distribution of water and water related items focused on areas most affected by the Cyclone in the southern townships along the coast (see Map 2.9). In these areas, around 70 per cent of the households interviewed indicated that they received such assistance. In townships in areas less affected by Cyclone Nargis, none or very few households received water-related assistance, as shown in red in the following map.

Map 2.9: Water-related assistance items received



Two years on from Cyclone Nargis, water and water items continued to be a need for households in the surveyed areas (see Map 2.10). Across the area, only 3 per cent of households ranked water, water pumps, a well or a water cart as their most important need. In the most affected areas only 15 per cent of households concentrated in coastal areas, indicated that they needed these goods, compared to 0 per cent in some of the lesser affected areas (P = .01).

Map 2.10: Households that reported needing water items



2.2.2 Sanitation

The Periodic Reviews assessed the three main components of sanitation: i) disposal of human excreta, ii) disposal of solid waste, and iii) hygiene practices at the household level.

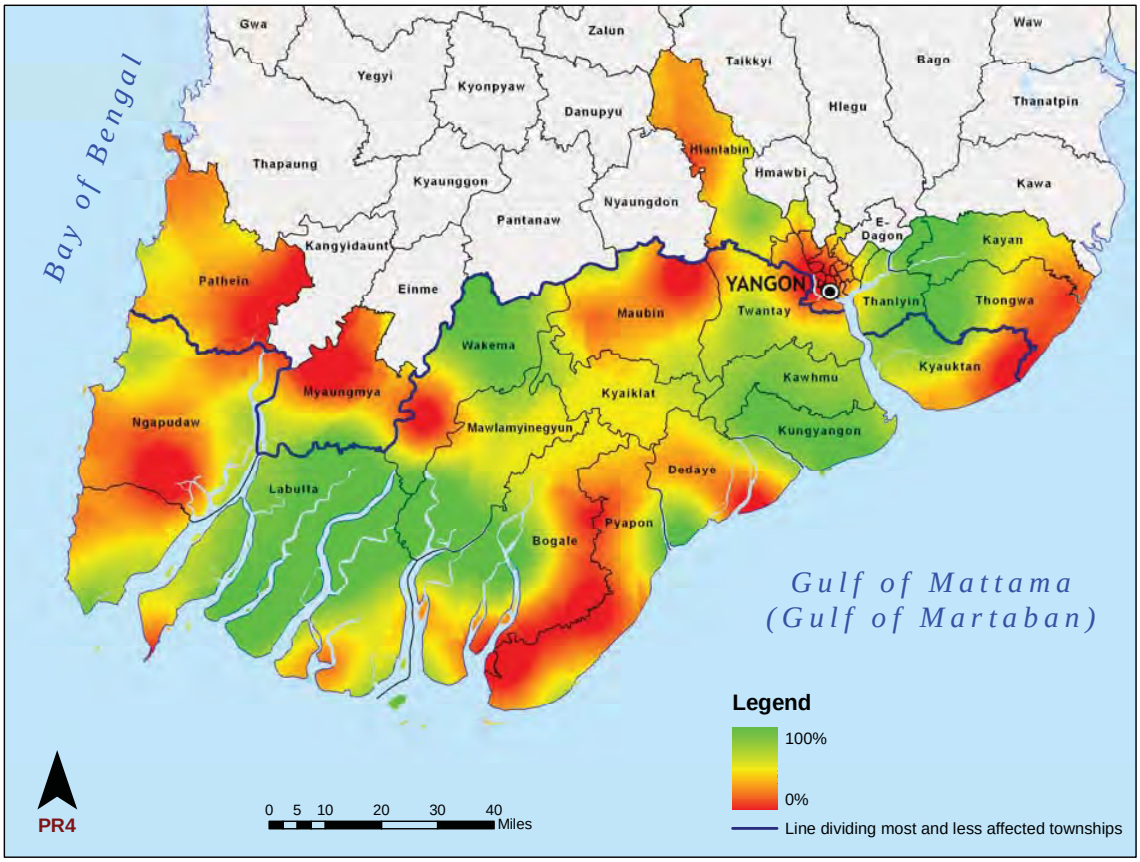
Disposal of human excreta

The Periodic Review looked at the use of improved and unimproved sanitation facilities, as reported by households. Improved facilities can hygienically separate human excreta from both human contact and from sources of water for human consumption. These include pour-flush toilets or latrines that are connected to a sewer, a septic tank or a pit; ventilated improved pit latrines; pit latrines with a slab or platform cover; and composting toilets or latrines. Unimproved facilities include flush or pour-flush toilets or latrines that directly discharge into an open sewer or ditch; pit latrines without a slab; bucket latrines; hanging toilets; open defecation; and shared improved toilet facilities.

Of the 1,400 households in PR IV, 44 per cent reported using improved sanitation facilities, higher than the 43 per cent recorded in both PR II and III and 40 per cent recorded in PR I. The extent of use of improved sanitation facilities was widespread, although there are pockets where households were not using improved household facilities (see Map 2.11).

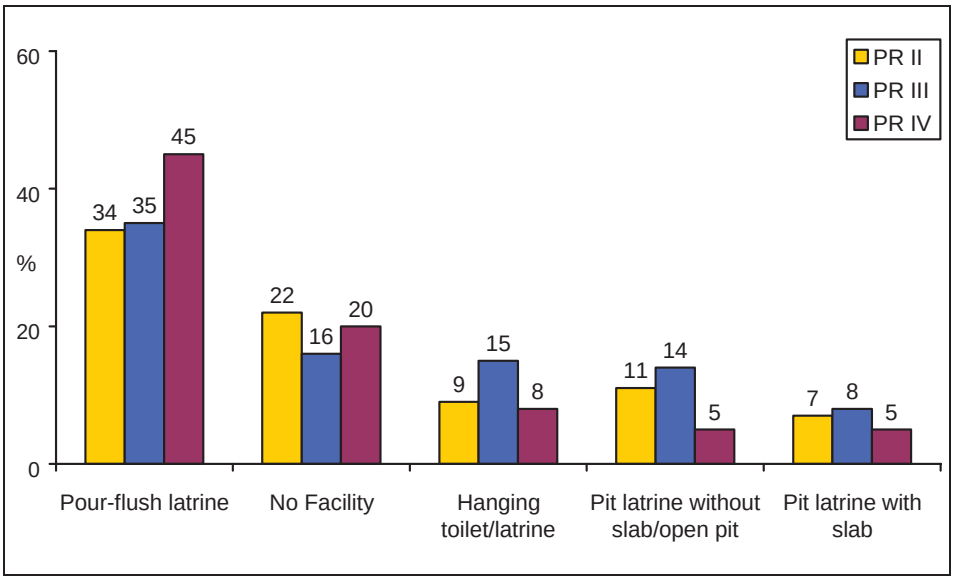
The devastation brought by Cyclone Nargis still affects household access to improved sanitation facilities, whether they were sharing them or not. In households whose dwelling was completely destroyed (n=661) only 40 per cent had access to these facilities, compared to 48 per cent of households whose residence had not been completely destroyed (n=739; $P < 0.01$).

Map 2.11: Households that reported using improved sanitation facilities



The pour-flush latrine was the most common form of toilet reported in PR IV, found in 628, or 45 per cent, of households. This proportion was higher than in PR II and PR III, as it accounted only for around a third of sanitation facilities in both those surveys (see Graph 2.11).

Graph 2.11: Households that reported using different types of sanitation facilities (PR II, PR III and PR IV)



In each Periodic Review a substantial group of households reported not having any toilet facilities. In PR IV, one in five, or 283 households did not have any toilet facilities, in PR III it was 16 per cent, while in PR II it was 22 per cent. The lack of sanitation facilities increases health risks for household members and fellow community members. While progress has been made in improving sanitation facilities since the PONJA report was issued, much remains to be done to address sanitary toilet facility needs.

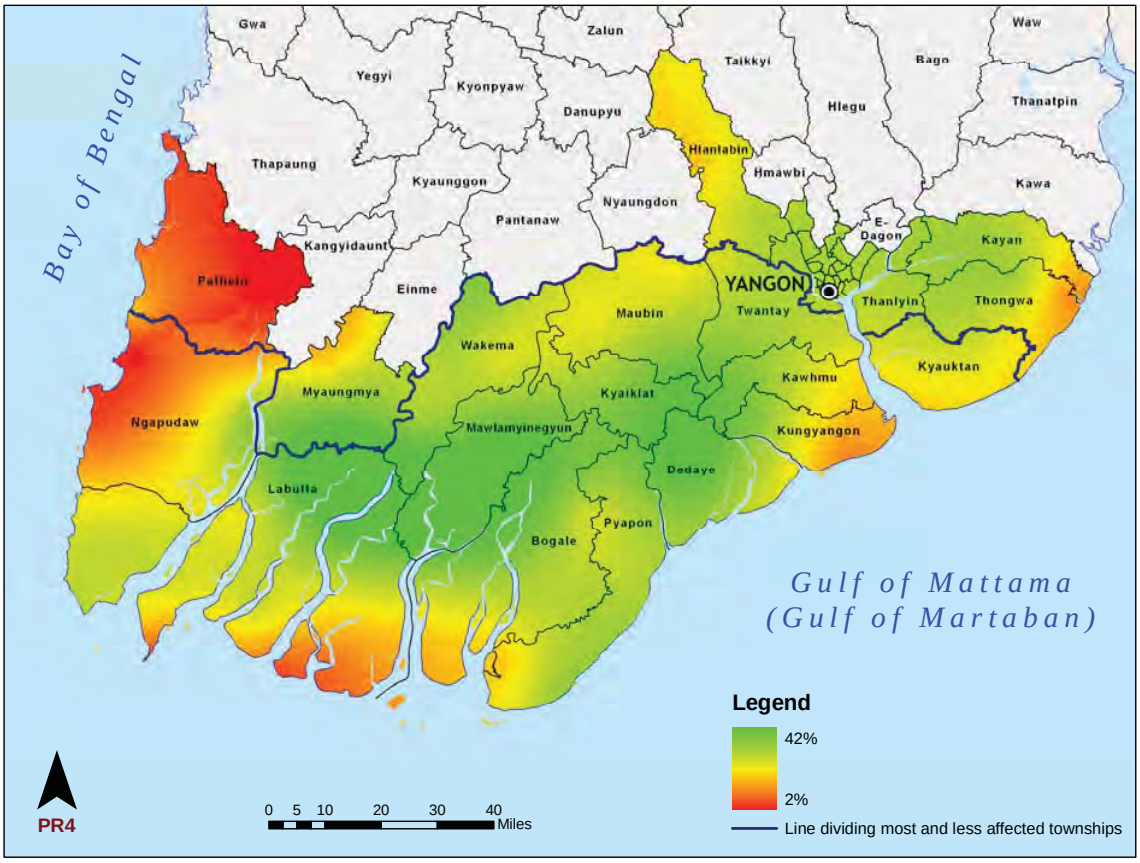
Although many surveyed households used a pit latrine, 163 households (26 per cent) shared the facility with other households. The comparative figures for PR II and III were 26 and 28 per cent respectively. Shared toilet facilities are classified as unimproved.

The adequate disposal of children's excreta can prevent the spread of faecal-oral transmitted diseases. Adequate disposal methods include children using a toilet or latrine, disposing of children's faeces into a toilet or latrine, or burying it. Leaving the faeces in an open area or throwing it into rubbish bins are both inadequate practices.

Among the 539 households in the PR IV survey in which there is at least one child younger than 5 years, 282 (52 per cent) households disposed of their children's faeces adequately. This is of concern, as it is lower than reported in PR I, PR II and PR III, which had rates of 59, 59 and 54 per cent respectively.

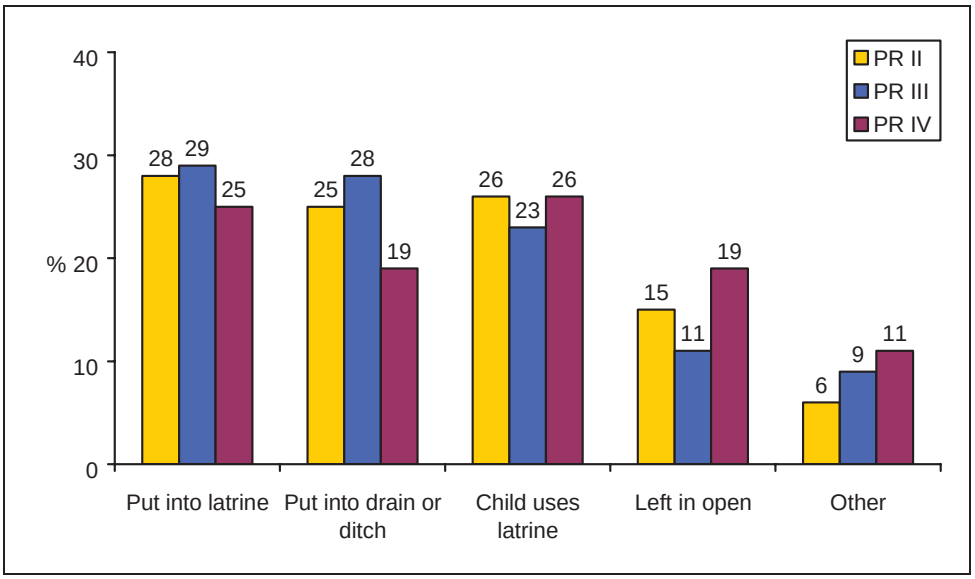
Map 2.12 shows the geographical variation in households adequately disposing of their child faeces, with areas where fewer households did so shaded in orange and red.

Map 2.12: Households with young children that reported adequately disposing child faeces



Graph 2.12 compares the disposal methods used for child faeces as reported in the PR II, PR III and PR IV surveys. In PR IV, of the households with children aged 5 or less, a quarter (138 cases) had children who were able to use a toilet and another quarter (132 cases) where the children's faeces were being put into the latrine. This is a similar pattern to PR II and PR III. PR IV households were less likely to put the child faeces into a drain or ditch, but more likely to leave it in the open, compared to PR II and PR III.

Graph 2.12: Households with young children that reported using different methods of disposing child faeces (PR II, PR III and PR IV)



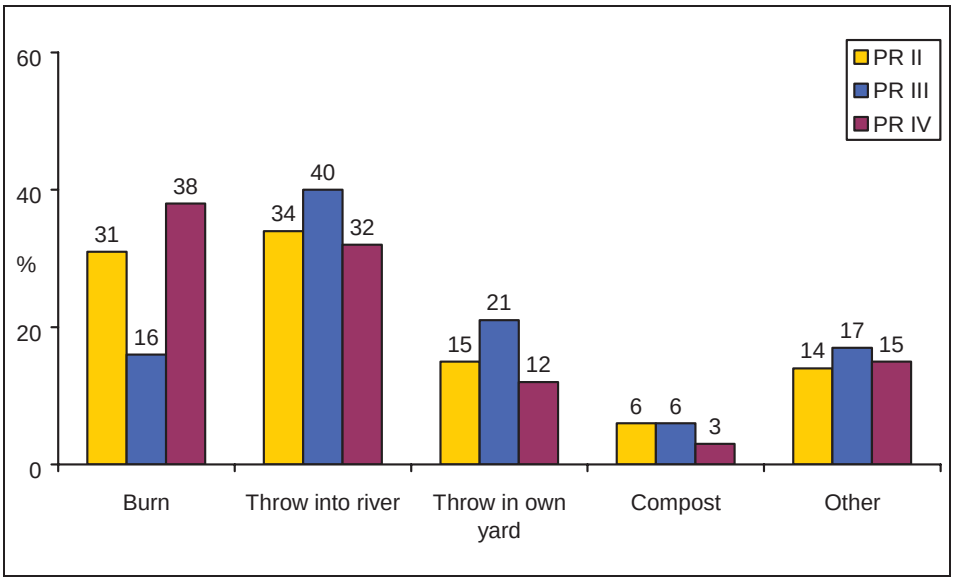
Solid waste disposal

Solid waste refers to solid or semi-solid food waste. If disposed inadequately it can pollute land, water or the air and can serve as a breeding ground for disease-carrying insects and rodents. Adequate solid waste disposal methods include burning, burying it in the yard, composting, collection by scavengers or a neighbourhood collection mechanism with local disposal. Inadequate methods include dumping in the yard, in the street, or in waterbodies.

The Periodic Review looked at whether households properly dispose of their solid waste. The proportion of households in PR IV that reported that they properly dispose of solid waste was 45 per cent. Though this is less than half of the surveyed houses, it is a marked improvement from the 27 per cent of households doing so in PR III, and the 16 per cent in PR II.

Graph 2.13 shows common methods of solid waste disposal practised by households surveyed in each of the Periodic Reviews. The most common method practised in PR IV was burning of waste, a method that is adequate and practised by 38 per cent of households. This method of solid waste disposal seems to be undertaken less during the rainy season; only 16 per cent of PR III-surveyed households reported burning waste. The next most common method practised in PR IV was throwing solid waste into a river. This method is regarded as inadequate, as it can pollute local water supplies as well as affecting communities down stream. This method could be seasonal. With faster flowing rivers during the rainy season the waste would be washed out more quickly making this method more attractive for some households; in PR III, this method was most widely reported.

Graph 2.13: Households that reported using different methods of solid waste disposal (PR II, PR III and PR IV)

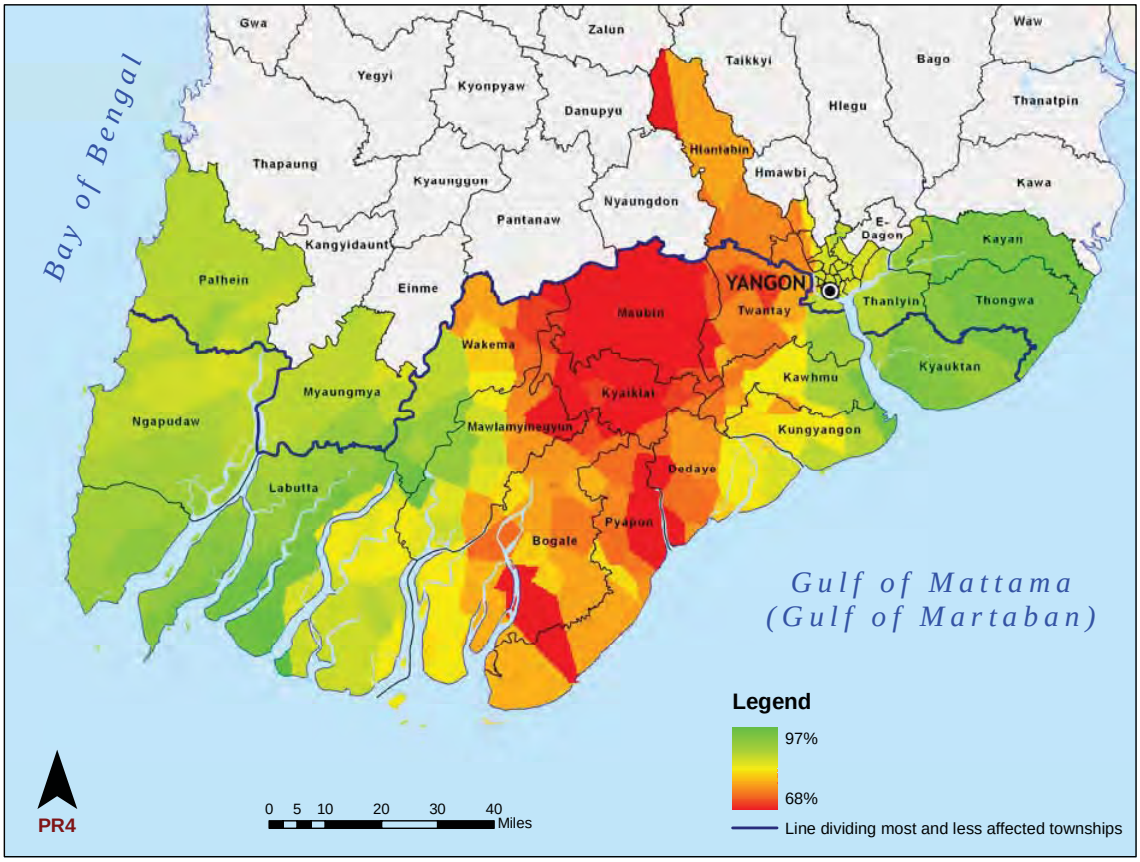


Hygiene practices

Proper hygiene methods at the household level reduce the spread of pathogens through human contact and are considered the most effective way to prevent diarrhoea. These methods include the washing of hands with soap after defecation, after cleaning a child's bottom, before food preparation and before eating. To assess the hygienic practices among households in the affected townships, the Periodic Review asks about soap availability and frequency of washing hands with soap prior to food preparation in each house.

The PR IV findings show that overall, 91 per cent of the 1,400 surveyed households had soap in the house, roughly similar to PR III- and PR I–reported rates of 94 and 93 per cent respectively. However, it was higher than the 84 per cent reported in PR II households. Households west of Yangon City were less likely to have soap than those in other townships (see Map 2.13). Among the 1,000 households in areas most affected by Cyclone Nargis, 90 per cent of households had soap, while among the 400 households in areas less affected by the Cyclone, 94 per cent of households had soap ($P < 0.01$). Furthermore, households which had their dwellings completely destroyed by the Cyclone were less likely to have soap in their homes compared to other households. The respective percentages were 86 per cent (n=661) and 95 per cent (n=739) ($P < 0.01$).

Map 2.13: Households that reported having soap

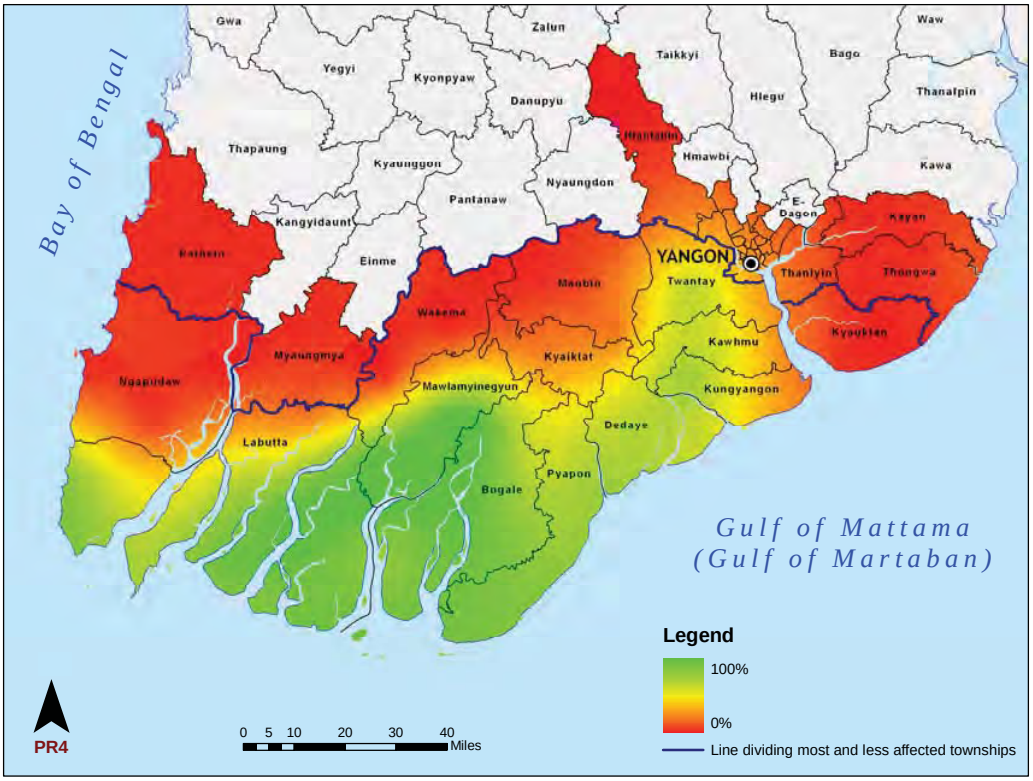


Sanitation relief efforts

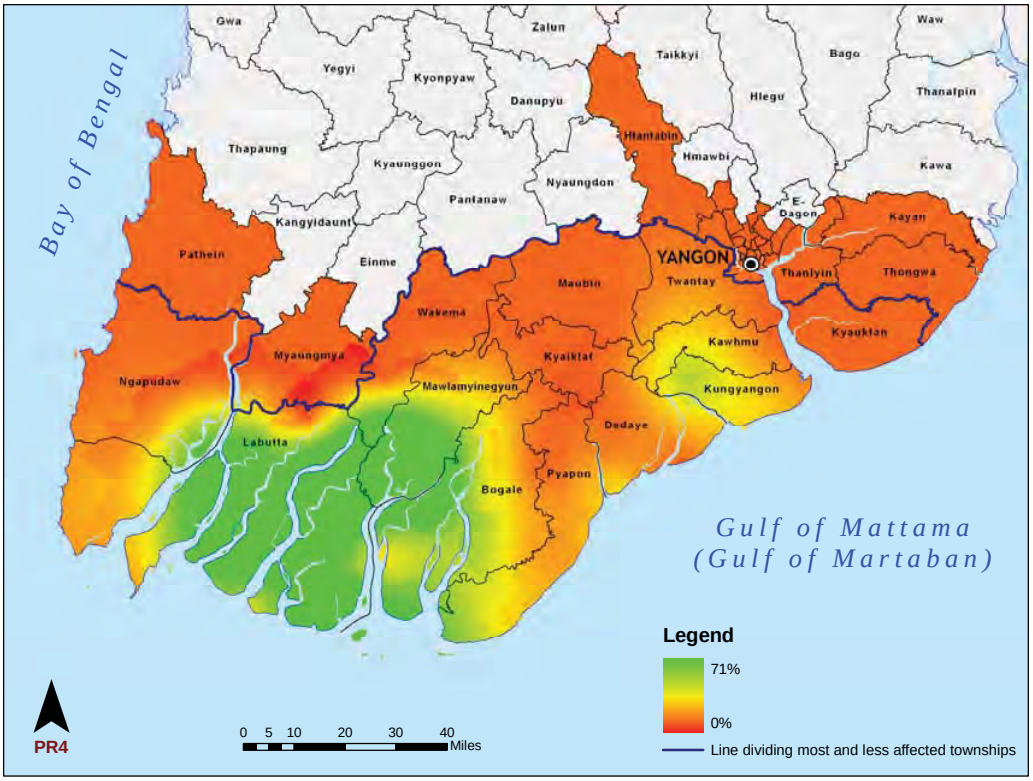
The Periodic Review questioned households regarding receiving latrine construction items, hygiene-related materials, and whether corresponding information regarding proper hygiene methods was received.

The distribution of hygiene-related items and information (see Maps 2.14 and 2.15) by humanitarian agencies was targeted to the areas most affected by the Cyclone. The percentage of surveyed households in PR IV that recalled receiving hygiene-related information was 7 per cent (n=1,400), a lower figure than the 11 per cent that was recorded in PR III.

Map 2.14: Households that reported receiving hygiene items

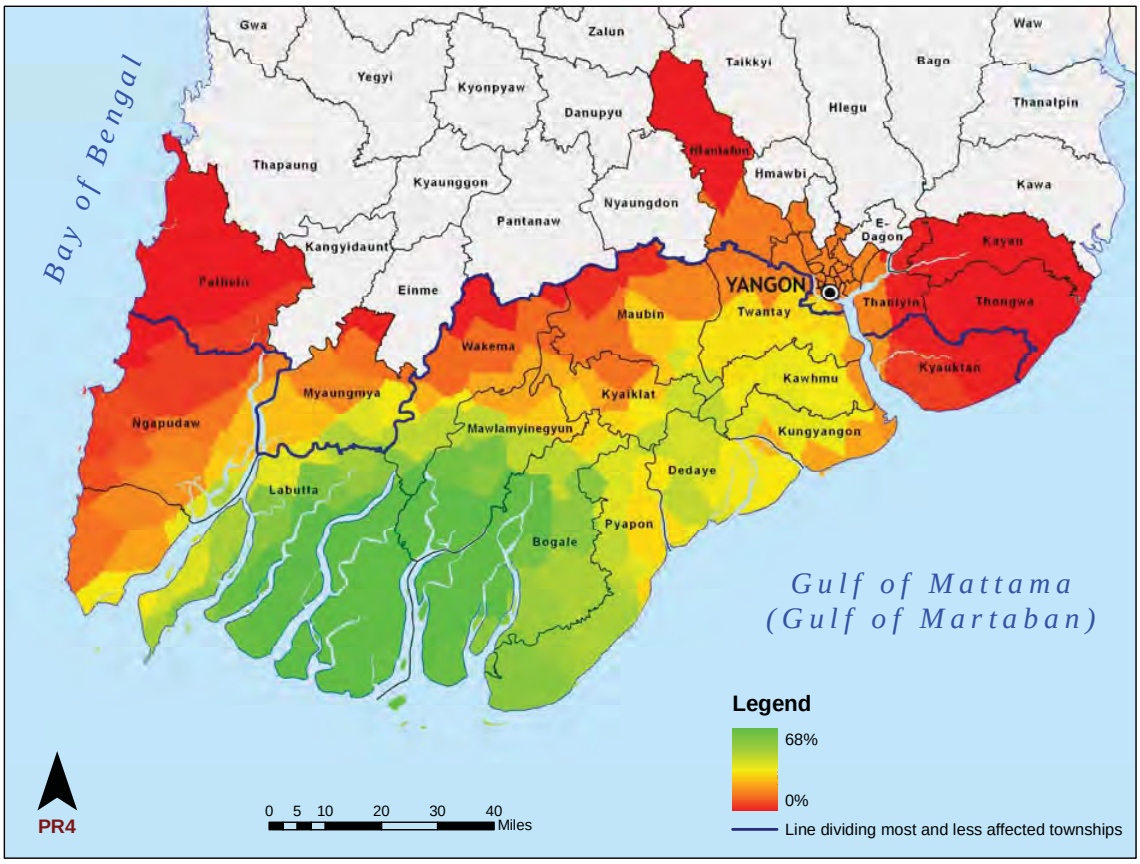


Map 2.15: Households that reported receiving hygiene messages



Some 19 per cent of the surveyed households reported having received latrine construction materials, similar to that reported in PR III. The distribution of this assistance was focused in the southern Ayeyarwady Delta area, which appears green (see Map 2.16).

Map 2.16: Households that reported receiving latrine construction materials



2.3: Food security

Food and nutrition are the building blocks of the health and well-being of a community. Thus, it is important to assess the impact of disasters on food and nutrition patterns among affected communities to understand the coping mechanisms of different affected social groups. Such knowledge can then be used to target, design, and implement appropriate strategies that will protect and promote good nutrition and household food security throughout relief and rehabilitation responses.

Over 40 per cent of households in the affected area lost all food stocks during Cyclone Nargis according to the PONJA[1]. Households lost crops, livestock and equipment used to generate food, and consequently faced increased risk of malnutrition. Communication networks and physical access to food markets were disrupted resulting in a drastic reduction in the variety of food choice available. As a result, the diet of people in the affected areas became more limited in the aftermath of the disaster.

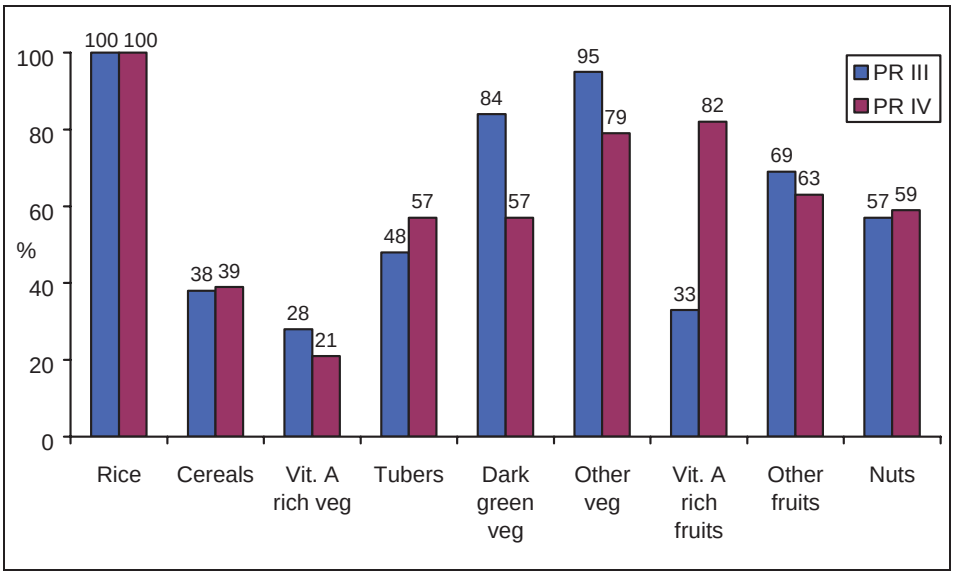
To assess the food situation of the surveyed households the Periodic Reviews examined the food consumption levels, level of food insecurity and the adequacy of food assistance among households.

By PR III, food security improved to the extent that the bulk of the population no longer needed food aid. Nevertheless, pockets of food insecurity persisted, which could not be solved through food relief, but only by addressing critical livelihoods issues. PR IV findings are similar to those of PR III.

1 Tripartite Core Group (July 2008) Post-Nargis Joint Assessment Report, p 61

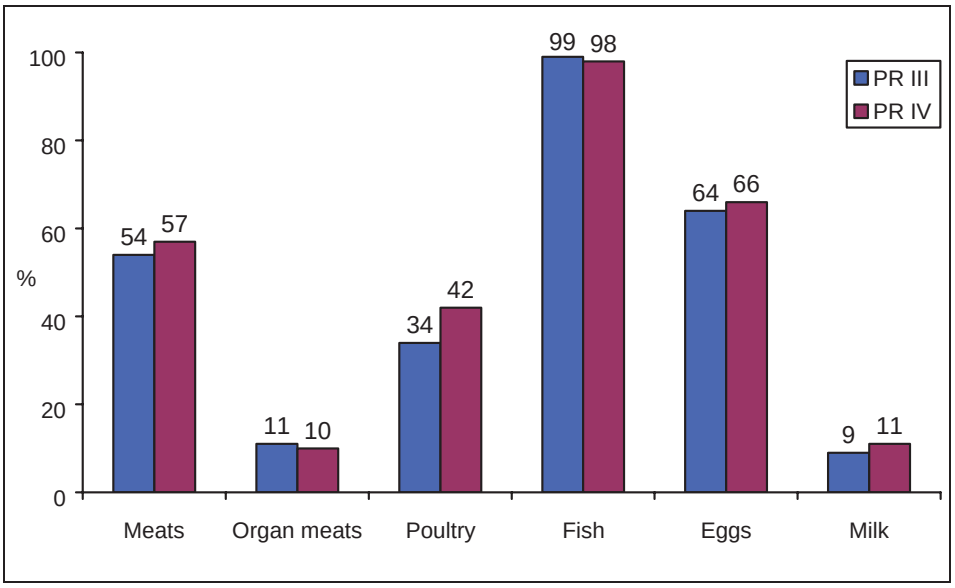
Rice was ranked highest on a daily consumption basis in both PR III and PR IV. All but 3 households in both surveys consumed rice in the 7 days prior to the PR IV survey (see Graph 2.14). Although rice consumption was constant in both surveys, the extent to which households were eating different types of vegetables and fruits varied due to seasonal factors. PR III-surveyed households were more likely to eat vegetables apart from tubers, but far less likely to eat vitamin A-rich fruits (only a third of PR III-surveyed households did so in the week before the survey) than households surveyed in PR IV. On the other hand, respondents in the PR III survey were far less likely to be eating vitamin A-rich fruits, with only a third of households doing so in the week before the survey. In PR IV, 82 per cent (n=1,400) of households indicated that they ate these types of fruits in the week before the survey.

Graph 2.14: Households that reported eating cereals, vegetables, fruits and nuts in the last seven days (PR III and PR IV)



Very similar meat, fish and dairy products consumption patterns appear in both PR III and PR IV households (see Graph 2.15). Households responding to PR IV were more likely to have eaten poultry in the week before the survey (42 per cent, compared to 34 per cent in PR III). Not surprisingly, fish was the staple food, with close to 100 per cent of households in both PR III and PR IV eating fish in the week before the survey.

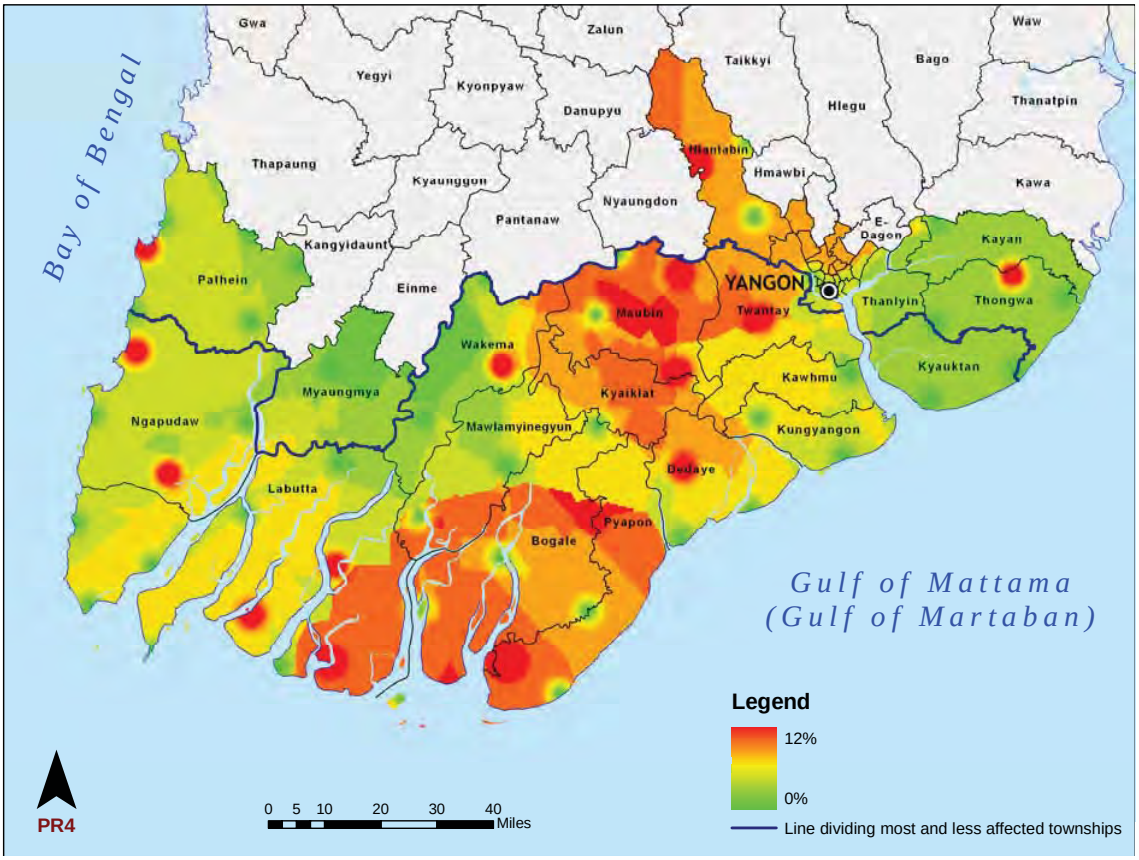
Graph 2.15: Households that reported eating meat, fish and diary products in the last seven days (PR III and PR IV)



A food consumption score, measuring adequacy, was derived from information on household consumption of specific food items during a designated period. For the purpose of this report, households were asked to recall their food consumption in the seven days prior to the survey interview; food consumption was then scored using methods laid out in the Emergency Food Security Assessment Handbook[2]. The food consumption score measures dietary diversity, with those scoring 28 or lower considered as having inadequate food consumption. Pockets of poor food consumption remain, attributed to systemic issues of chronic poverty, but compounded by Cyclone Nargis (see Map 2.17).

2 United Nations World Food Program (2005) Emergency Food Security Assessment Handbook

Map 2.17: Households with reported poor food consumption



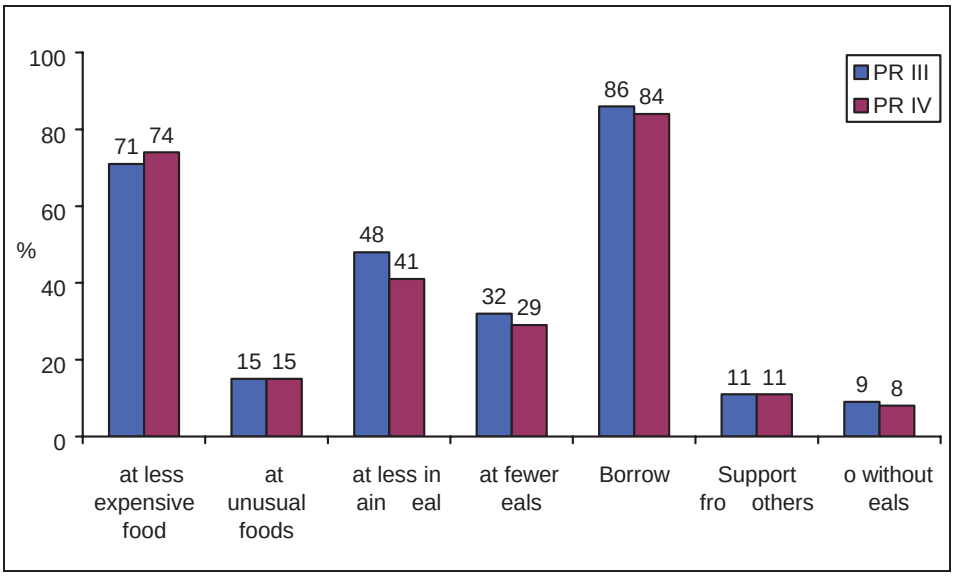
To determine the extent of food insecurity in the surveyed areas, households were asked about their coping strategies in times of food shortages during the 7 days preceding the interview. In PR IV, 41 per cent (n=1,400) of the households indicated that in the previous week they ate 2 meals per day, while the remaining 59 per cent of households ate 3 or more meals per day, similar to PR III.

An indication of food insecurity in PR IV is that 383 household heads, or 27 per cent, indicated that they did not have enough food for their household in the past 7 days. Of these households, nearly three quarters, or 276 households, did not have enough food for 1 to 3 of the past 7 days. One fifth of households did not have enough food for 4 to 6 days and 7 per cent (27 households) faced daily food scarcity.

Households that had their dwellings completely destroyed by Cyclone Nargis were more likely to report that they did not have enough food in the past 7 days, compared to other households. Among the 661 households that had their dwellings completely destroyed 35 per cent reported that they did not have enough food in the preceding week, compared to 20 per cent in households that did not have their dwellings completely destroyed ($P < 0.01$).

The main coping strategies for households without enough food were similar in both PR III and PR IV (see Graph 2.16). In both surveys the most common strategy was to borrow food or to buy food on credit at least once in the week before the survey, with 84 per cent (324 households) doing this. The second most common strategy was to choose less expensive food at least once in the week before the survey, reported by 74 per cent (280 households).

Graph 2.16: Households with insufficient food that reported using different coping strategies (PR III and PR IV)



Different types of households had different types of coping strategies when faced with insufficient food. The following paragraphs analyse the 383 households which reported that they did not have enough food for the household in the week prior to the survey.

Choosing to eat less expensive food: There was a significant difference between households whose dwellings had been completely destroyed and dwellings not completely destroyed by Cyclone Nargis. Plus, there was a significant difference between households in areas most and less affected by Cyclone Nargis. In the 232 households whose homes were totally destroyed and who did not have enough food during the last 7 days, 71 per cent chose less expensive foods, compared to 80 per cent of the 152 households whose dwellings were not completely destroyed and who did not have enough food ($P < 0.05$). Among 269 households in the most affected areas and who did not have enough food, 72 per cent chose less expensive food, compared to 81 per cent of 115 households in the less affected areas without sufficient food ($P < 0.05$).

Eat less in the main meal than normal: There was a significant difference between households that had their dwellings completely destroyed and those whose dwellings had not been completely destroyed by Cyclone Nargis. Among the 232 households whose dwellings were completely destroyed by Cyclone Nargis and who did not have enough food, 46 per cent ate less in the main meal, compared to 34 per cent of 152 households whose homes were not completely destroyed and who did not have enough food during the last 7 days ($P < 0.05$).

Eat fewer meals per day: There was a significant difference between households whose homes had been completely destroyed and those not completely destroyed by Cyclone Nargis. Among households whose homes Cyclone Nargis completely destroyed and who did not have enough food, 33 per cent ate fewer meals per day compared to 22 per cent of those whose dwellings were not completely destroyed and who did not have enough food ($P < 0.05$).

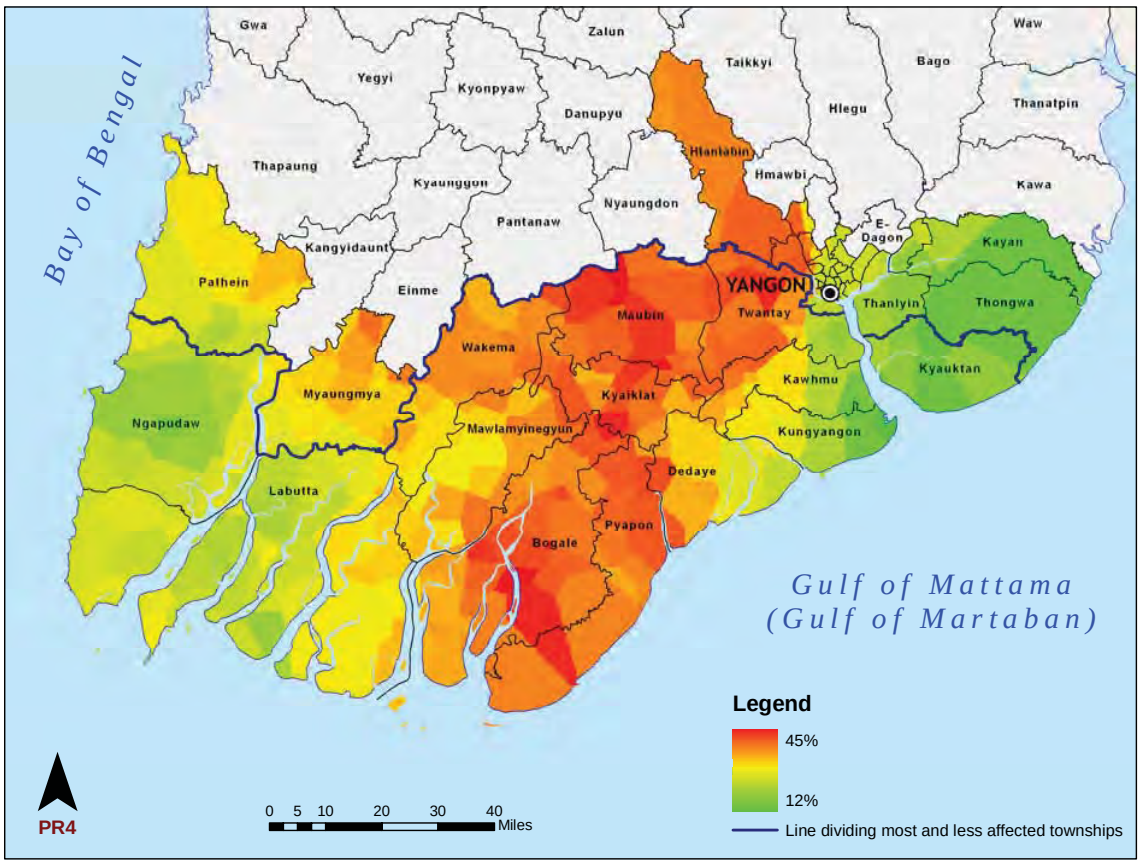
Received support from friends and relatives: there was a significant difference between male- and female-headed households. Among the 309 male-headed households that did not have enough food during the last 7 days, 10 per cent sought support from friends or relatives. Among the 50 female-headed households without enough food, it was 24 per cent ($P = .01$).

Some members of households went without meals: There was a significant difference by whether households dwellings were completely destroyed or not completely destroyed by Cyclone Nargis and by the age of household head. Among households whose homes were not completely destroyed by the Cyclone and who did not have enough food, 5 per cent reported going without meals, while in households whose homes were completely destroyed and who did not have enough food 11 per cent

reported missing meals ($P < 0.05$). Among the 301 younger-headed (age less than 60) households with inadequate food, 9 per cent reported some members going without meals, compared to 2 per cent in households headed by a person aged 60 or older ($P < 0.05$).

Map 2.18 shows the geographical distribution of moderate to severe food insecurity. Communities west of Yangon to Wakema Township and down to Bogale Township had poor food insecurity. It is likely that these problems relate to chronic underlying issues. However, the relationship of Cyclone Nargis' destruction of dwellings to high levels of multiple food coping strategies suggests that un-addressed shelter needs remains a critical issue directly related to the Cyclone.

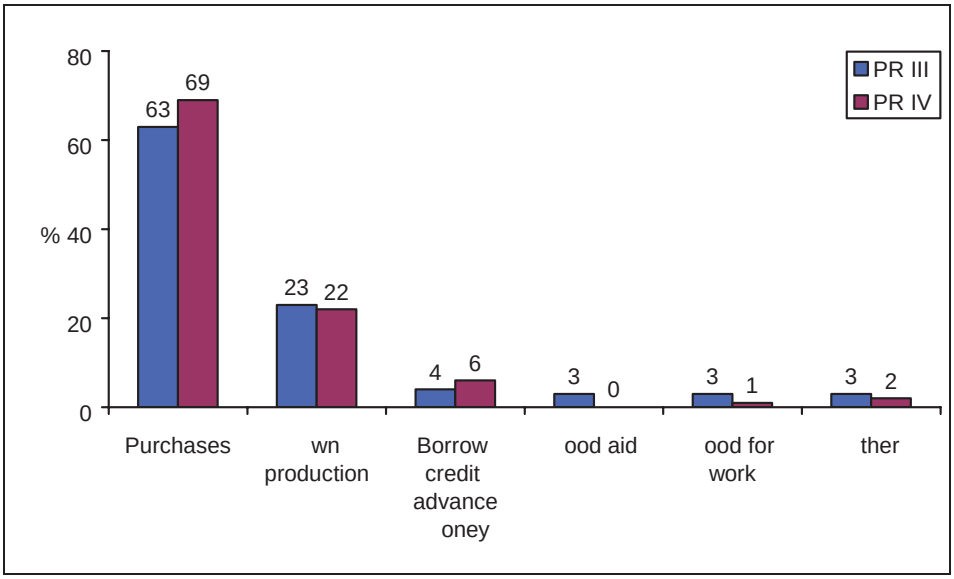
Map 2.18: Households that reported not having enough food for four or more days out of the last seven days



Food sources

In response to the question regarding the most important sources of household food consumption (see Graph 2.17), 963 households, close to 70 per cent of PR IV respondents, reported that they purchase their food. This is up from 63 per cent in PR III. Just over one in five households produce their own food in both PR III and PR IV households.

Graph 2.17: Households reported most important source of food (PR III and PR IV)



Household sourcing of food varies across groups. Households that had their houses completely destroyed by Cyclone Nargis were more likely to purchase food (72 per cent; 476 of 660 households whose shelters were completely destroyed), compared to 66 per cent (487 of 725 households) whose shelter was not completely destroyed ($P < 0.05$). There was no significant difference between households headed by men or women, by households headed by a person with a disability or not, or by those headed by elderly people.

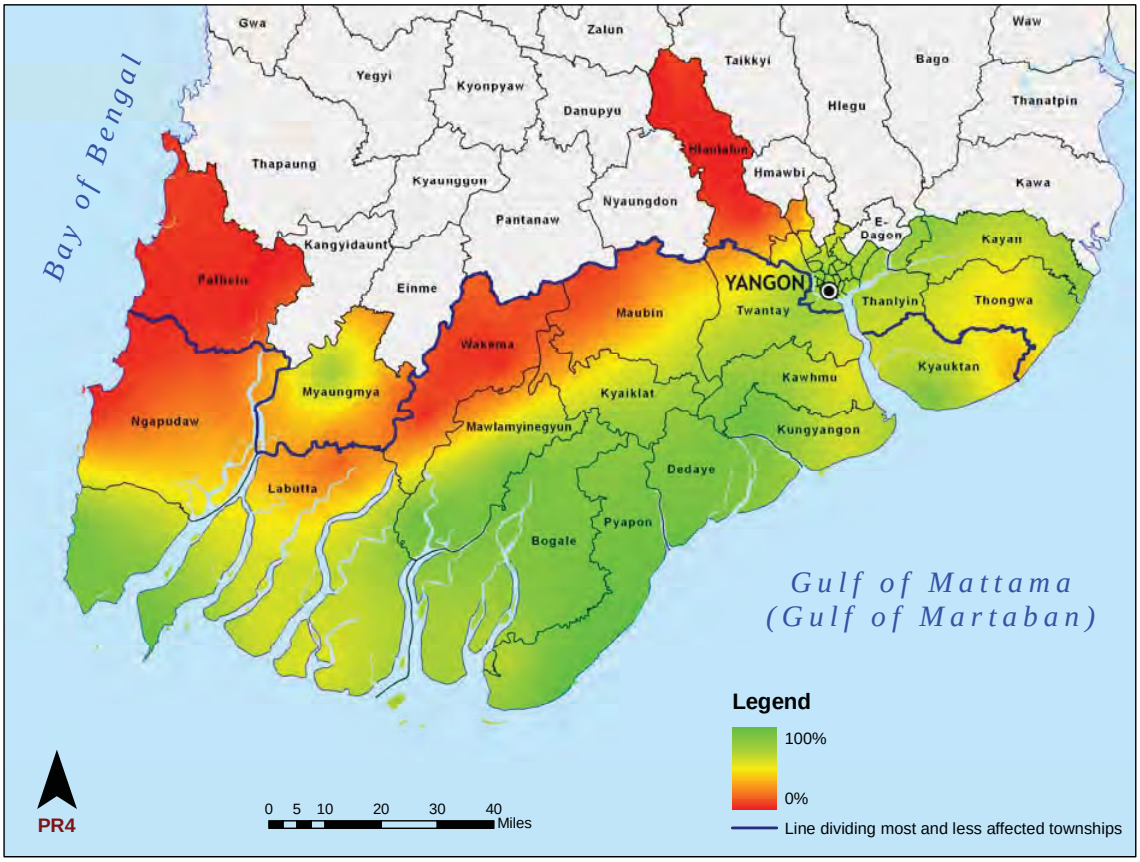
Gender differences influenced own production as the most important source of food. For those who answered this question, 13 per cent of the 176 female-headed households grew their own food, compared to 23 per cent of the 1,150 of male-headed households ($P < 0.01$). Furthermore, the 661 households that had their dwellings completely destroyed in Cyclone Nargis were less likely to indicate that their most important source of food is from their own production even 2 years on, with 16 per cent of them stating this, compared to 27 per cent of the other 739 households ($P < 0.01$).

Food aid relief

After a natural disaster the delivery of food aid is crucial to allow households and communities to survive the initial shock. PR II found that one year after Cyclone Nargis, 49 per cent of the households rated food aid as one of the three most important sources of food. In PR III, 18 months after the Cyclone hit, this fell to 14 per cent, and by PR IV, two years after the initial disaster, to 1 per cent (7 of 1,400 households). No households reported that they were receiving food aid, though a small number of households reported that they were working for food as an in-kind payment.

Food assistance since Cyclone Nargis was targeted to areas most affected by the Cyclone (see Map 2.19). The exception to this was areas east of Yangon City, in which high proportions of households indicated that they received food aid post-cyclone.

Map 2.19: Households that reported receiving food assistance



Summary

Two years after Cyclone Nargis, health and health care access improved and stabilised, resulting in higher infant survival rates. More young children were fully immunised, although with some gaps. The nutritional status of children has continued to improve through the successive PR assessments. Malnutrition affects 2 per cent of young children; however, 10 per cent of households reported having a malnourished child or a child at risk of malnutrition. Women were more likely to receive life-saving care during pregnancy and after delivery compared to earlier Periodic Reviews. Households used health services less than in the immediate post-Nargis period because they say they are healthier and have no need of services.

Water storage and treatment have continued to improve, although needs are yet to be fully addressed. Despite strong efforts in improving sanitation, one in five households lacked sanitary toilets and relied on open defecation, double the estimated pre-cyclone rate of 11 per cent of Ayeyarwady Division residents and 6 per cent of Yangon Division residents.[3] Although there was improvement in the practice of proper hygiene behaviour, about 10 per cent of households still need to be reached with hygiene behaviour change messages.

Food security has continued to improve among most households, although underlying development issues undermined the ability of some households to eat adequately. Households who lost their shelters to Cyclone Nargis struggled to achieve adequate food consumption. A band of food insecure households extends from the coast to the area west of Yangon City, a pattern seen across many indicators addressed in this assessment. Cyclone-related loss of dwellings has contributed to increased food insecurity.

For the large part, it is time to make that transition from relief assistance to longer-term based responses to address the remaining challenges to achieve and sustain healthy lives among households

3 Tripartite Core Group (July 2008) Post-Nargis Joint Assessment Report (PONJA), p. 105.

in the Ayeyarawady and Yangon Divisions. Approaches embedded in and developing the management and implementation skills of local organisations, local government, community committees, local women's groups and farmers groups, are called for. These approaches must ensure transparency and broad-based participation, including participation of those groups potentially marginalised by landlessness, gender and poor housing. In other countries, community approaches have successfully facilitated higher rates of immunisation, including both Tetanus vaccinations of pregnant women and immunisation of children against Measles and DPT. Community groups, particularly women's groups, may also play an important role in developing awareness among pregnant women of the need for medical examinations during and after pregnancy and of newborn infants.

The need for a transition to development rather than relief and recovery modes notwithstanding, households which lost their dwellings to the disaster fared poorly on a number of measures addressed in this chapter. A move to development approaches must take into account the unfinished relief and recovery business of addressing the needs of these households.

Chapter III: Productive Lives

www.aseanhtf.org/periodicreview.html

Chapter 3:

Productive lives

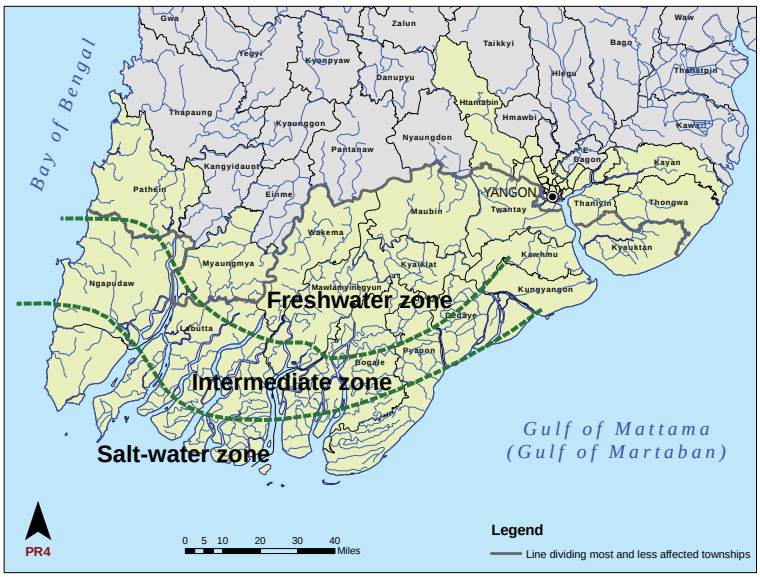
Two years after Cyclone Nargis simultaneously destroyed the sources of livelihood in the region and greatly reduced the capability of people to generate income and sustain their families, this assessment examined their current livelihood status. The great loss of human life and personal and public property eroded the basis of current and future livelihoods, including destruction of schools and homes. In the Cyclone-affected area, agricultural occupations dominate, with over 62 per cent of the population reling on fishing, farming, forestry and livestock for their livelihoods.

Few roads and bridges penetrate the vast network of small tributaries of the Ayeyarwady Delta. Many communities located there lived at subsistence level even prior to the disaster. As the PONJA reported, bridges, roads, piers, docks, schools and houses of religion were destroyed or badly damaged. While the Periodic Review surveys do not capture the status of public infrastructure, full recovery requires that such structures and the institutions they support fully function again.

3.1: Livelihoods

Dominant livelihoods activities remain essentially unchanged since before the disaster in the Cyclone-affected areas. Geography, seasonality and access to capital are driving factors in the choice of livelihood activities in the Cyclone-affected areas (see Annex 5.7). Primary sources of income may vary because of season as well as the relative importance of specific activities within a given household. Both crop cultivation and fishing, for example, may be either seasonal or year round, depending on such factors. The three agricultural zones (see Map 3.1) can be briefly described as follows.

Map 3.1: Agricultural zones of the Cyclone-affected area



In the salt-water zone, fishing dominates; other economic activities include commercial shrimp farming, salt making, monsoon paddy (large holdings, low inputs and low yield), and small scale livestock owning.

The intermediate zone faces dry-season salt-water intrusion. Economic activities include monsoon paddy, followed by pulses. Small scale livestock owning and commercial river fishing are also important.

Freshwater zone: Farming dominates; double-cropping of monsoon and summer paddy employs labour, irrigated vegetables and flowers produce food and income, and small to medium scale livestock holdings are important.

Note: Information for this map was provided by FAO, ERCU, *et al.* (2009)

Households employ multi-pronged livelihoods strategies: household members may engage in either fishing or crop cultivation, or both, in a particular season but switch emphasis to another activity when that season ends. For large parts of the population with few capital assets, labour opportunities, access to natural resources and the local circulation and availability of goods and cash, also shape or determine livelihood options.

Significant livelihoods activities, such as food production, generate minimal cash income but provide crucial household needs. Such activities include household gardens, subsistence fishing and small-scale fish and shrimp processing as well as poultry and small-animal husbandry. Surplus production may be sold for cash, bartered for goods and services, or given to other households in acts of goodwill and to foster stronger community ties. The role of these livelihoods activities, especially among the smallest landholders and people who are landless, is critical in re-starting the local economy.

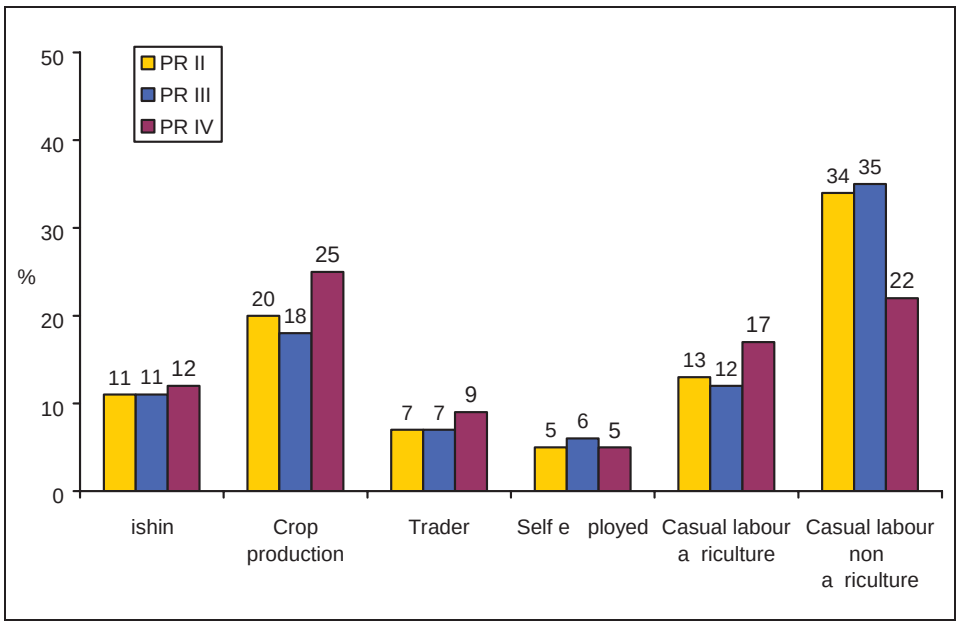
3.1.1 Types of livelihood

The Periodic Review process assessed the relative importance of the different types of livelihoods in the areas affected by Cyclone Nargis by looking at the variation in crop, livestock and fishing production and other livelihood activities, both income and subsistence.

The majority of households in the Cyclone-affected areas engage in agricultural activities such as farming, fishing, forestry or the raising of livestock and poultry. These activities include all aspects of the agricultural economy, including direct production, provision of labour and provision of a variety of services that support both production and marketing. Landless workers are highly dependent on the agricultural economy for labour opportunities and the prospects of local traders rise and fall on the ability of others to buy commodities and supplies.

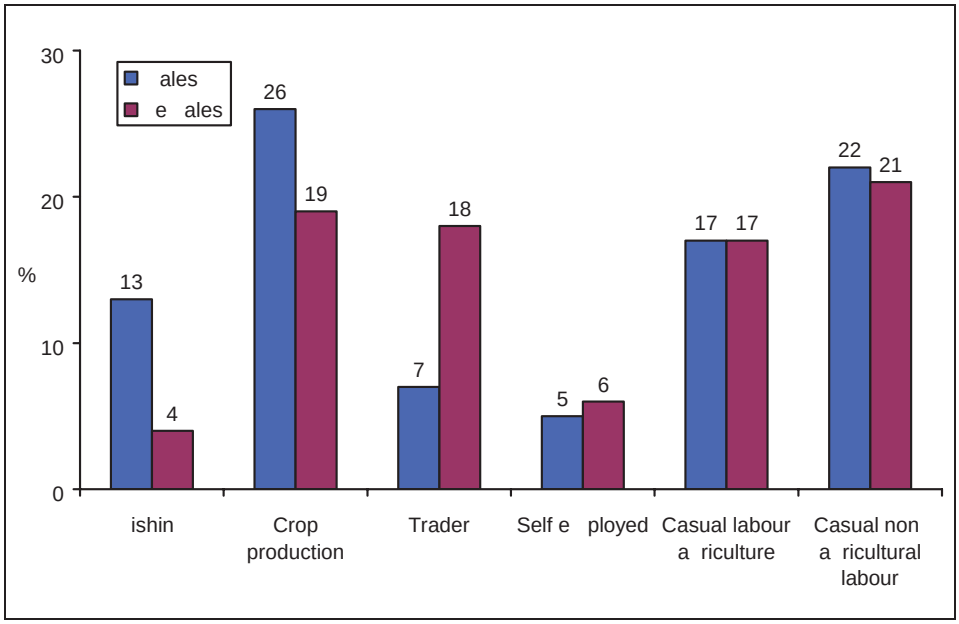
Households need to diversify their income sources in order to strengthen their resilience, particularly during adverse seasonal or economic conditions. To whatever extent possible, they engage in different livelihood activities at the same time. There was a marked drop in respondents reporting they were engaged in casual non-agricultural work in PR IV compared to PR II and III (see Graph 3.1). This activity was the most common activity in the earlier Periodic Reviews, but in PR IV, it was second to crop production. Production and labour activities in the agricultural sectors (crops, fishing, forestry and livestock) were part of livelihoods (62 per cent), while the activities of remaining households may involve providing support services at various times of the year to agricultural activities to some degree.

Graph 3.1: Principal livelihood of households (PR II, PR III and PR IV)



There were differences in the principal livelihoods of the household depending whether it was headed by a male or female (see Graph 3.2). Male-headed households were more likely to fish and farm (crop production), while female-headed households were more likely to be traders, with 18 per cent doing so, compared to 7 per cent for male-headed households. There was little difference between households headed by a male or female in regard to the extent the household undertook self employment or casual labour.

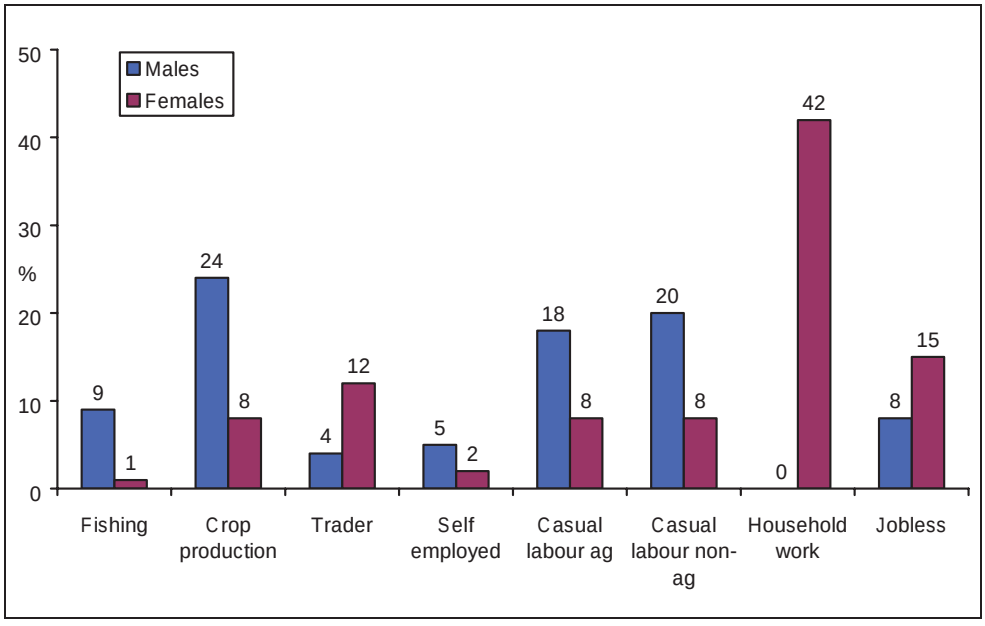
Graph 3.2: Reported principal livelihood of households headed by males and females



Activities of all household members older than 15 and who were not in school are distinctly impacted by gender divisions ($P < 0.01$) (see Graph 3.3). Over half of the 2,155 female household members were either undertaking household work or were unemployed, compared to 7 per cent of the 2,049 male household members. Furthermore, 18 per cent of female household members were traders, compared to 7 per cent of male household members.

Male household members were more likely to be involved in fishing, crop production, and both agricultural and non-agricultural casual labour, compared to female household members. The respective proportions of male household members undertaking these activities were 9, 24, 18 and 20 per cent compared to 1, 8, 8 and 8 per cent for female household members.

Graph 3.3: Current primary livelihood of household members by males and females

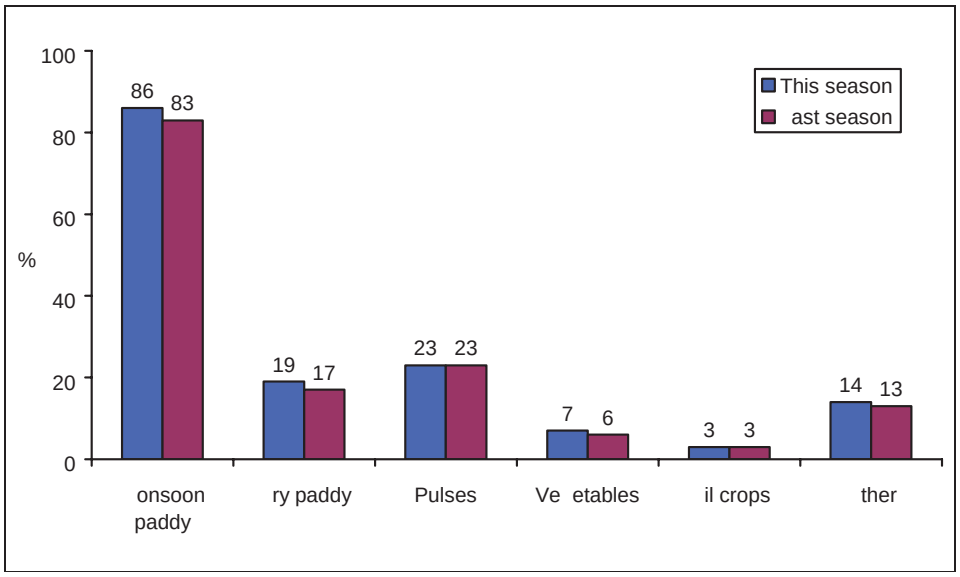


The jobless rate rose among both males and females, nearly doubling among females from 8 per cent to 15 per cent, since PR III, and rose from 5 to 8 per cent among males. This data may have been affected by seasonality, since PR IV data was collected in the weeks before the rainy season began, when labour opportunities in agriculture were especially limited, while PR III data was collected during harvest time, when more labour opportunities would have been available.

3.1.2 Crops

PR IV found that 32 per cent of the households surveyed had cultivated land in the current season or in the past season, compared to 29 per cent of households in PR III. The most common crop was rice paddy during the rainy season, with 86 per cent of households involved in crop production planting monsoon paddy in the 2009 rainy season, and 83 per cent cultivating monsoon paddy in 2008 (see Graph 3.4).

Graph 3.4: Households cultivating land undertaking different types of crop production 2008-2009

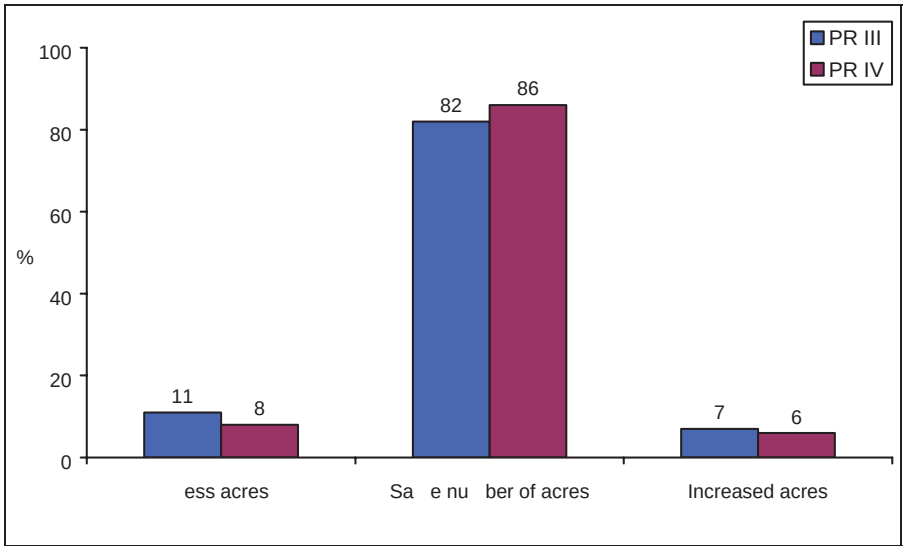


Monsoon paddy acreage

The average area devoted to paddy cultivation during the 2009 rainy season was 10.7 acres. Based on PR IV survey responses regarding paddy area, in both the 2008 and 2009 cropping seasons, the average cropping area remained below the pre-Cyclone Nargis average of 11.6 acres, as reported in PR II.

Little change appeared in the number of acres used for the 2008 and 2009 monsoon paddy seasons: 86 per cent of the 447 households involved in crop production planted the same amount of land. However, 8 per cent of households cropped fewer acres in the 2009 rainy season than in 2008 and 6 per cent increased the acreage (see Graph 3.5). In PR III, 82 per cent of households that were farming planted the same amount of acres as they did the year before, while 11 per cent planted fewer acres. Since PR III and PR IV both reference the 2009 rainy season, differences in acreage planted reflect slight differences in the survey samples.

Graph 3.5: Change in monsoon paddy acreage planted (PR III and PR IV)



Arable land holdings

Whether households own arable land or not influences their ability to grow crops. Among the 661 households whose dwelling was completely destroyed by Cyclone Nargis, 78 per cent reported that they had no arable land, compared to 83 per cent of the other 739 households (P = .01). Furthermore, of those who moved since Cyclone Nargis (n=294), 82 per cent of households had no land, compared to 63 per cent of households that had not moved dwelling (n=1,106; P = .01).

Among the 447 households that cultivated crops, 12 per cent of them were renting land. Elderly-headed households that were producing crops (n=87) were less likely to rent land, with 2 per cent of them doing so, compared to 14 per cent of the younger-headed households (n=357; $P < 0.01$).

Household gardens

A proportion of households in each Periodic Review cultivated a household garden of either fruit or vegetables; the ability to do so maybe related to seasonal factors. PR II and PR IV assessments, which took place as the dry season was ending, recorded 23 and 25 per cent (n=1,400) of households undertaking this activity. However, in PR III, which took place immediately after the rainy season, 30 per cent of households reported having gardens.

Of the 347 households that had a households garden, 67 per cent grew food for immediate family consumption, while 46 per cent gardened to supplement family income through the sale or barter of garden produce. A proportion of those with gardens were both providing food for their family and supplementing income (13 per cent).

The likelihood of households planting a households garden differs by the extent of shelter damage resulting from Cyclone Nargis. Among 661 households that had their dwelling completely destroyed 16 per cent had a home garden, compared to 33 per cent of the other 739 households ($P < 0.01$).

Only 13 per cent of the 294 households who had moved to a new dwelling since Cyclone Nargis had a households garden, compared to 28 per cent of the 1,106 households who were in the same dwelling before the Cyclone ($P < 0.01$).

The lack of availability of household gardens reduced food options for a group of households who suffer high food insecurity, as detailed in the food insecurity section.

Relief items and needs

In PR IV, 7 per cent (n=1,400) of the households indicated receiving crop-related relief items, such as agricultural equipment, seeds, fertiliser, draught animals, animal feed and fuel. This is similar to the reported levels of assistance in PR II and PR III where only 6 per cent of households reported receiving such items.

3.1.3 Fishing

Fishing is the major economic activity of the southern part of the Delta region in Ayeyarwady Division, including both large- and small-scale off-shore fishing as well as freshwater river fishing throughout the area. Small-scale fishing is an important subsistence and income-generating activity for many households, particularly during the rainy season when fish are raised within the confines of flooded paddy fields.

The Periodic Review process assessed fishing activities as a source of livelihood by measuring the extent of ownership, loss, receipt and need of fishing gear, fish-processing equipment and boats. Boats are multi-purpose, used for fishing, transportation and other economic activities such as floating shops. Thus, boat ownership alone does not indicate involvement in fishing. Similarly, many types of small-scale fishing gear do not require the use of a boat. Households without boats may still engage in fishing or fish processing as a means of livelihood.

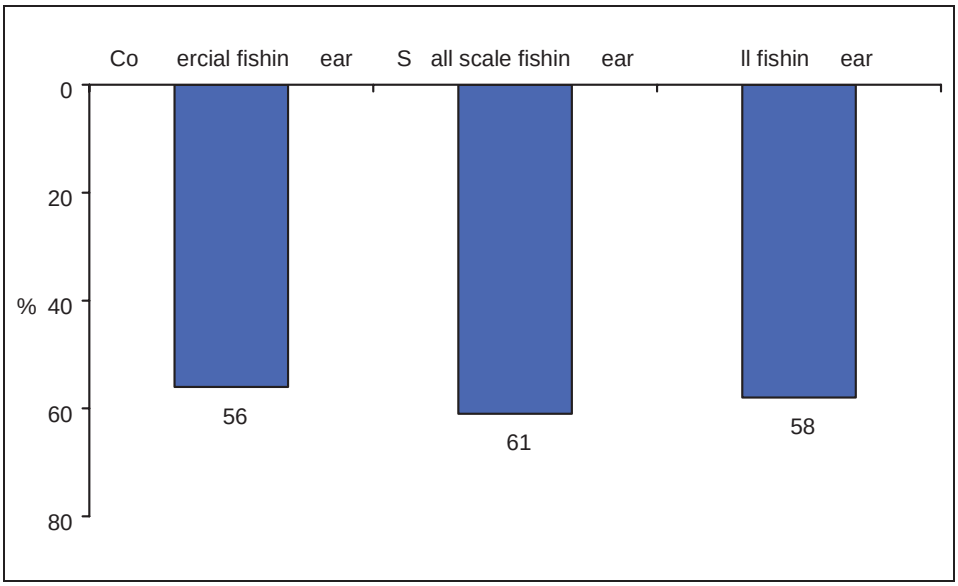
Fishing gear

Fishing gear serves as a critical indicator of the state of the local fishing sector, and recovery among those involved in fishing prior to the disaster would benefit not only those households but those who provide labour in the sector. The lack of full fishing industry recovery in areas affected by Cyclone Nargis is illustrated by the reduction in current ownership of fishing gear compared to pre-cyclone ownership (see Graph 3.6). Fishing gear principally refers to fishing nets and fishing traps of the type used in fresh water and near the coast.

The 307 households that reported having fishing gear before Cyclone Nargis showed a 58 per cent reduction in the number of gear that they owned at the time of the survey. This reduction can be broken down into a 56 per cent reduction in commercial fishing nets for the 245 households that had this type of net, and a 61 per cent reduction in small scale fishing gear for the 103 households that had this equipment.

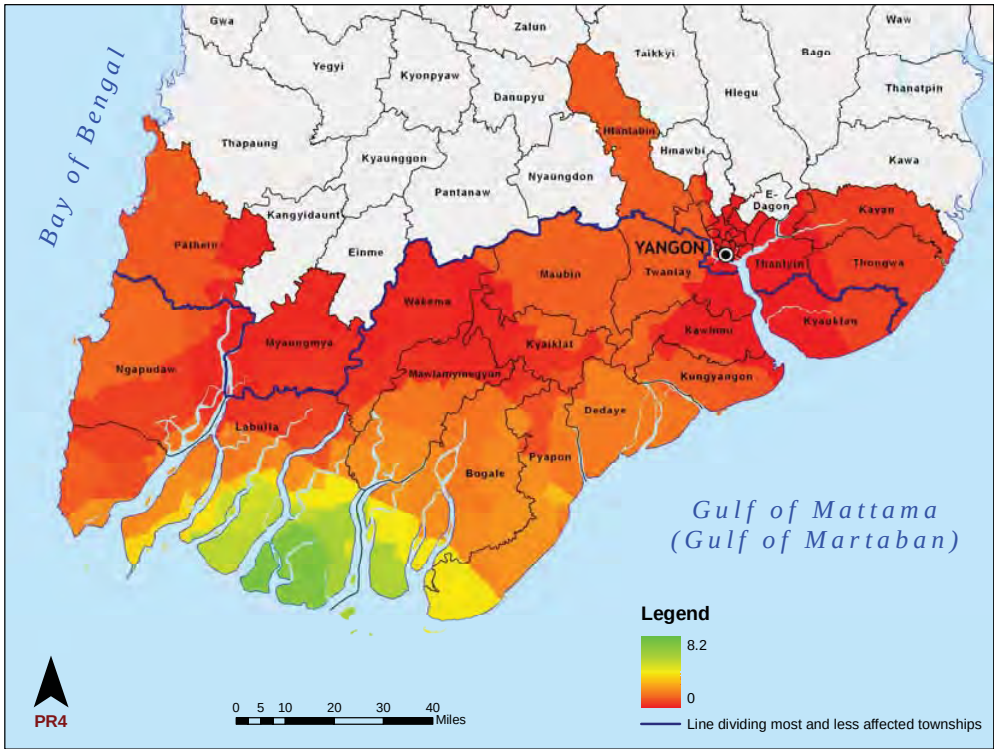
Only households that had owned a particular type of fishing gear before the Cyclone and currently owned the same type of fishing gear after the Cyclone were included in the data set used to determine the extent of fishing gear loss. For each type of fishing gear a comparison was made between the mean number of fishing gear owned before the Cyclone and the mean number of fishing gear at the time of the PR IV assessment. The difference between the two was turned into a percentage loss or gain. The same method of calculation was used to determine change in ownership of fish-processing equipment, boats and livestock.

Graph 3.6: Average number of fishing gear owned pre-Cyclone Nargis and not yet replaced

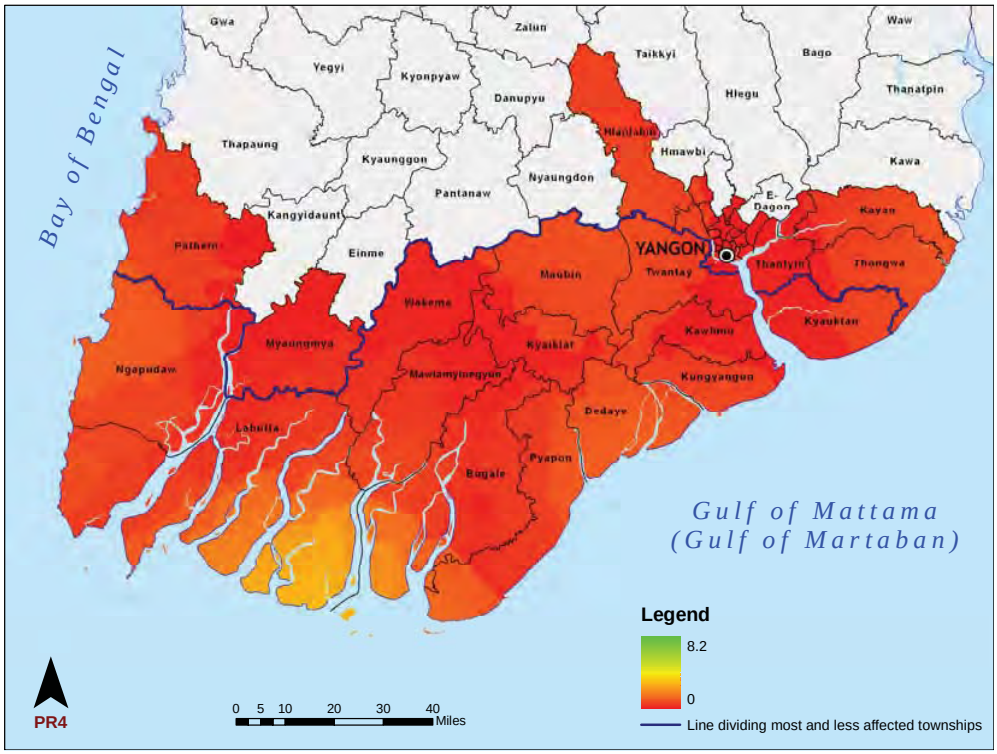


Maps 3.2 and 3.3 show the geographical distribution of fishing gear ownership before Cyclone Nargis and ownership in May 2010 when data for PR IV were collected. These maps show that the majority of households owning fishing gear before the Cyclone were centred on the coastal areas of Labutta and Bogale Townships. The Cyclone devastated fishing gear ownership in these areas, and despite aid assistance, the households there have not recovered to pre-Cyclone Nargis levels.

Map 3.2: Average number of commercial fishing gear owned by households before Cyclone Nargis



Map 3.3: Average number of commercial fishing gear owned by households as of May 2010

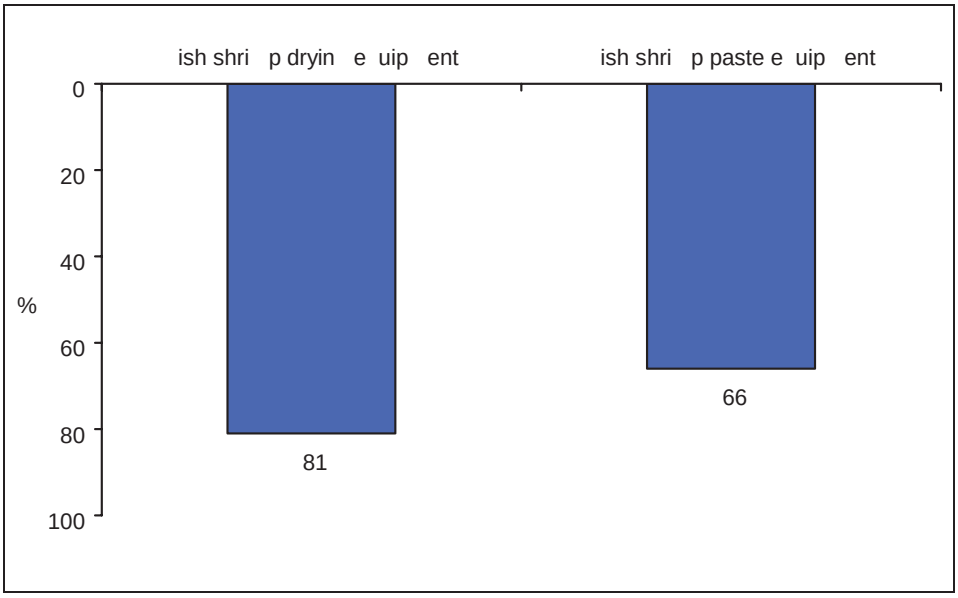


Fish-processing equipment

The recovery in the fish-processing sector was limited (see Graph 3.7). Among the 16 households involved in this sector, 81 per cent had less fish/shrimp drying equipment and 66 per cent less fish/shrimp paste processing equipment.

The fish-processing industry was primarily an employer of women in the Ayeyarwady Division, and while much fish processing work had moved to Yangon Division-based facilities before Cyclone Nargis, the slow recovery of equipment indicates that this livelihood activity for women did not recover.

Graph 3.7: Average number of fish-processing equipment owned pre-Cyclone Nargis and not yet replaced

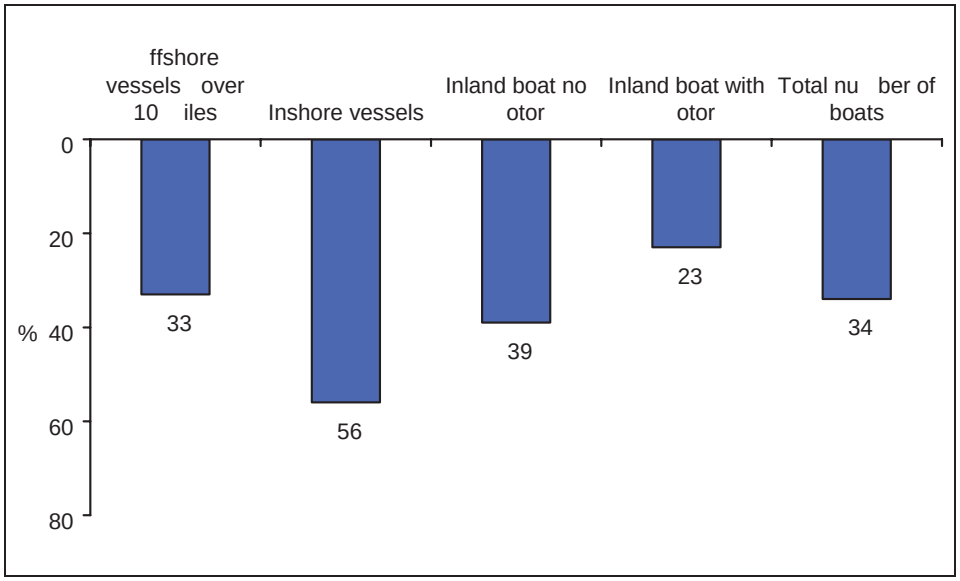


3.1.4 Boats

Boat ownership

Boats are critical to the Ayeyarwady Division, used for transport in an area dominated by water rather than roads. Households which owned boats before the storm provided the transport of people and goods which drives the economy, and supported the fishing industry. Cyclone Nargis devastated boat ownership through the area surveyed; two years after the storm households still own far fewer boats than before the Cyclone. Among the 386 households within the PR IV sample that had boats before Cyclone Nargis, the number of boats owned had declined on average by 34 per cent (see Graph 3.8).

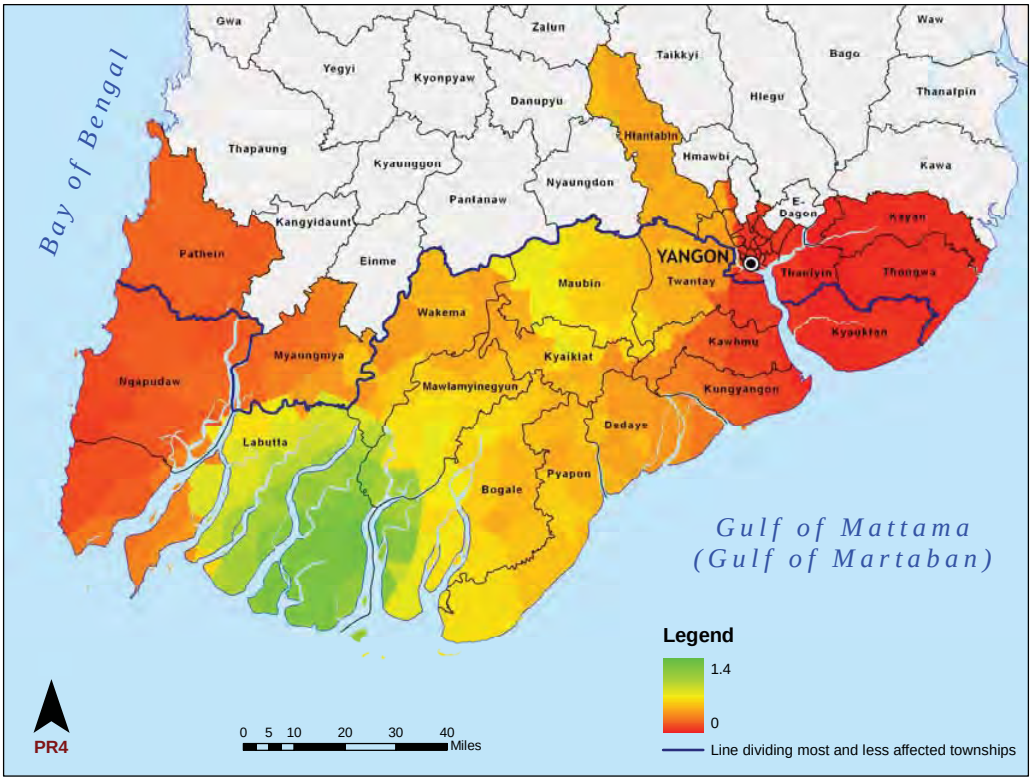
Graph 3.8: Average number of boats owned pre-Cyclone Nargis and not yet replaced



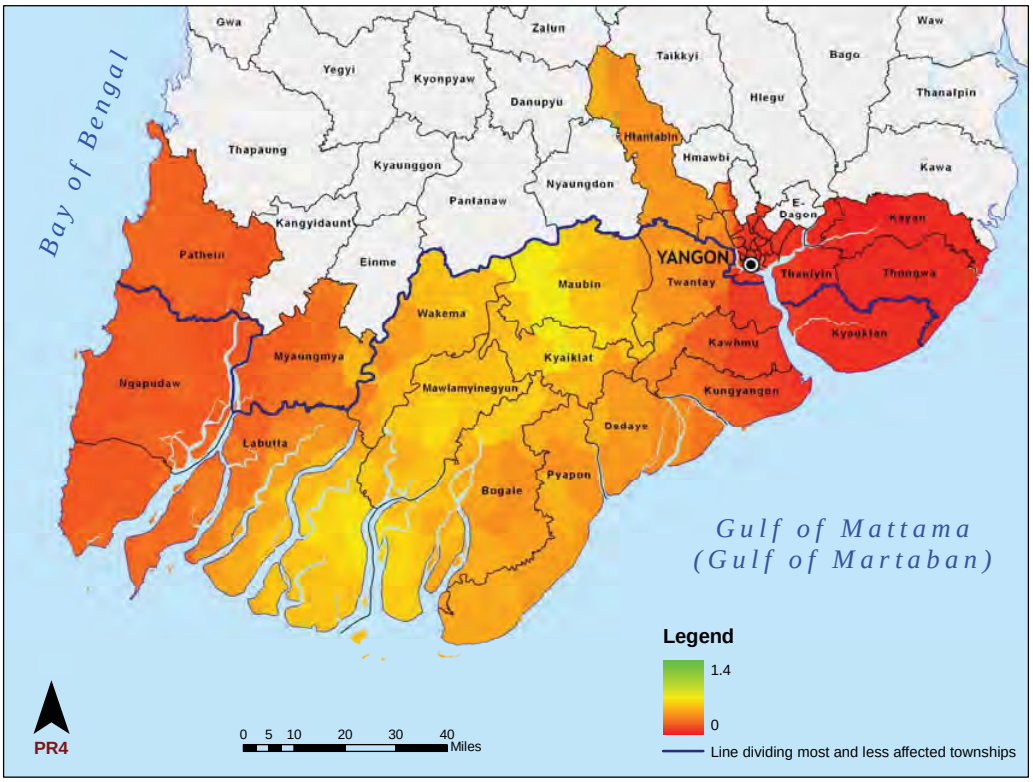
Offshore vessels that go out further than 10 miles showed a reduction of 33 per cent, however only six households indicated that they had these types of boats before Cyclone Nargis. For inshore vessels that stay within 10 miles of the shore, the change was -56 per cent, though only 20 households indicated that they had these types of boats before Cyclone Nargis. Among the 284 households that had inland boats without motors the change was -39 per cent. For the 90 households with inland boats with a motor before the Cyclone struck, the change was -23 per cent. These households were among those most likely to have the knowledge, experience and skills to run local transport and fishing businesses. Slow asset recovery among these households limits not only their households, but limits the demand for labour and their ability to provide transport and other services essential to broader livelihoods recovery.

Maps 3.4 and 3.5 show the average number of boats owned per household before Cyclone Nargis to May 2010. Before Cyclone Nargis, on average, households in Labutta Township owned more boats than households in other areas surveyed. Households in this township lost large numbers of boats during the Cyclone and they have not recovered to pre-cyclone levels of boat ownership, despite aid assistance which provided boats to those affected by the Cyclone.

Map 3.4: Average number of boats owned by households before Cyclone Nargis

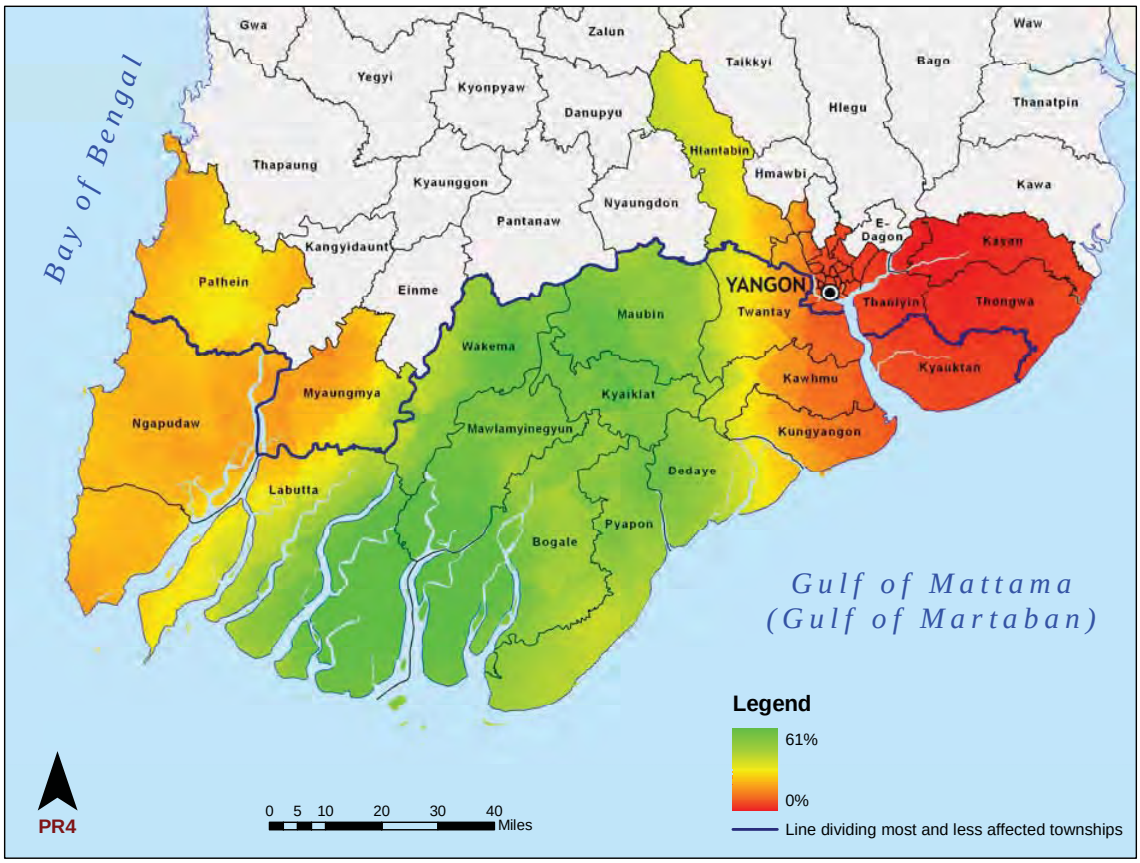


Map 3.5: Average number of boats owned by households in May 2010



Map 3.6, showing the aid distribution of boats, suggests that aid was largely well targeted to the most affected areas. Boats went mostly to communities in the Ayeyarwady Division, who have been traditionally involved in fishing and using boats for transport such as those in Labutta Township.

Map 3.6: Percentage of households that reported receiving boats

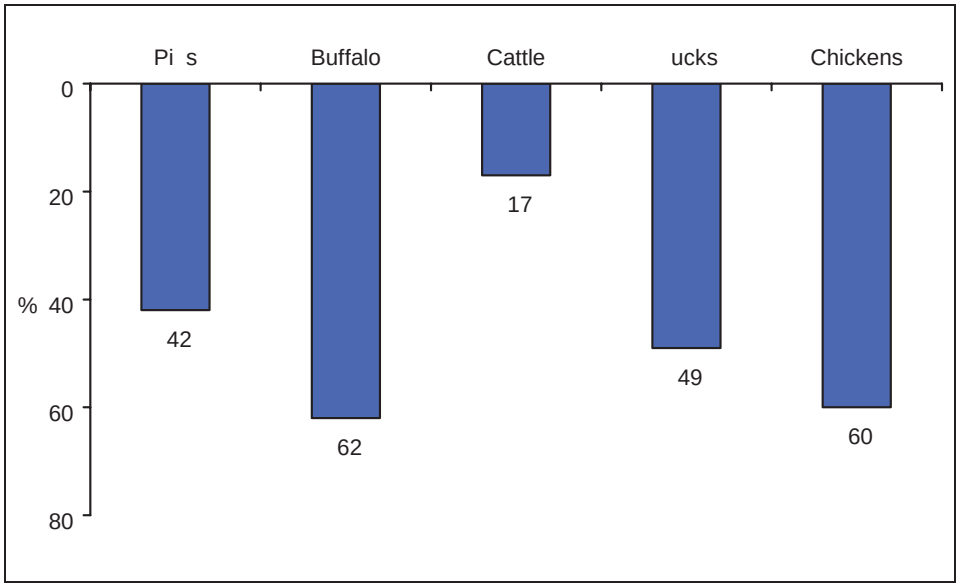


3.1.5 Livestock

Cyclone Nargis killed countless animals and, despite assistance provided by the humanitarian community, the extent of animal ownership among households in PR IV was still far below ownership levels before the disaster occurred (see Graph 3.9). This section focuses primarily on households which owned different types of livestock prior to the disaster. The rationale, as explained with regard to other agricultural asset categories, is because these households are most likely to have the specific management, knowledge and skills needed to manage a livestock business. Their recovery drives the recovery of other households, which provide labour and depend on draught animal owners to plough fields and mill grain. Animals serve other purposes—income, food security, and collateral—but those purposes are not the focus of the current analysis.

The dramatic reduction in all types of animals continues to impact the area. The 86 households surveyed in PR IV that had buffaloes before Cyclone Nargis owned 62 per cent fewer buffaloes at the time of the survey. Likewise, the 590 households that owned chickens before the Cyclone owned 60 per cent fewer at the time of PR IV data collection.

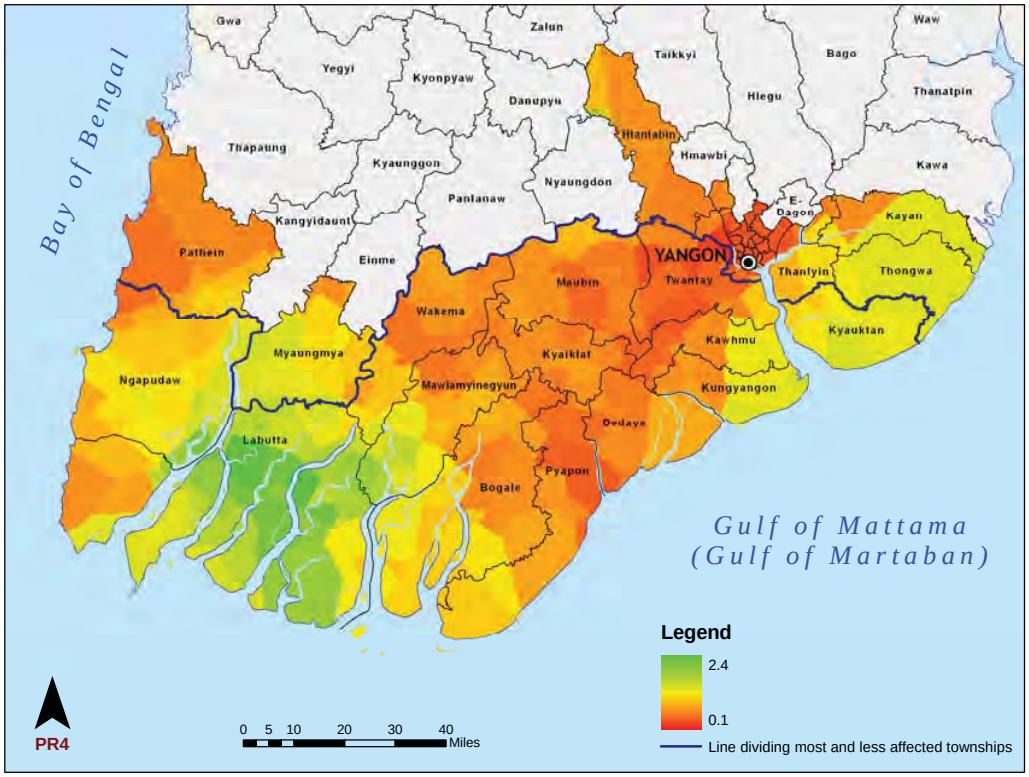
Graph 3.9: Average number of animals owned pre-Cyclone Nargis and not yet replaced



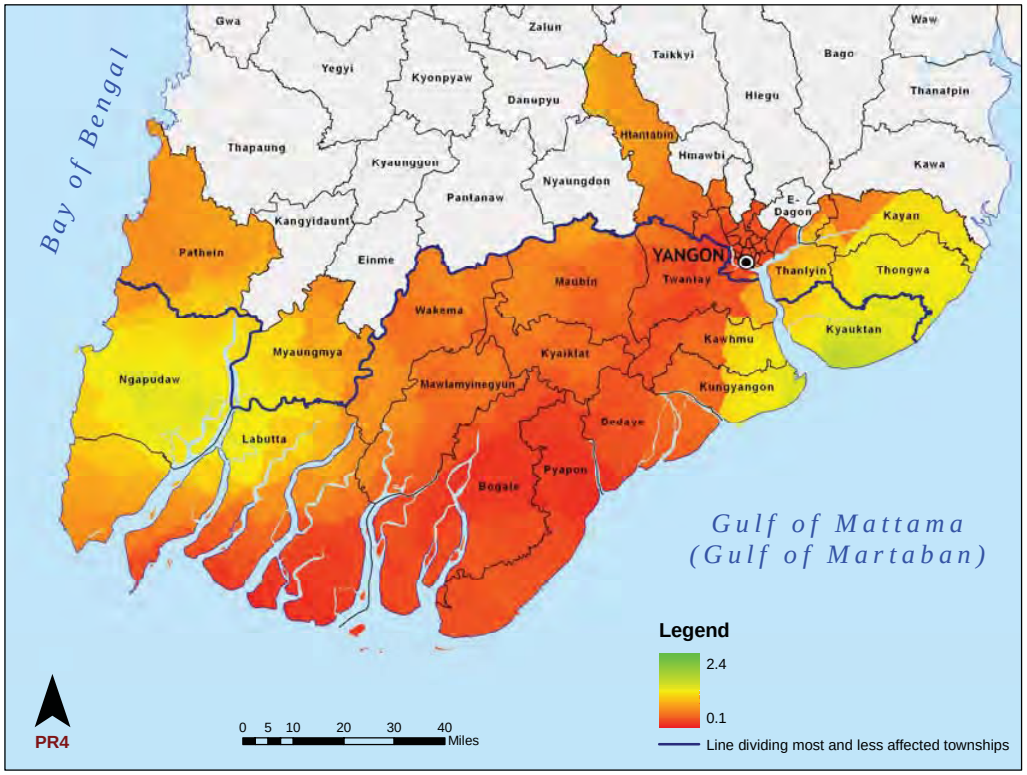
The loss of so many animals had, and will continue to have, a detrimental impact on the livelihoods of communities within the Cyclone's path. The loss of draught animals (buffaloes and cattle) is of particular concern, as these animals play a critical role in crop production. In addition to their role in preparing and ploughing fields, draught animals may also pull carts or drive small grinder mills.

Maps 3.7 and 3.8 show the locations of the average draught animals owned before Cyclone Nargis and in May 2010. Comparing the two maps, it is possible to infer draught animal loss. Households around Labutta Township owned more draught animals before Cyclone Nargis than other households interviewed in PR IV. However, by May 2010, households in the coastal areas of Labutta Township had some of the lowest levels of draught animal ownership. The dark red area marked in Map 3.7, reflects the loss of draught animals along the Cyclone's path, as it struck the coast of Labutta Township and moved towards Yangon Division.

Map 3.7: Average number of draught animals owned by households before Cyclone Nargis



Map 3.8: Average number of draught animals owned by households as of May 2010

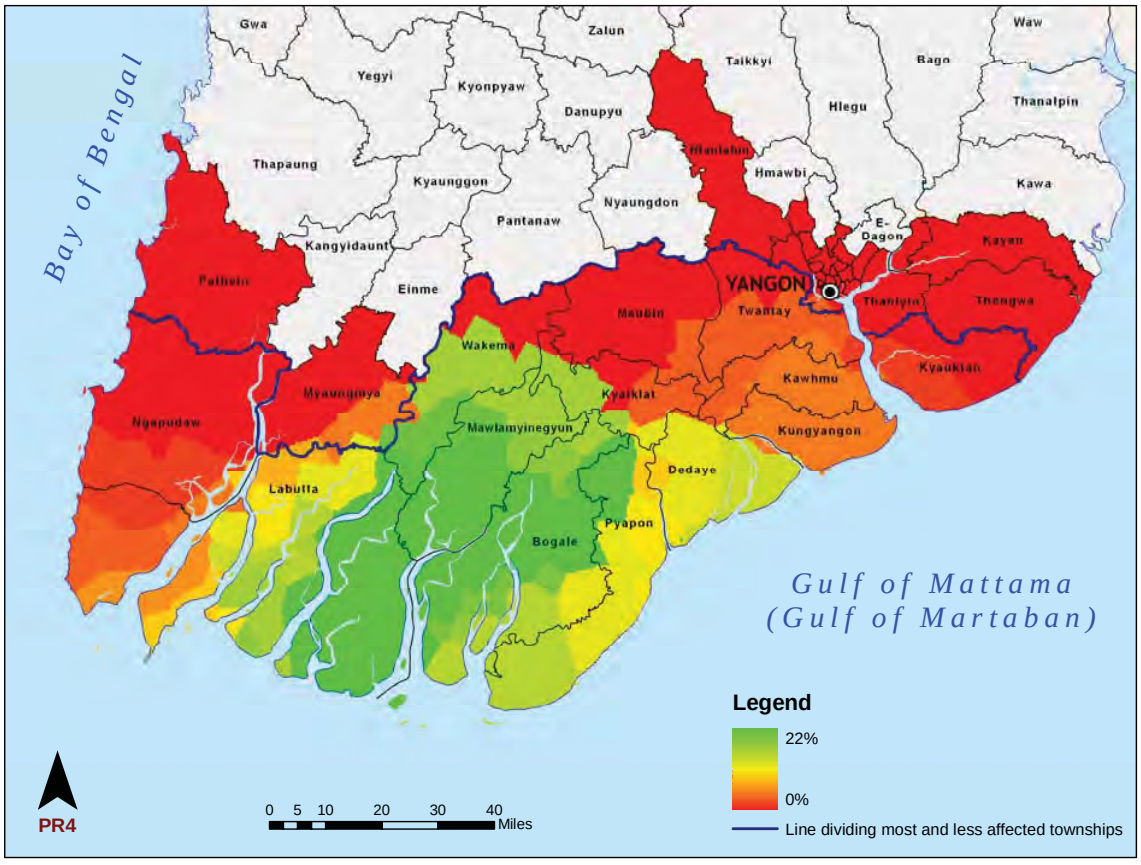


Given the four to six years time needed for cattle and buffaloes to gestate and reach maturity, it will take years before there is a recovery in draught animal numbers. The shortfall of draught animals in this area means significant hardships and lower yields for those who rely on these animals for their crop production. Mechanical tillers require added costs for fuel and maintenance and are not considered appropriate for parts of the Delta near the coast where only a single rice crop is grown and buffalo use was dominant.

Small animals, particularly pigs and poultry, provide both income and nutrition. The loss of so many poultry and small livestock was particularly disastrous for families with small or no landholding. Landless households use pigs, chickens and ducks to earn income and as savings.

Map 3.9 represents the overall livestock aid received. It shows that there has been a concentration of aid to households in Bogale, Labutta and Mawlamyinegun Townships, as marked green on the map. Households in townships further north and east of there have received little or no livestock aid, despite the loss of animals that they suffered as a result of the Cyclone. Given the importance of all types of livestock to both recovering and sustaining a livelihood, the need for expanded support remains.

Map 3.9: Percentage of households that reported receiving livestock



3.2: Shelter

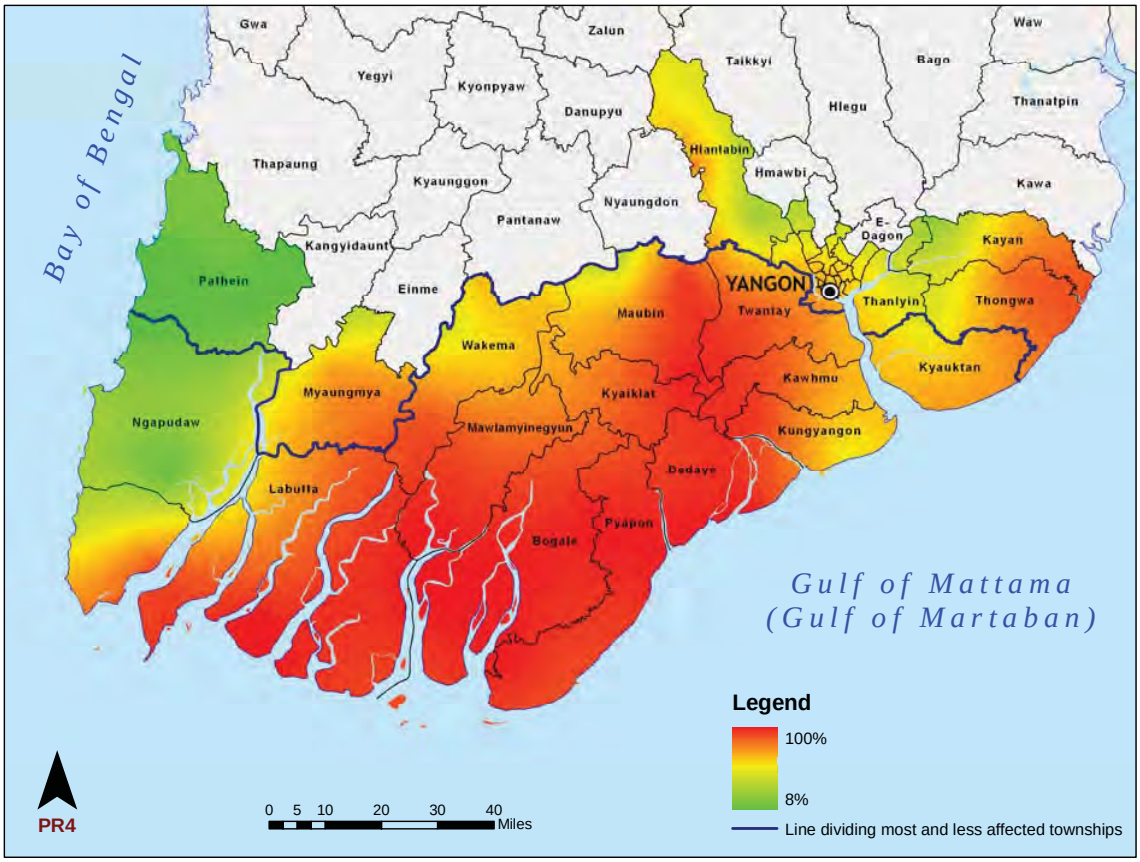
3.2.1 Shelter damage

The PR II found that prior to Cyclone Nargis, roughly 50 per cent of the surveyed households in the affected areas lived in a house (referred to in this report as dwellings) made of a combination of wood and bamboo, and 35 per cent were all wooden, while only 15 per cent were made of brick or concrete. Most dwellings were not built to withstand extreme weather disturbances and thus were destroyed by the strong winds and rising tidal waters brought on by the Cyclone.

Cyclone Nargis damaged dwellings extending through much of the Ayerawady Delta and Yangon Division. The PONJA reported that the Cyclone affected an estimated 800,000 dwellings[1], of which around 450,000 were totally destroyed. Only 2 per cent remained untouched by the disaster. This degree of destruction displaced as many as 800,000 people[2], who sought shelter with extended family, friends or in relief camps.

Among the 1,400 households interviewed for PR IV, 47 per cent of dwellings were completely destroyed by the Cyclone; 25 per cent of dwellings were severely damaged; 22 per cent sustained minor damages and 6 per cent were not damaged. Map 3.10 shows the percentage of households whose dwellings were completely destroyed and severely damaged by Cyclone Nargis. Although damage was most severe on the coast, high damage levels reached Yangon Division and beyond. Some of the worst affected areas included Mawlamyinegyun Township where 65 per cent of the respondents, and Labutta Township where half of the respondents, indicated that their dwellings had been completely destroyed.

Map 3.10: Households whose dwellings were completely destroyed and severely damaged by Cyclone Nargis

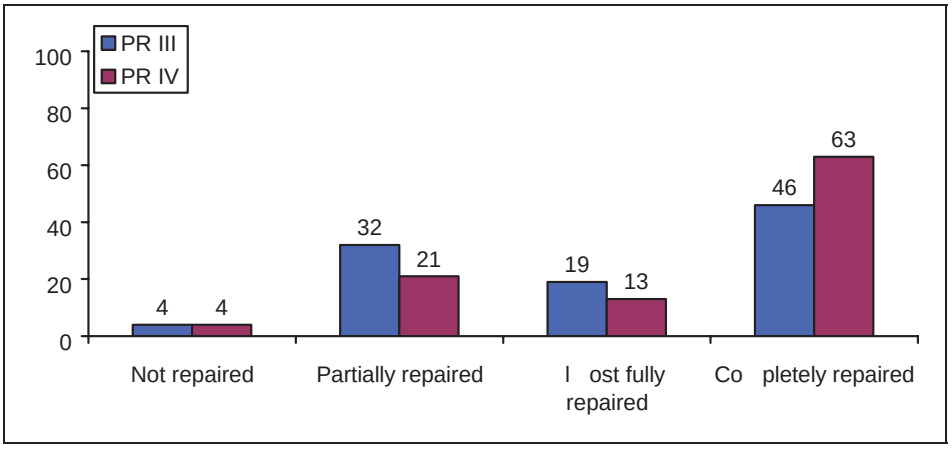


1 Tripartite Core Group (2008). Post-Nargis Joint Assessment Report (PONJA), p. 13.
2 Tripartite Core Group (2008). Post-Nargis Joint Assessment Report (PONJA), p. 1.

3.2.2 Shelter repair status

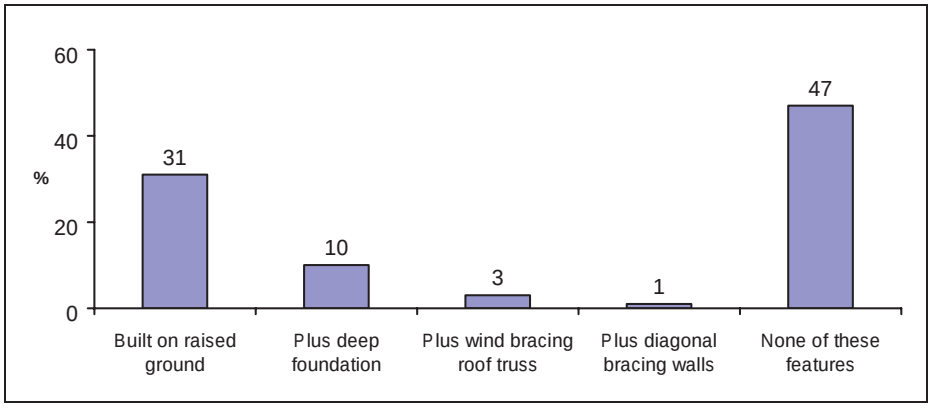
For those households who continued to live in the same compound as before Cyclone Nargis, PR IV assessed the status of repairs to their dwellings. Graph 3.10 shows that of households living in the same compound, 63 per cent (n=1,106) shelters were fully repaired; 13 per cent were almost fully repaired; 21 per cent were partially repaired and 4 per cent were not repaired. Progress was made since PR III, as the proportion of households reporting fully repaired dwellings increased from 46 per cent to 64 per cent in PR IV.

Graph 3.10: Repairs to dwellings for households living in the same compound since Cyclone Nargis (PR III and PR IV)



However, it must be stressed that dwellings were rebuilt to pre-Cyclone Nargis conditions and not to standards that would protect household members from another cyclone. Only 1 per cent of the 1,400 households, as verified by enumerators, lived in a dwelling that was built on raised ground, had a deep foundation, had wind bracing roof trusses and diagonal wind bracing walls, all key features providing protection against severe winds and storms (see Graph 3.11). While close to half of all dwellings had none of these features.

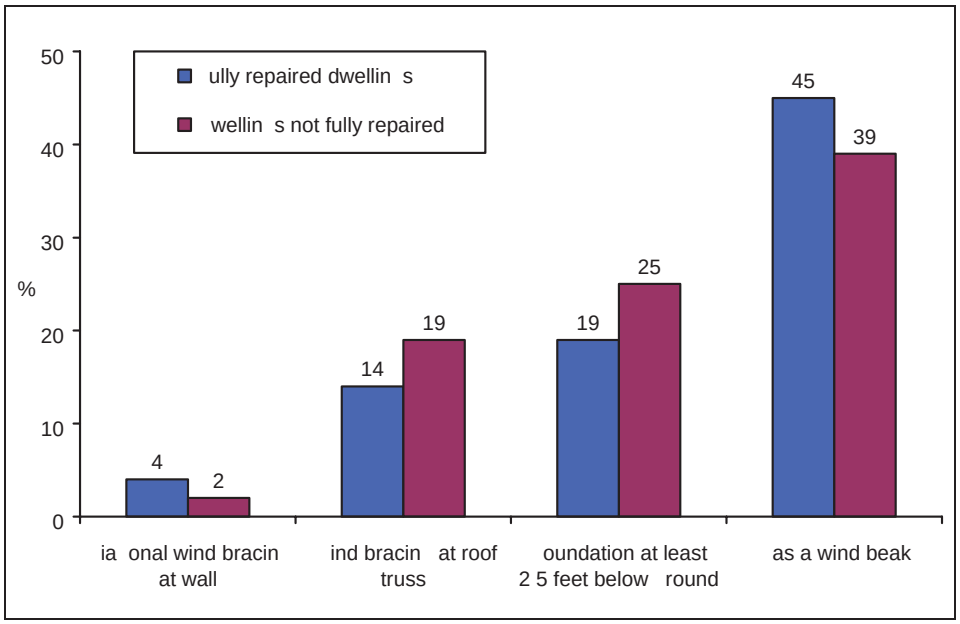
Graph 3.11: Dwelling-construction features verified by PR IV enumerators



Furthermore, many of the fully repaired dwellings were built to a standard that was not necessarily superior to those dwellings that had not yet fully repaired (see Graph 3.12). Only on two construction features, as verified by enumerators, did they score better than dwellings not fully repaired. Wind breaks using trees or other plants were more common in fully repaired dwellings: 45 per cent, compared to 39 per cent of dwellings not fully repaired ($P < 0.05$). Of the fully repaired dwellings 4 per cent had diagonally wind bracing walls, compared to 2 per cent of the dwellings not fully repaired ($P < 0.05$).

However, fully repaired dwellings were less likely to have wind bracing roof trusses, with only 14 per cent of them doing so, compared to 19 per cent of the dwellings not fully repaired ($P < 0.05$). Furthermore, fully repaired dwellings were less likely to have deep foundations, with only 19 per cent doing so, compared to 25 per cent of the dwellings that had not been fully repaired ($P < 0.05$). On a range of other building standards there was no statistical difference between dwellings fully repaired and those not fully repaired.

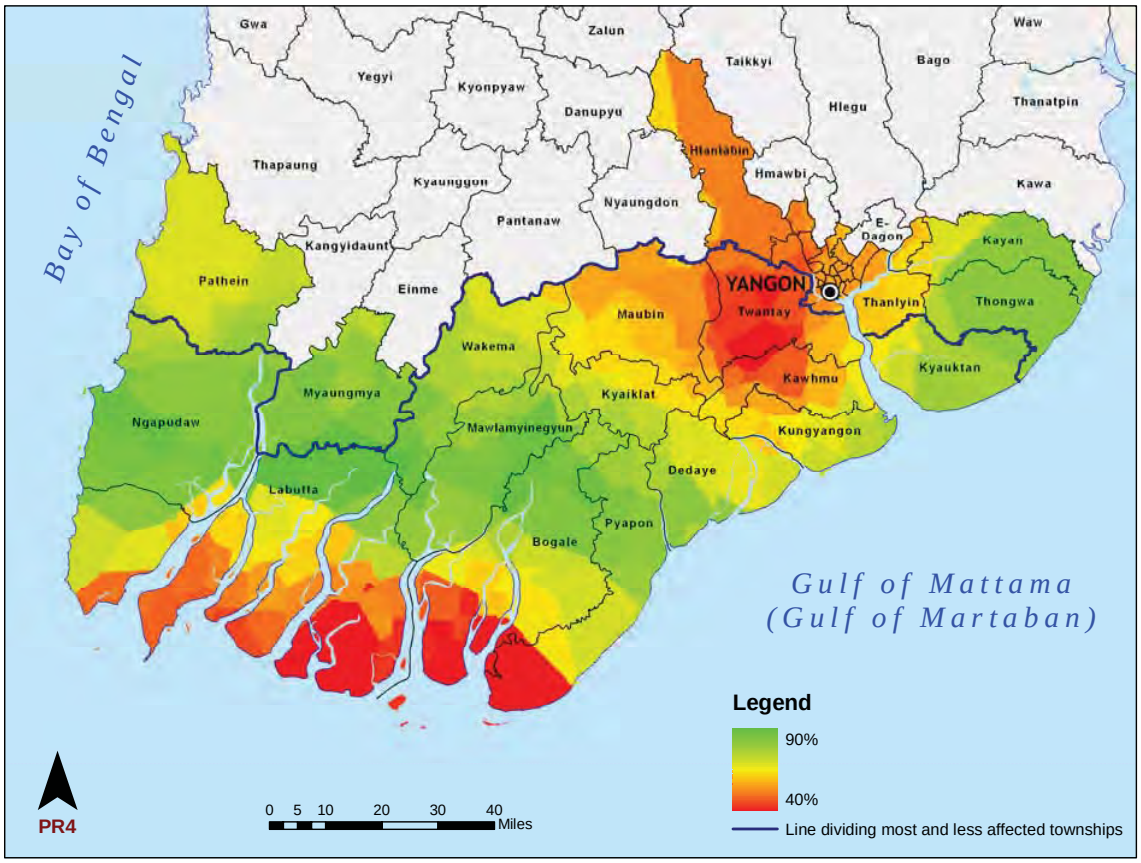
Graph 3.12: Comparison of the quality of dwellings for those fully repaired dwellings and those not fully repaired



Map 3.11 shows the geographic distribution of household perceptions of repair status of their dwellings, showing that the area west of Yangon Division and in the coastal areas of Bogale, Labutta and Pyapon Townships, fared poorly compared to the rest of the survey areas.

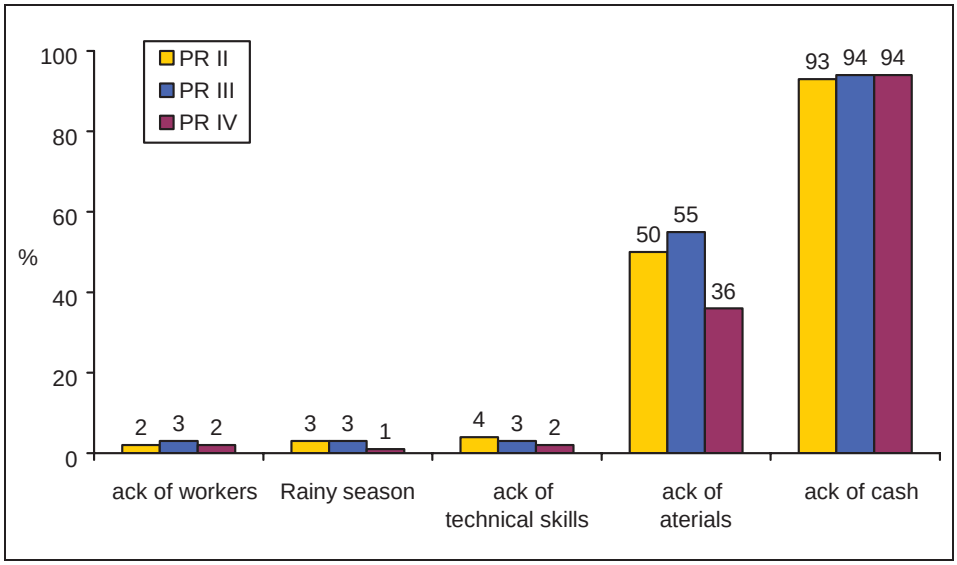
Among 426 households that reported their dwelling as being severely damaged or completely destroyed in May 2010 and who reported that their dwelling were fully repaired, 69 per cent had received no shelter assistance. Many of these repairs provide minimal or no protection against severe weather: 85 per cent were not on raised ground, 86 per cent had inadequate foundations; 90 per cent had inadequately reinforced roofs, and 98 per cent lacked adequate reinforcing of walls.

Map 3.11: Dwellings perceived as fully and almost fully repaired



Heads of households still living in the same compound and unable to fully repair their dwellings were asked to indicate the reasons for the inability to do so. In PR IV, 94 per cent (n=557) of households reported that the main obstacle to undertaking repairs was a lack of cash, the same as in PR III and similar to PR II (see Graph 3.13). The second most common problem was a lack of materials, which declined from 50 and 55 per cent in PR II and PR III respectively to 36 per cent in PR IV.

Graph 3.13: Reported reasons for inability to repair dwellings for those households living in the same compound and which had not completely repaired their dwelling (PR II, PR III and PR IV)



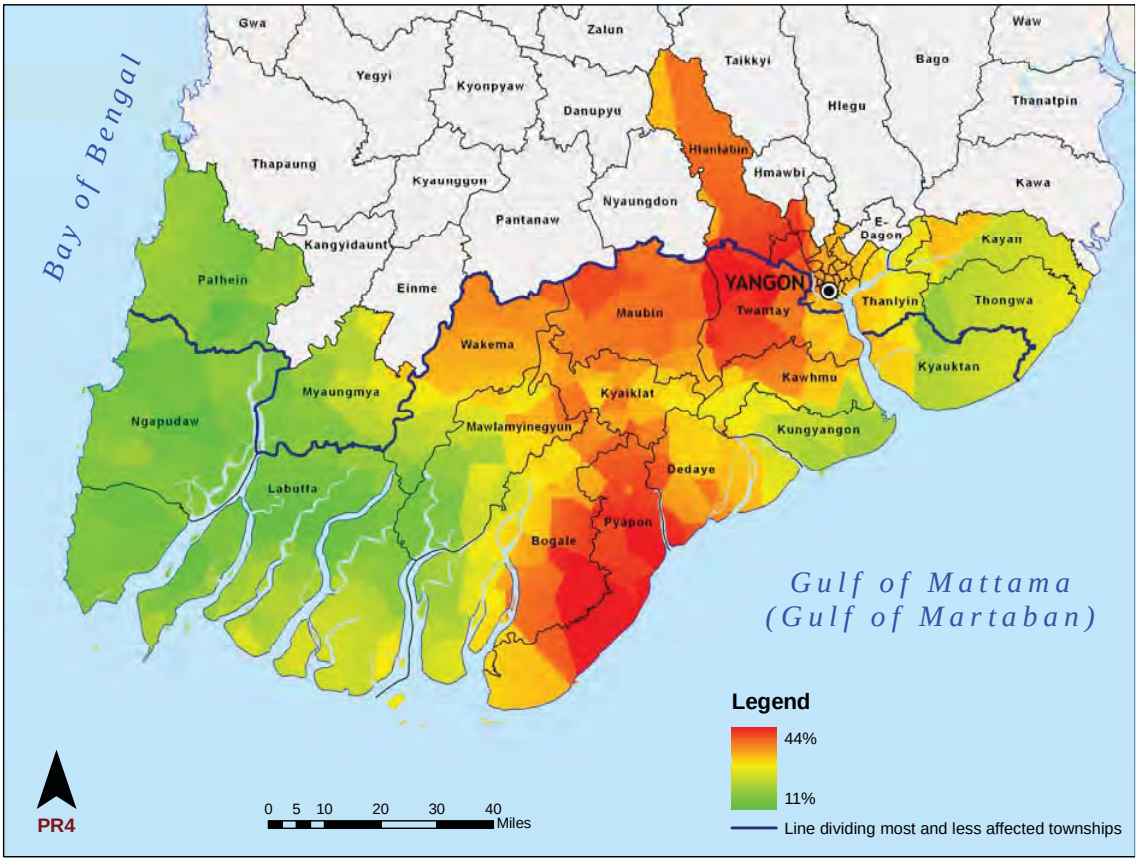
3.2.3 Adequacy of shelter conditions

The Periodic Reviews monitored the adequacy of shelter conditions, based on both perceived shelter conditions as reported by household heads, verification by enumerators of protective construction features and space. The minimum SPHERE standard of 3.5 square meters (37.7 square feet) of space for each household member[3] is the basis for determination of adequate space as measured by the enumerators.

Despite new construction of dwellings and repair of other shelters, minimum space requirements were not met in nearly half of PR IV-surveyed households in parts of the most-affected areas, particularly around Bogale and Pyapon Townships (see Map 3.12). Furthermore, the area west of Yangon Division also fell short on this measure, as reflected by the red area in the map. Insufficient shelter size was reported in areas where relatively considerable shelter repair and reconstruction assistance was delivered.

3 The SPHERE Project (2004) Humanitarian Charter and Minimum Standards in Disaster Response, p.219.

Map 3.12: Households living in dwellings of insufficient size

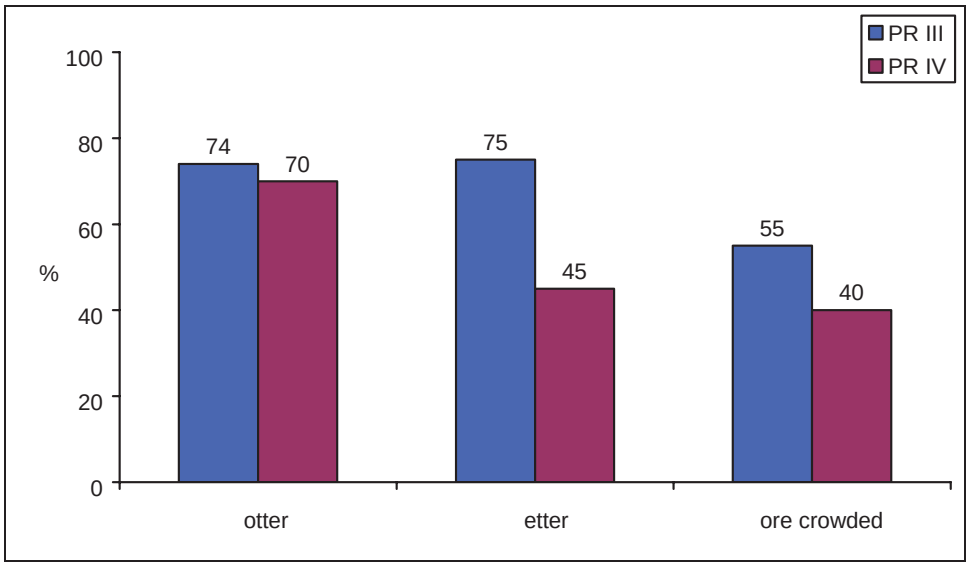


The average household size of 4.6 would require a shelter of 16.1 square metres (173.3 square feet) according to SPHERE standards[4]. The aim was to build dwellings of 14.9 square metres (160 square feet). New home construction may not take into account the size or nature (extended family of several generations living under one roof) of a particular household.

In assessing adequacy of shelter conditions, household heads were also asked whether shelters were hotter, wetter or more crowded than before Cyclone Nargis. The majority of the households indicated that their housing is inadequate compared to before the Cyclone, though the perceptions of shelter conditions were better in PR IV than they were in PR III (see Graph 3.14). In PR IV, 70 per cent (n=1,400) of household heads stated that their residencies are hotter, 45 per cent said they were wetter and 40 per cent said they were more crowded now compared to pre-Cyclone Nargis. One big difference between PR III and PR IV was the drop in household heads reporting that their residencies are wetter, dropping from 75 to 45 per cent. This may be because the PR III survey was undertaken in the rainy season while data for PR IV were collected in the dry season.

4 The SPHERE Project (2004) Humanitarian Charter and Minimum Standards in Disaster Response, p.219.

Graph 3.14: Households that perceived their current dwelling to be worse than before Cyclone Nargis (PR III and PR IV)



The perceptions of household heads about their housing conditions were influenced by the extent of damage that they endured as a result of Cyclone Nargis. Among household heads whose dwelling was completely destroyed by the Cyclone, 78 per cent (n=659) of them felt their housing was hotter at the time of the PR IV survey compared to before. For household heads whose dwellings were not completely destroyed 64 per cent (n=726) felt their dwelling was hotter ($P < 0.01$).

Among those who had their dwelling completely destroyed by Cyclone Nargis, 55 per cent (n=649) felt they were living in wetter housing, compared to 36 per cent (n=719) whose dwelling had not been completely destroyed ($P < 0.01$). Among households that were living in a new dwelling after the Cyclone, 51 per cent (n=273) of their household heads stated that they were living in wetter housing, compared to 43 per cent (n=1,095) of those who were living in the same dwelling ($P = 0.01$). Furthermore, 46 per cent (n=980) of those who lived in the areas most affected by the Cyclone stated that their housing was wetter, compared to 41 per cent (n=388) of those living in areas less affected by the Cyclone ($P < 0.05$).

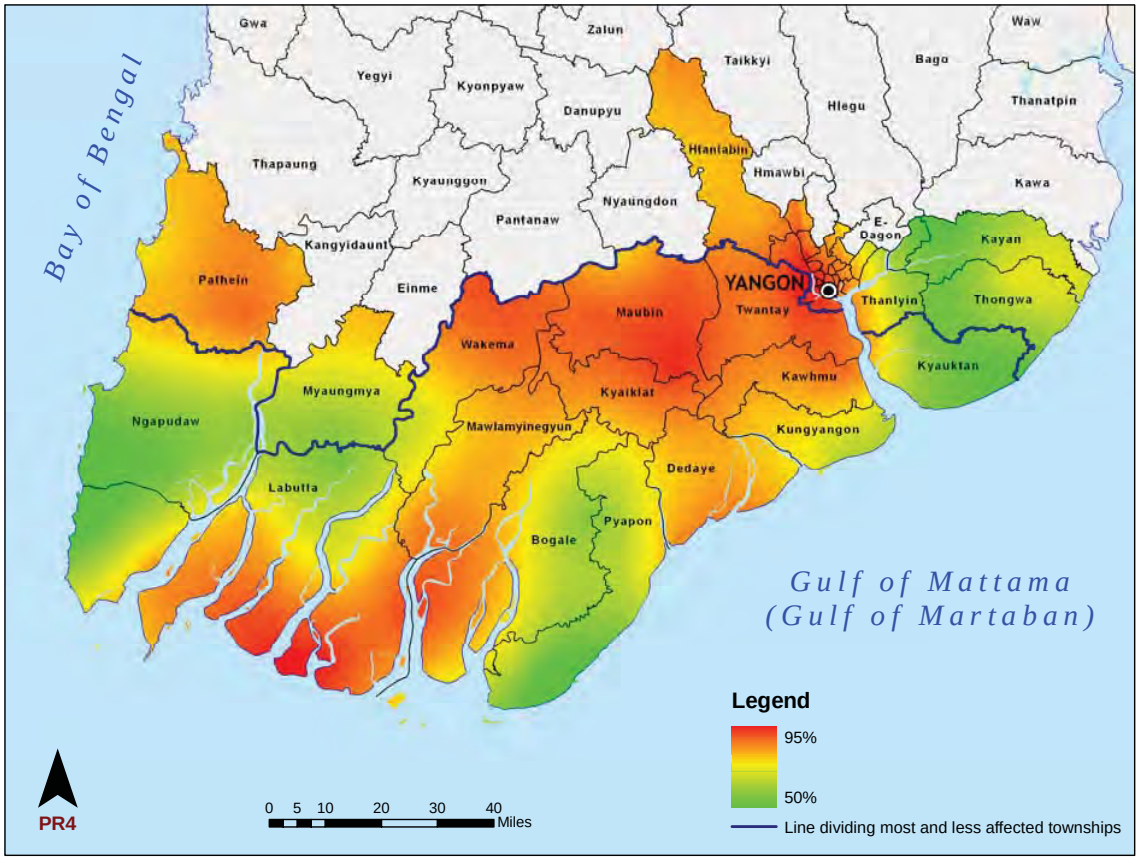
Concerning perceptions about how crowded the housing is, 55 per cent (n=661) of those households who had their dwelling completely destroyed by Cyclone Nargis stated that there were living in more crowded conditions now compared to before the Cyclone. This is compared to 26 per cent (n=739) of those whose dwelling was not completely destroyed ($P < 0.01$).

There was also a difference between those who were now living in a new dwelling compared to those who are still living in the same dwelling as before the Cyclone; 47 per cent (n=294) of those who had changed dwelling felt they were living in more crowded conditions, compared to 38 per cent (n=1,106) of those households living in the same dwelling.

Household heads in areas most affected by Cyclone Nargis were more likely to state that they were living in more crowded conditions, with 42 per cent (n=1,000) of them saying so, compared to 34 per cent (n=400) of household heads living in areas less affected by the Cyclone.

Map 3.13 shows the geographical distribution of households responding that their dwellings were worse as they were hotter, wetter or more crowded. Along the coast in Bogale and Labutta Townships, around Yangon Division and west of the city were all areas where residents reported that their housing conditions were worse than before Cyclone Nargis.

Map 3.13: Households that perceived their dwellings to be worse than before Cyclone Nargis



3.2.4 Shelter assistance

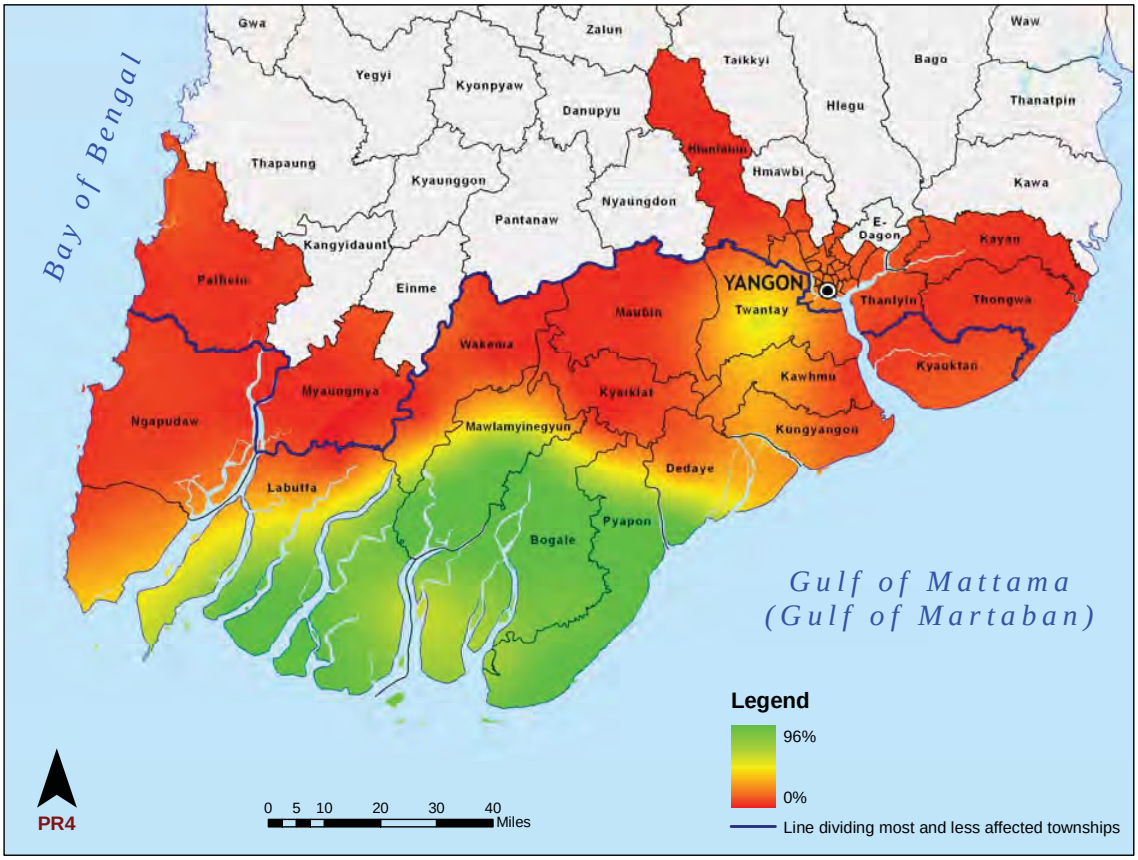
Shelter assistance appears to have been well targeted, focusing on Bogale, Labutta and Pyapon Townships which absorbed the brunt of Cyclone Nargis, and which are coloured green in Map 3.14. Across the sampled area, 26 per cent of the 1,400 household heads reported receiving some sort of shelter assistance. Of the sampled households, 31 per cent received tarpaulins but no other shelter assistance, and 6 per cent received tarpaulins and later received further shelter assistance.

Among the households that had their dwellings completely destroyed by Cyclone Nargis, 45 per cent (n=660) of those surveyed received shelter assistance, while among those whose dwellings were not completely destroyed, 9 per cent (n=739) reported receiving such shelter assistance ($P < 0.01$).

One third of households whose dwellings were severely damaged or completely destroyed received assistance. These groups are eligible for much greater assistance levels than other households. According to information providing by the Shelter Working Group, fully destroyed dwellings are eligible for a full shelter (including materials, labour and transport costs amounting to US$600). Severely destroyed dwellings are eligible for materials and transport costs, estimated at US$200, and partially destroyed dwellings, US$85.

Among households that were living in a new dwelling 48 per cent (n=294) received shelter assistance, compared to 20 per cent of households living in the same dwelling. Among the households in areas most affected by Cyclone Nargis, 35 per cent (n=999) of them received such assistance, compared to only 3 per cent (n=400) of households living in areas less affected by the Cyclone ($P < 0.01$).

Map 3.14: Households that reported receiving shelter assistance

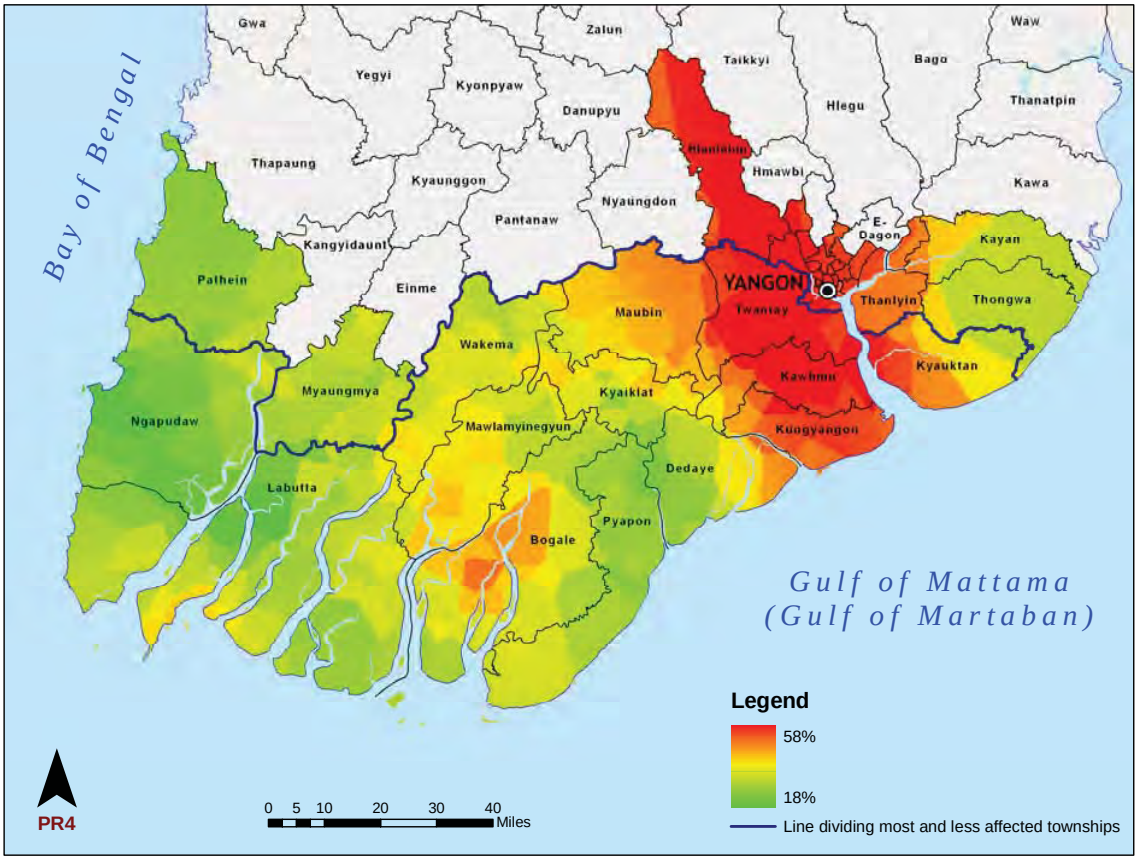


While the large majority of shelter assistance was well targeted, 3 per cent of assistance recipients had no or minor shelter damage, including one household which received a full shelter, and one receiving full materials support. Ill-advised targeting of assistance limits the scope of support available to those who suffered larger losses.

3.2.5 Shelter needs

Although the scope of shelter assistance focused on the coastal areas of the Delta, households in other areas ranked the construction or the repair of their housing to be among their most important needs. This was particularly the case around Yangon Division (see Map 3.15).

Map 3.15: Households ranking shelter assistance as one of their most important needs



3.3: Education

Cyclone Nargis severely affected the education sector, destroying 4,000 schools, or roughly 60 per cent of the educational facilities in the affected area. Schools damaged by the Cyclone were left with unusable sanitation facilities and suffered widespread loss of furniture and educational materials[5].

Rebuilding schools and restoring the formal education system in the aftermath of a disaster are crucial in helping children in disaster-stricken communities regain a sense of normalcy and security, and obtain the psychosocial support needed to overcome an unpleasant or traumatic experience. Restarting schools as quickly as possible prevents prolonged missed-learning opportunities that can have a long-term negative impact on children.

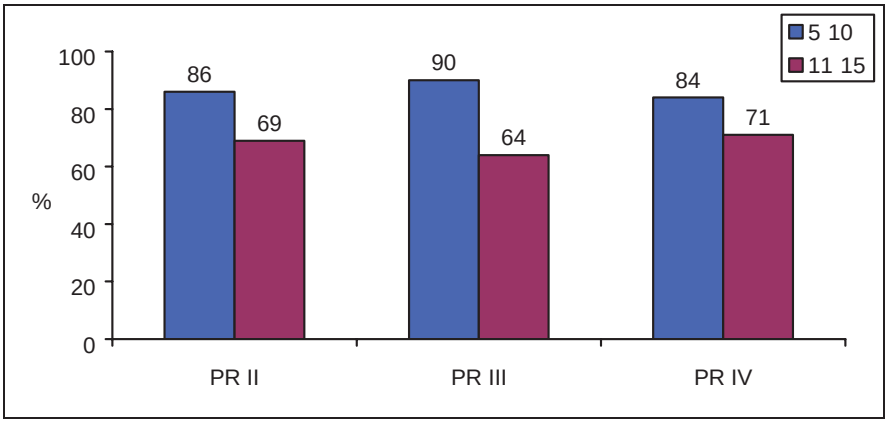
To assess the rehabilitation of the education system in the Cyclone-affected areas, the Periodic Reviews looked at the rate of school attendance among children aged 5-10 years and 11-15 years. In Myanmar, children are expected to start school at the age of five; they then spend five years at the primary level, four years at the middle level and two years at the higher level. Information is also provided about older children, those aged 16-17, though they are not the focus of the analysis.

3.3.1 School attendance

The proportion of the children aged 5 to 10 and 11 to 15 studying at the time of the survey are shown in Graphs 3.15 and 3.16. Among younger children (n=780) in surveyed households, 84 per cent attended school (84 per cent for males, 84 per cent for females) compared to 86 and 90 per cent in PR II and PR III respectively (see Graph 3.15). Among children (n=666) aged 11-15, PR IV shows the highest enrolment rate with 71 per cent of them in school (males 69, females 73 per cent). This compares with 69 per cent of children in PR II and 64 per cent in PR III.

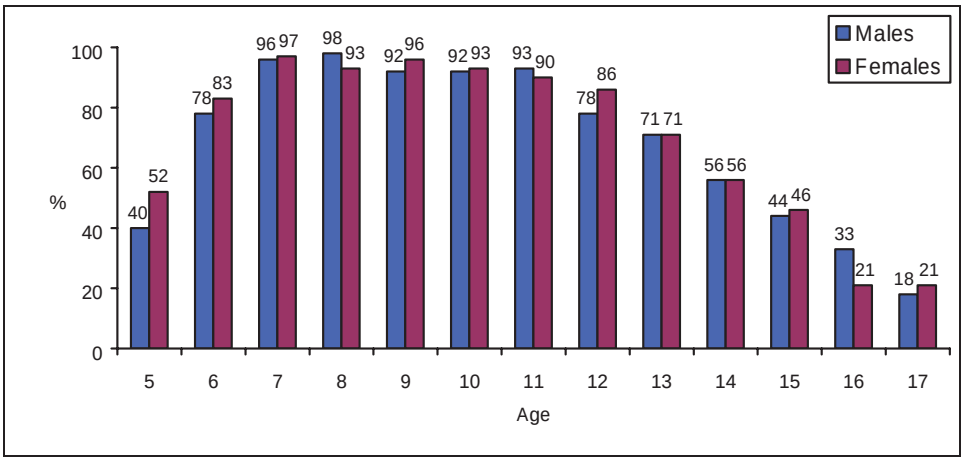
5 TCG (2008) Post Cyclone Nargis Recovery and Preparedness Plan, p 34.

Graph 3.15: Children in school by ages 5-10 and 11-15



In PR IV, there was no significant gender difference in terms of school attendance before and after Cyclone Nargis for children aged 5-10 and 11-15. The one possible difference was for children aged 5 where more girls were in school than boys (see Graph 3.16).

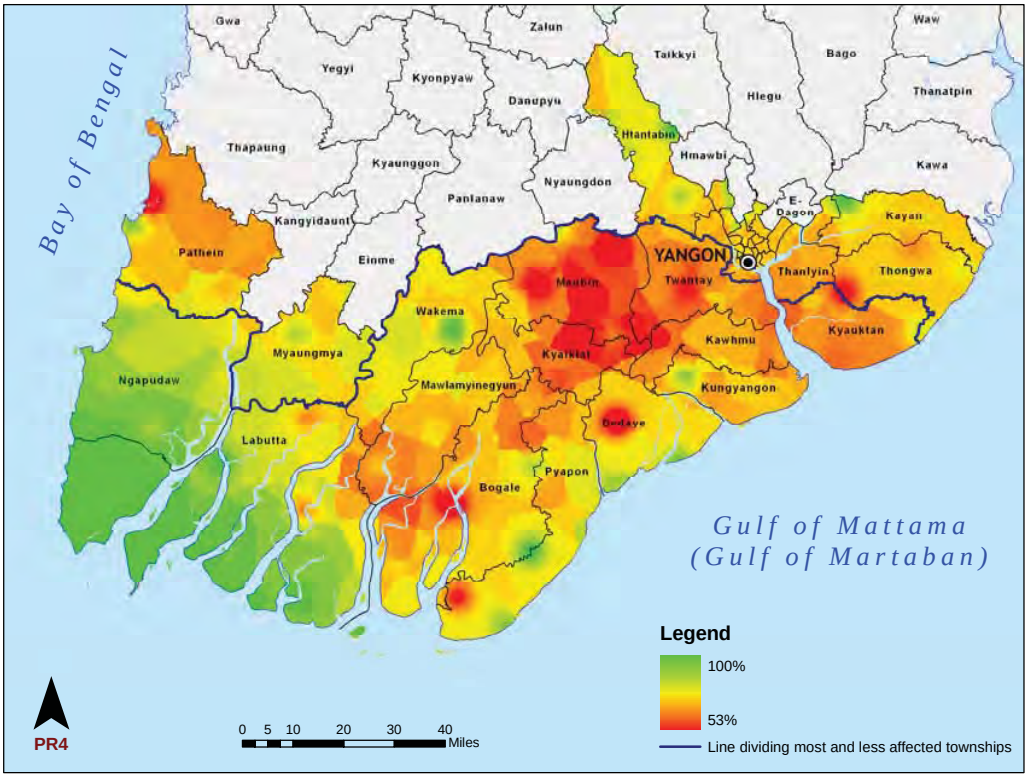
Graph 3.16: Children in school by age and sex



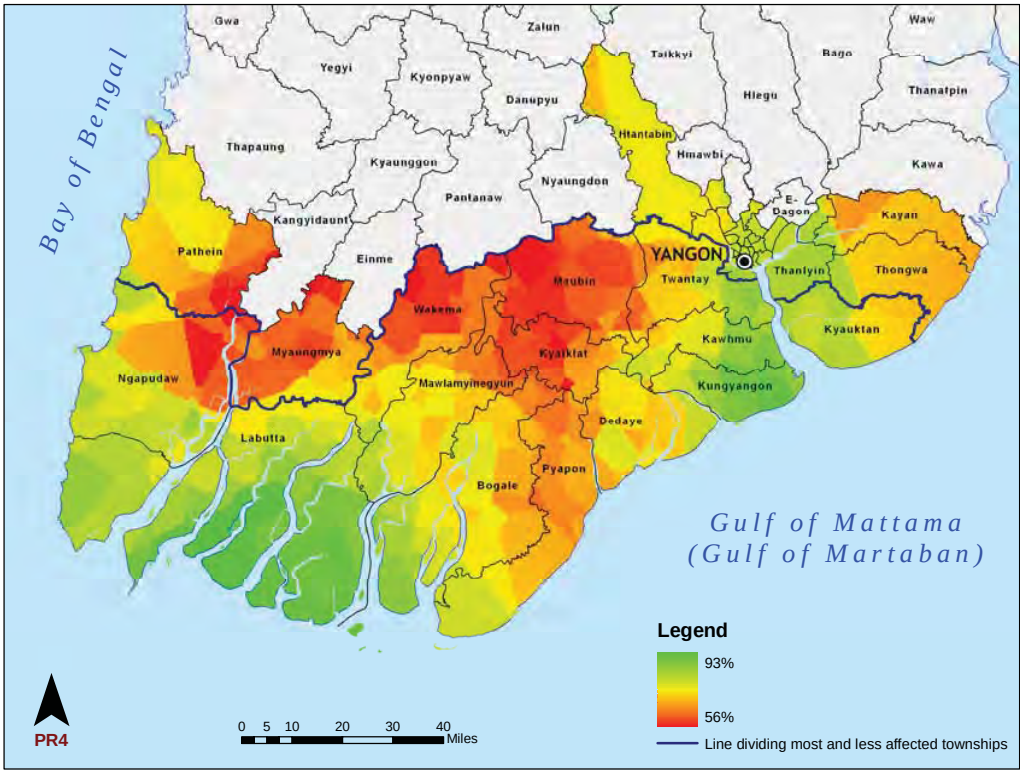
PR IV data suggests that it is not until children are aged 7 before the majority of children are in school. Among children aged 5, only 40 per cent of boys and 52 per cent of girls were in school. This increased to around 80 per cent of boys and girls for 6 year olds; 90 per cent or more of the children were in school from the ages 7 to 11, but after that the proportion dropped substantially, leaving less than half of the children in school by the age of 15.

Maps 3.16 and 3.17 show the geographical distribution of school attendance for children aged 5 to 10 and those aged 11 to 15 in the surveyed area. For the younger age group, reported school attendance was relatively high in southern parts of Labutta and Ngapudaw Townships, but poor in Maubin Township. School attendance for children aged 11 to 15 was comparatively high in Labutta Township, along with areas around Yangon Division, but patchy in townships west of Yangon Division.

Map 3.16: Children aged 5-10 in school

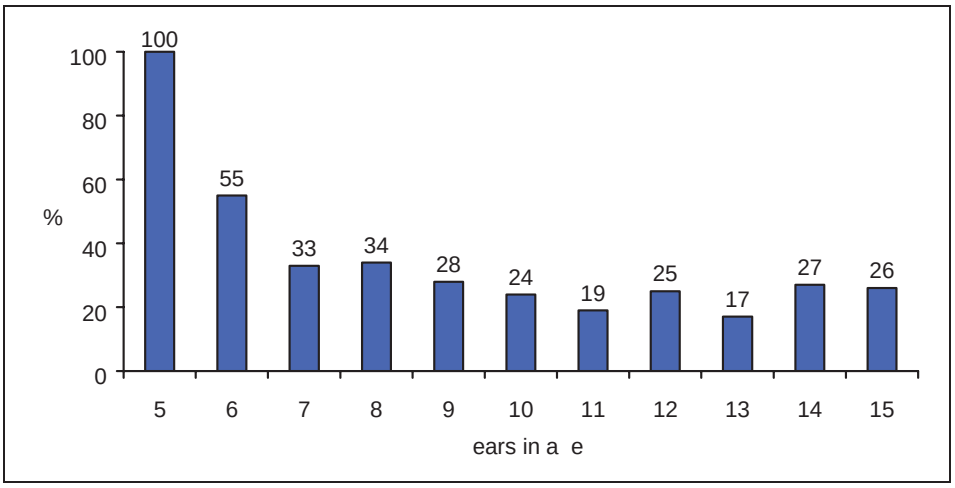


Map 3.17: Children aged 11-15 in school



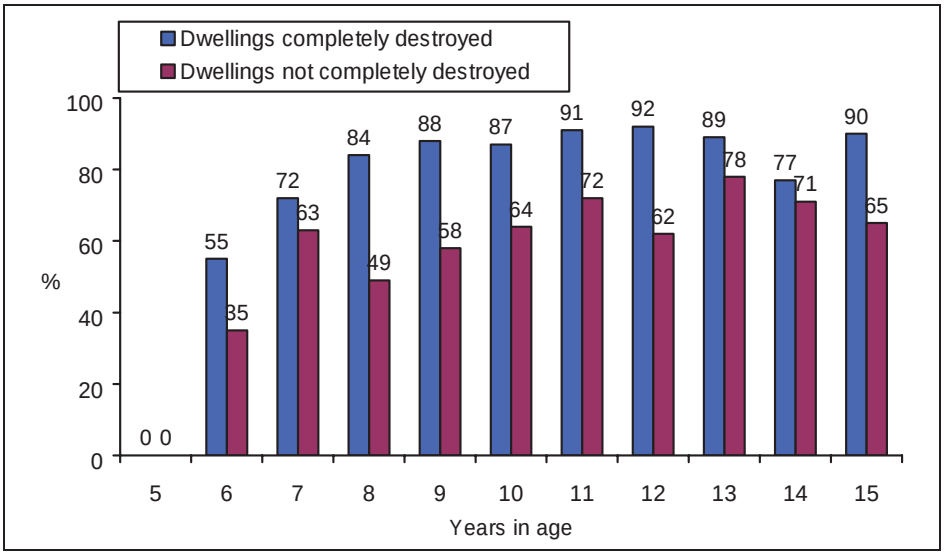
Graph 3.17 shows the extent to which children were in the appropriate class for their age. All 5-year old children in school were in the right class for their age, but less than 50 per cent of 5-year-old children attended school. At age 6, the percentage fell to 55 percent but only around 80 per cent of children aged 6 were in school. For all other years, two thirds or more of the children were in a class too young for their age.

Graph 3.17: Children in appropriate class based on their age



Graph 3.18 shows that children belonging to households that had their dwellings completely destroyed were more likely to be in an inappropriate class for their age, compared to children from other households. This was the case for every age group, except for those aged 5, who were all in the first year of school.

Graph 3.18: Children in a class too young for their age by level of Cyclone Nargis-related destruction of household dwellings

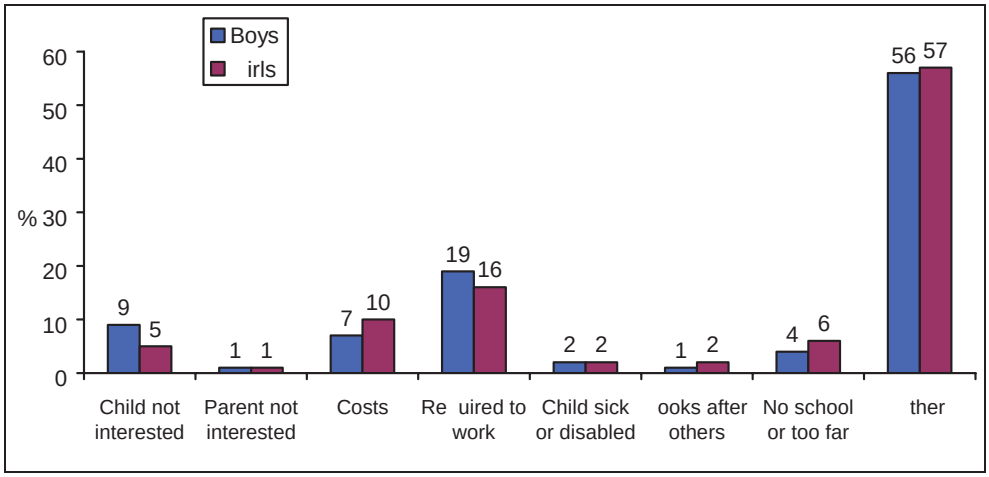


3.3.2 Reasons for not attending school

In both PR III and PR IV, girls and boys differed significantly in the reasons for not attending school, as expressed by household heads (see Graph 3.19). Excluding the answer 'other', the most common reason why children did not attend school was because they were required to work, in both PR III and PR IV. This was the case for 19 per cent (n=588) of boys not studying and 16 per cent (n=598) of girls not studying. In PR IV, boys were also more likely to be out of school due to lack of interest, being the case for 9 per cent of boys compared to 5 per cent for girls. Girls were more likely to be out of school because of educational costs than were boys, with 10 and 7 per cent of girls and boys not in school for this reason. An encouraging sign of progress in the education system after Cyclone Nargis is that distance to schools, or the lack of schools or teachers, all became less influential in preventing children from attending school. In PR III, 20 per cent of children did not attend school for these reasons, while in PR IV only 5 per cent (n=1,186) of children did not study because of distance or lack of schools or teachers. In PR III, 5 per cent of children did not study due to lack of teachers, but this was not the case for any children in PR IV.

For 'other' reasons, 77 per cent were that the child was too young. It was not possible to break this information down by age and sex, but most likely these responses would be related to children aged 5 and 6 who were not attending school. Although 5 is the official starting age for school, some parents were concerned about their young children travelling long distances and in particular crossing rivers to get to school.

Graph 3.19: Reported reasons why children are not attending school by sex



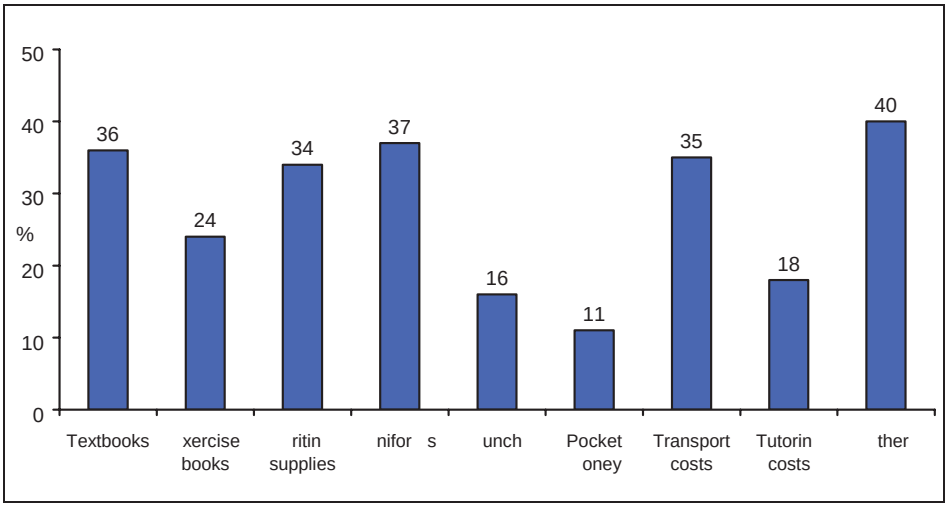
3.3.3 Educational cost burden

In the context of families struggling to recover from Cyclone Nargis, costs covering education loom large in the household economy. Being able to organise and provide the basic requirements to enrol and keep a child in school requires some stability in both livelihood and shelter matters. Many of those requirements reflect out-of-pocket expenses that are beyond the means of families affected by the disaster.

In PR II the main reason why children were not in school was because of costs, accounting for more than a third of all children not in school. In PR III, this was the second most important reason, accounting for close to 30 per cent of the children not studying. By PR IV, household heads reported only 8 per cent (n=1,186) of children were not in school because of costs. As life stabilised after Cyclone Nargis, educational costs became less important in keeping children out of school. Nevertheless, the large number of children not in school because they are required to work reflects the continued economic hardships that households affected by Cyclone Nargis are facing and resulting in their children being unable to study.

Of the 98 household heads who indicated that their school aged child was not attending school because of expenses, there were four main costs: uniforms, textbooks, transport costs and writing supplies. For each of these factors, over a third of the households questioned gave these answers. These reasons were followed by the cost of exercise books, which accounted for around a quarter of those families who were not sending their children to school because of educational costs. In PR IV, household heads could give the three main costs why their child was not studying and thus in Graph 3.20 multiple answers are allowed.

Graph 3.20: Reported educational costs preventing children studying



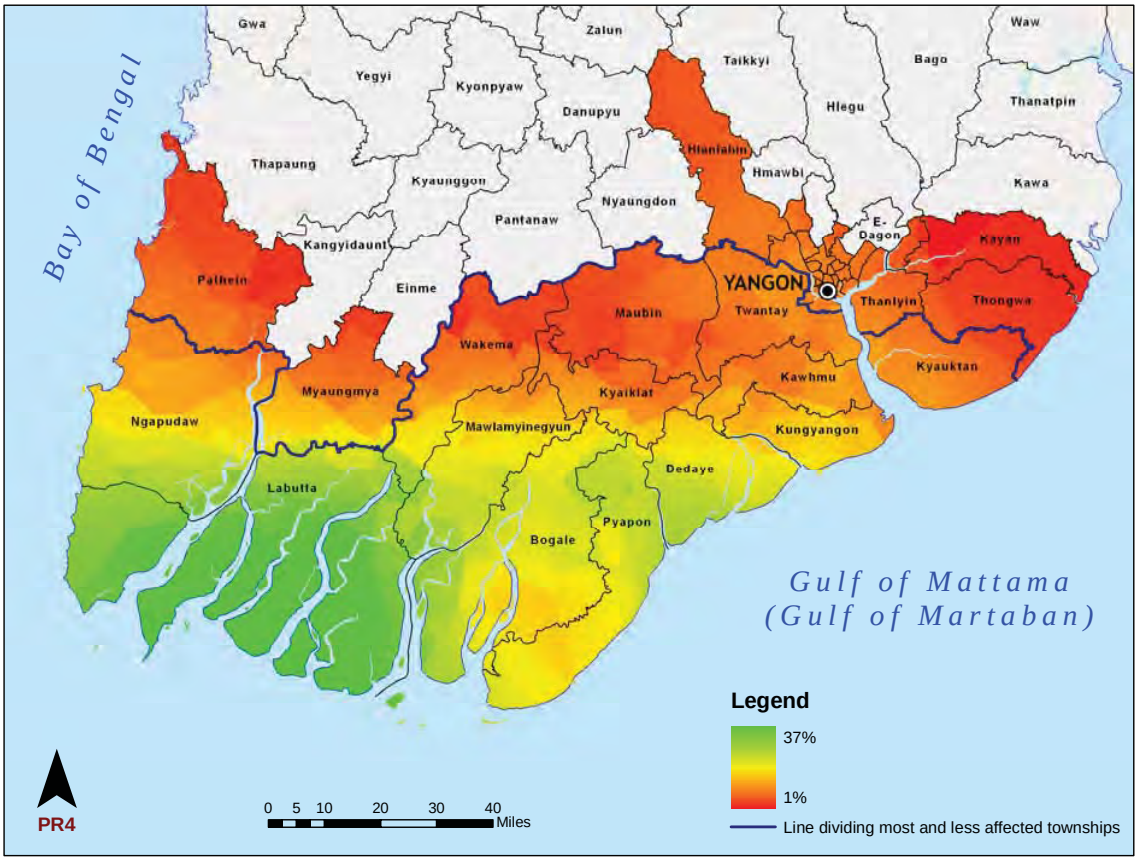
3.3.4 Educational relief items

The distribution of educational items to households with children is intended to help parents defray the cost of sending their children to school and increase school attendance. To assess the coverage and distribution of education-related relief items, the PR IV measured the proportion of households with members who received such items at least once. These included essential learning kits, learning packs, backpacks, textbooks and uniforms.

The PR IV found that, overall, 14 per cent (n=1,400) of the surveyed households received education-related items, which was lower than the 17 per cent in PR III, but up from the 12 per cent reported in the PR II. Showing how well the education relief efforts were targeted after Cyclone Nargis, 95 per cent of the households that did receive educational relief items were in the most affected areas.

Map 3.18 shows the distribution of households receiving educational items as aid. Aid was restricted to the southern proportions of the surveyed area, which are marked in green in the below map.

Map 3.18: Households that reported receiving educational relief items



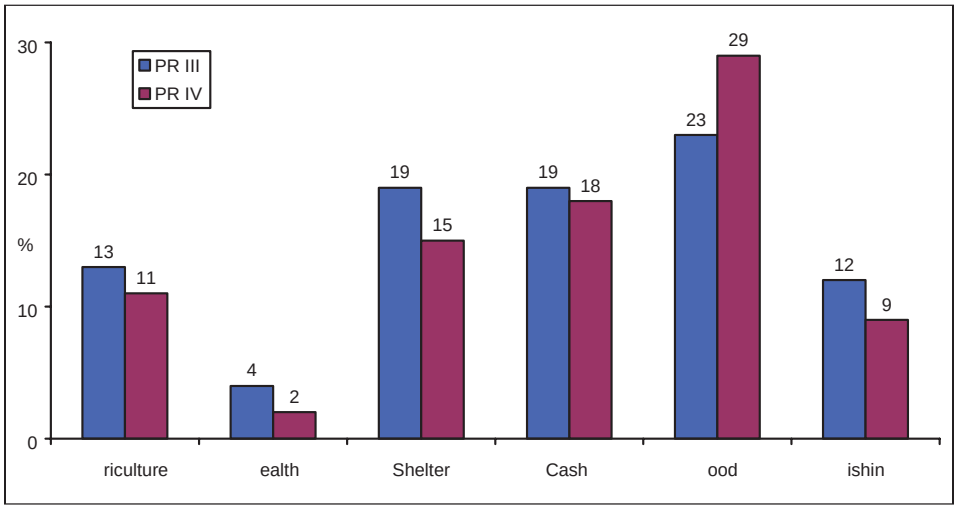
3.4: Livelihoods needs

This chapter presents findings on the extent surveyed households in the Cyclone-affected areas had re-established productive lives two years after the disaster. As a prelude to its inquiries into primary livelihood issues, the survey sought to capture the most important articulated needs of the surveyed households. Heads of households were asked to rank their 'most important needs' (see Graph 3.21).

It is important to note that the survey did not call for respondents to focus on unmet needs, and thus in a post-crisis situation of economic stagnation, a focus on basic human needs is not surprising.

In both PR III and PR IV, the most common expressed need was food, with 23 per cent of households indicating this and 29 per cent (n=1,400) in PR IV, which is basically consistent with the Chapter 2 finding that around a quarter of households reported not having enough to eat on one or more days of the prior week. Apart from the greater proportion of households indicating food being a need in PR IV, needs in both PR III and PR IV were similar. Cash grants accounted for 19 per cent of respondents in both PR III and PR IV. At the same level in PR IV were concerns about shelter, which was lower in PR III at 15 per cent.

Graph 3.21: Most important needs reported by households (PR III and PR IV)



Summary

Addressing livelihoods needs is critical to recovery of both households and the region. Disparities remain between households based on the extent of damage they suffered from the Cyclone, and across sectors.

A band stretching from the Bogale-Pyapon Township boundary in the south, to the west of Yangon Division, appears to be facing particularly weak recovery. This is illustrated in red on maps representing food security (addressed in Chapter 2), livestock ownership compared to that before the disaster, school attendance, shelter repair status and receipt of assistance, among several indicators.

Livelihoods recovery remains weak; pre-Cyclone owners of assets in major livelihoods categories (draught animals, small animals, boats of all types and fishing gear of all types) had far fewer assets than before the disaster.

The failure to achieve recovery among pre-Cyclone asset owners stymies broader recovery and employment opportunities for labourers, because asset owners are most likely to have the knowledge, management skills and marketing networks to re-start critical agricultural sectors. This in turn limits labour demand, which likely impacts those now-precarious households which lost dwellings to the disaster and depend on labour for day-to-day existence.

Shelter recovery, as measured by the percentage of shelters prepared for major storms, remains limited, with shelter preparedness averaging 2.59 out of 7 protective features critical to protection from severe winds and storms. Preparedness scores remain low in some areas of the coast hit hardest by the Cyclone where many of these households have rebuilt without assistance.

Education participation among children aged 5 to 10 years was 84 per cent. PR IV had the highest enrolment rate of children age 11-15, with 76 per cent in school (males 69, females 73 per cent). Percentages of children in the age-appropriate class were low after age six, reflecting delayed school entry as well as suggesting considerable discontinuity in schooling. Both late school entry and interruptions in school attendance negatively impact learning outcomes; as the Cyclone-impacted area undergoes continuing economic change, good education of the younger generation will best equip them to take advantage of new opportunities.

But for some time, fishing and farming will dominate the Ayeyarwady Division economy and, depending on the state of the agriculture sector, impact household capacity to send children to school. The state of the key fishing and livestock sectors among PR IV-surveyed households remains fragile and demonstrates that recovery has not yet been fully realised.

Going forward, a mix of longer-term efforts which respond to the needs of pre-Cyclone established farming and fishing entrepreneurs and continuing humanitarian assistance directed toward vulnerable households, including those which lost their dwellings to the Cyclone, appears appropriate.

Chapter IV: Protected Lives

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Chapter 4:

Protected lives

Cyclone Nargis not only affected individuals and families in special circumstances or with special needs, it also created many more. Many people lost their spouse as well as extended family members. Children were orphaned. Some were disabled, and others already disabled were left without supporting family to assist them. Elderly couples or individuals who lost their children or extended families found they were unable to support themselves. These people and others like them make up a special category of those most affected by the disaster.

The impact of Cyclone Nargis was felt differently by households depending on the extent of damage that the Cyclone brought to each particular household and also by the level of vulnerability of each household to social upheavals before and after the Cyclone.

4.1: Disability

Disability of all forms affects 2 per cent of the population of all ages. The elderly are 3 times more likely to have a disability than those younger than age 60: 6 per cent of the elderly respondents have some form of disability.

4.2: Elderly-headed households

One group at risk of vulnerability resulting from Cyclone Nargis is older people, those aged 60 or older, who accounted for 7 per cent of the population in sampled households. Among the elderly, 49 per cent were widows or widowers. Widows accounted for close to twice as many as do widowers. Most (48 per cent) list no occupation; 51 per cent were working and 1 per cent were pensioners.

Among elderly-headed households, 37 per cent (n=243) of dwellings were completely destroyed, compared to 49 per cent (n=1,157) of younger-headed households ($P < 0.01$).

4.3: Women

Women accounted for 51 per cent of the population over age 17. Of these, 12 per cent were widows, dominated by women aged 60 and over, who accounted for 61 per cent of all widows.

To gain insights into the lives of women, 16 questions were asked to each female respondent that matched one of the following ordered criteria:

1. The mother of the youngest child under 5 years of age in the household;
2. Or, a woman with children under 5 years of age;
3. Or, a pregnant woman.

Not all households had a female member, or a woman fitting one of these categories. Thus, the number of PR IV survey respondents concerning women was 1,359 rather than the overall 1,400 households interviewed.

4.3.1 Recruitment of females for work outside of their communities

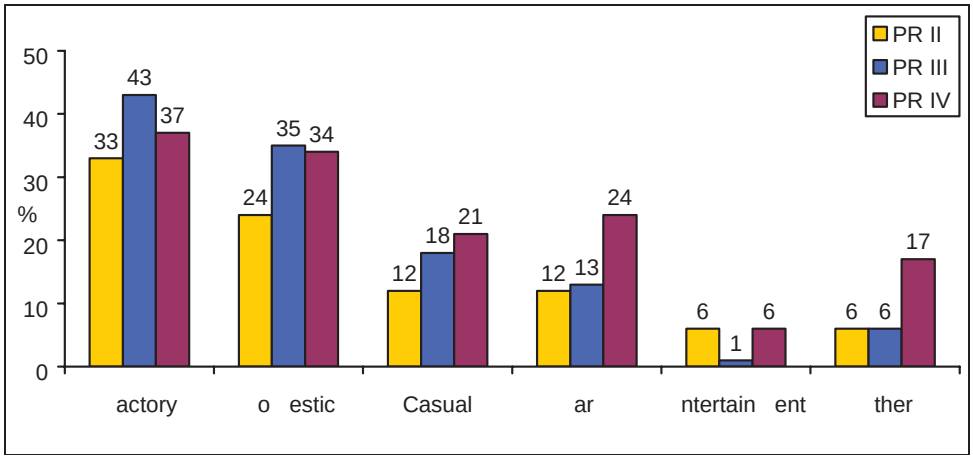
The Periodic Reviews monitored the knowledge of offers of work extended to females outside of their villages, out of concern that after the natural disaster women would be more at risk of human trafficking. Two questions were asked: first, the woman interviewed was asked if she knew of any women in her village approached to earn money in another location; second, she was asked to list what types of work they had been approached to undertake.

The Periodic Reviews indicated that there was an incremental increase in respondents reporting knowledge of women offered employment opportunities. Of respondents in successive Periodic

Reviews, the trend was clear: PR II, 6 per cent; PR III, 15 per cent; while in PR IV, 17 per cent of women reported knowledge of offers of work extended to women. The awareness of jobs offered to women was similar, regardless of household characteristics. There was no significant difference between households headed by men or women, by younger or older people; by persons with a disability or without; by primary language spoken; by levels of Cyclone Nargis damage to dwellings, or by location in areas most or less affected by the Cyclone.

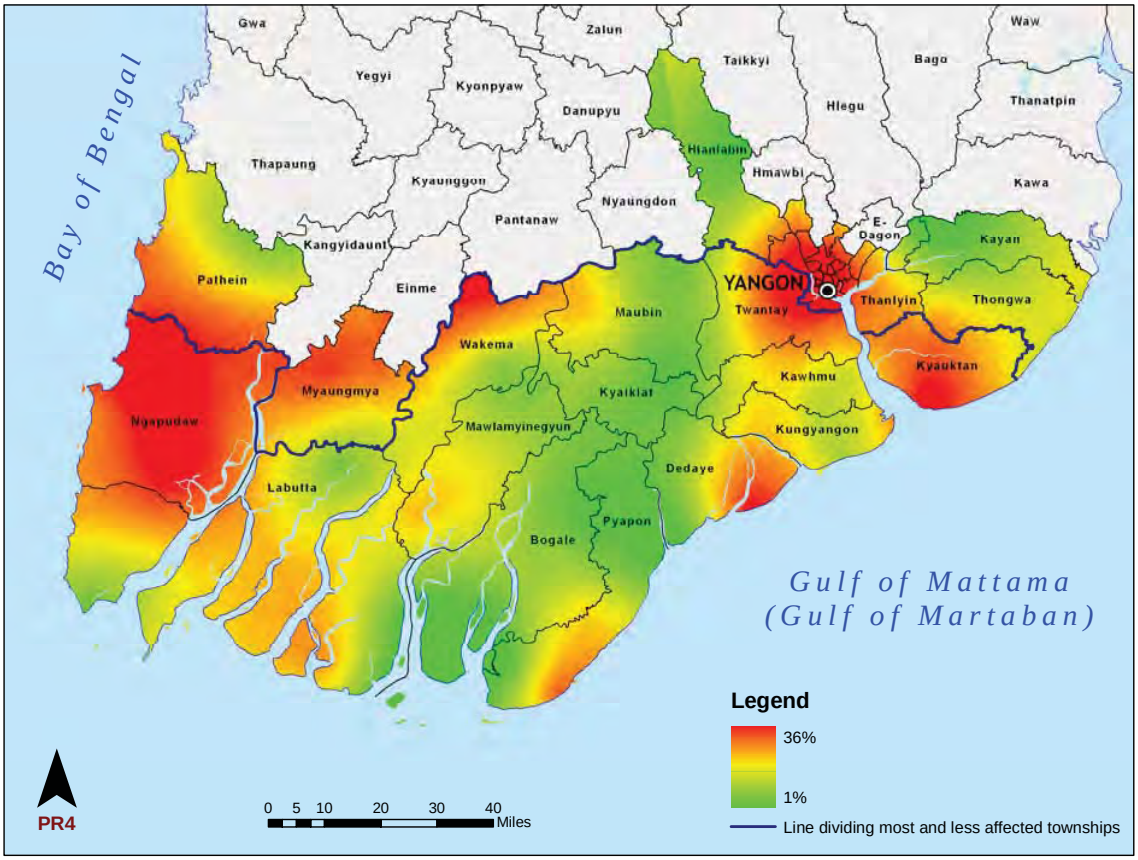
As reported by the 308 women responding that they knew of work outside the village being offered to women, the most common form of work offered to women was factory work, reported by 37 per cent of respondents (see Graph 4.1). Mention of factory work was followed in frequency by domestic work (34 per cent of respondents), farm work (24 per cent) and casual labour (21 per cent).

Graph 4.1: Reported types of work outside the village offered to other women, as reported by women (PR II, PR III and PR IV)



Map 4.1 shows the geographical distribution of awareness of other women in their village offered employment opportunities elsewhere. There were two main areas where knowledge of women offered employment opportunities was greatest, one around Yangon Division and a second one in Ngapudaw Township. Those around Yangon Division were likely to be offered jobs as factory and domestic workers, while in Ngapudaw Township, all respondents but one stated that the mode of employment they heard was offered was in farming.

Map 4.1: Women aware that other women were being offered jobs to work outside their villages



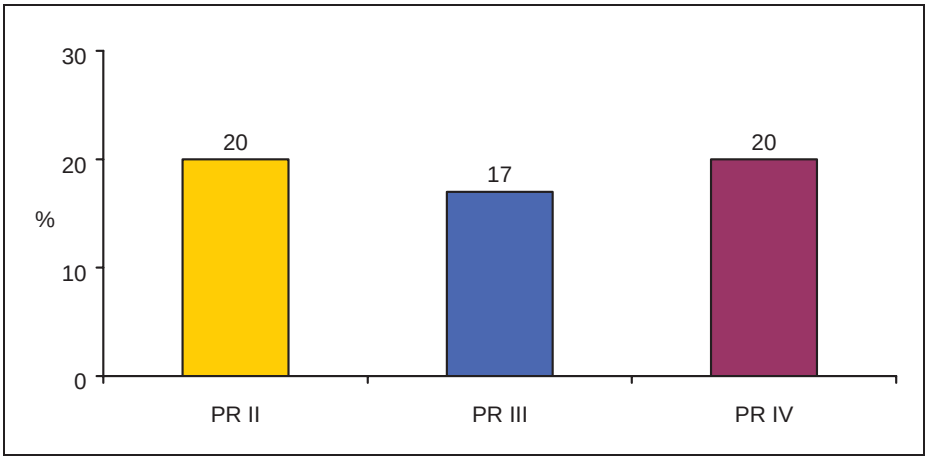
4.3.2 Violence against women

The United Nations defines violence against women as any gender-based act that results in, or is likely to result in, physical, sexual or mental harm or suffering.[1] This includes the threat of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private life. To gauge the awareness level of acts of violence against women, women in the sampled households were asked how often acts of violence committed against females occurred in their village. The respondents could choose among the options 'often', 'sometimes', 'rarely', 'never' or 'do not know'. Responses could be based on personal experiences or on reports heard from others.

1 United Nations General Assembly (1993) Declaration on the Elimination of Violence against Women

Among the 1,337 female respondents who answered this question, 20 per cent indicated that this happened often or sometimes in their community. Minor fluctuations appeared across successive assessments (see Graph 4.2).

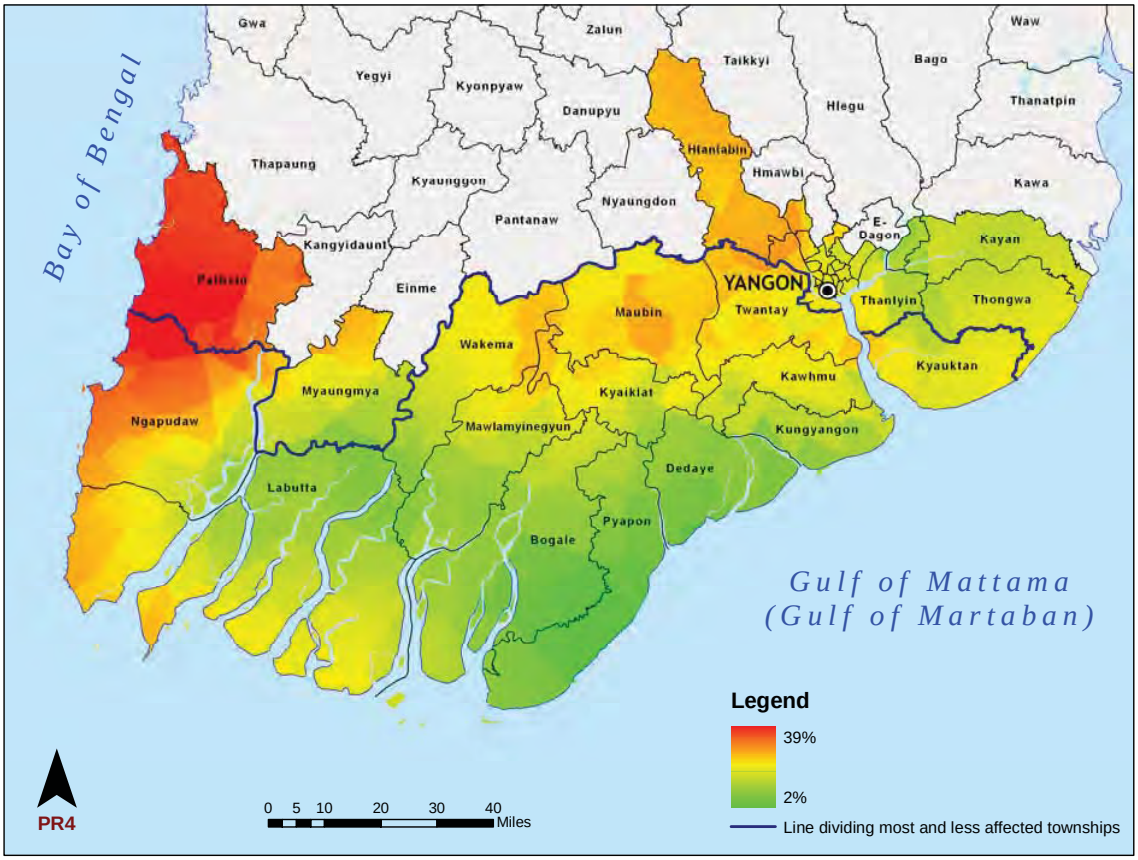
Graph 4.2: Women expressing knowledge of violence against women in their own communities 'sometimes' or 'often' (PR II, PR III and PR IV)



Women interviewed around Pathein Township were more likely to indicate awareness of domestic violence taking place in their communities, compared to women interviewed elsewhere (see Map 4.2). It is not clear why Pathein Township would have higher levels of reported violence, nevertheless, it would be important for organisations working there to determine if there were higher levels of violence against women, or whether women in that township were more willing to report such incidents.

There was no statistically significant difference between PR IV male and female headed households in their knowledge of violence against women.

Map 4.2: Women expressing knowledge of violence against women in their own communities 'sometimes' or 'often'



4.4: Children

Both the United Nations Convention on the Rights of the Child[2] and the Myanmar Child Law[3] define children as persons under 18 years old. The PRIV surveyed two groups of children depending on the indicator: those 17 and under and those under 15.

Cyclone Nargis disrupted lives, orphaned children and left many with new responsibilities. Two years after the disaster, 11 per cent of children aged 15 or less in the sampled households (n=2,026) were not living with one or both parents, compared with 15 and 12 per cent in PR II and PR III respectively.

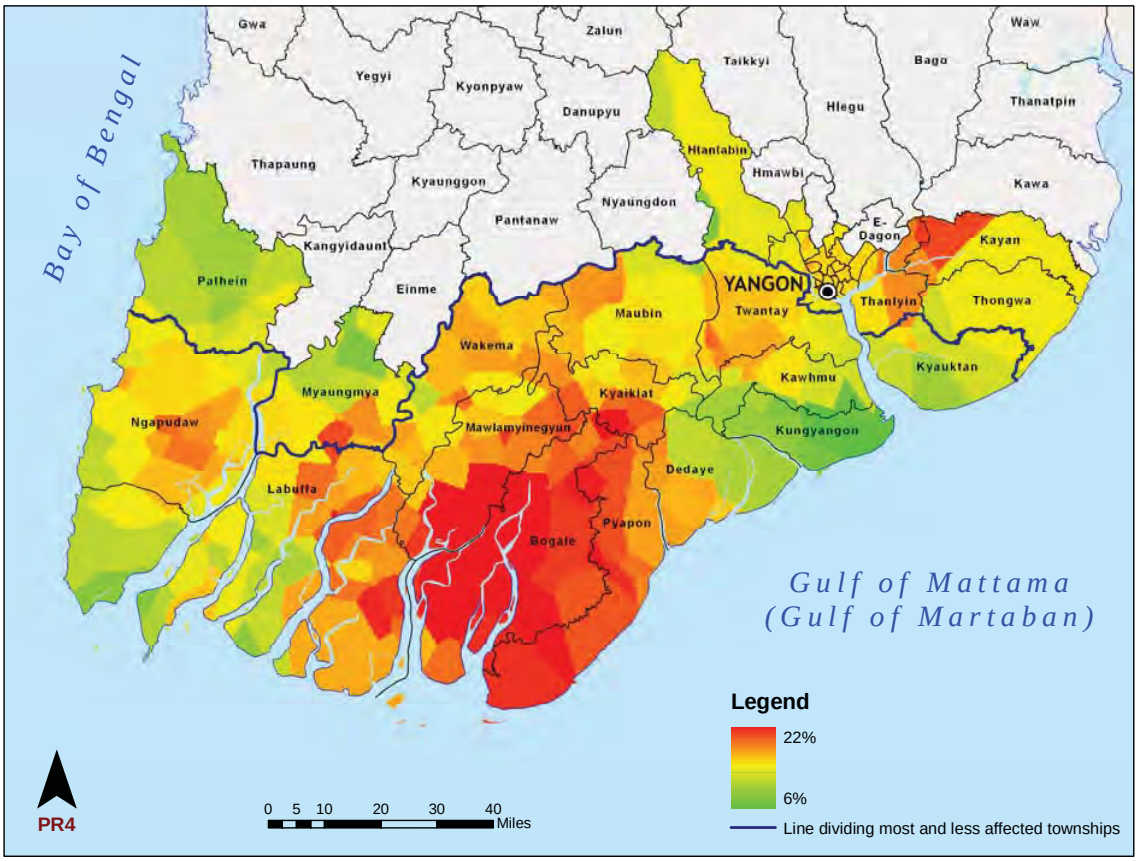
Among the 187 children living with one or no parent, 71 per cent attended school compared to 78 per cent (n=1,234) of all other children ($P < 0.05$). There was no statistical difference when comparing children living without a parent with all other children.

2 United Nations (1989) Convention on the Rights of the Child.
3 Government of the Union of Myanmar (1993) The Child Law (Law No. 9/93)

Map 4.3 illustrates the percentages of children 17 and younger living with neither parent, consistent with previous Periodic Reviews. Around Bogale Township, children younger than 18 were more likely to be living without their biological mother and/or father, compared to other surveyed areas. It is not possible to determine if these children were orphaned or whether one or both parents were away from the household for an extended period, such as working elsewhere.

In PR IV, there were no households headed by children and there were only 6 households headed by a person aged 19 or 20. In PR III, 4 households were headed by a minor, or someone who was a minor when Cyclone Nargis struck.

Map 4.3: Children 17 and younger living without their biological mother and or father



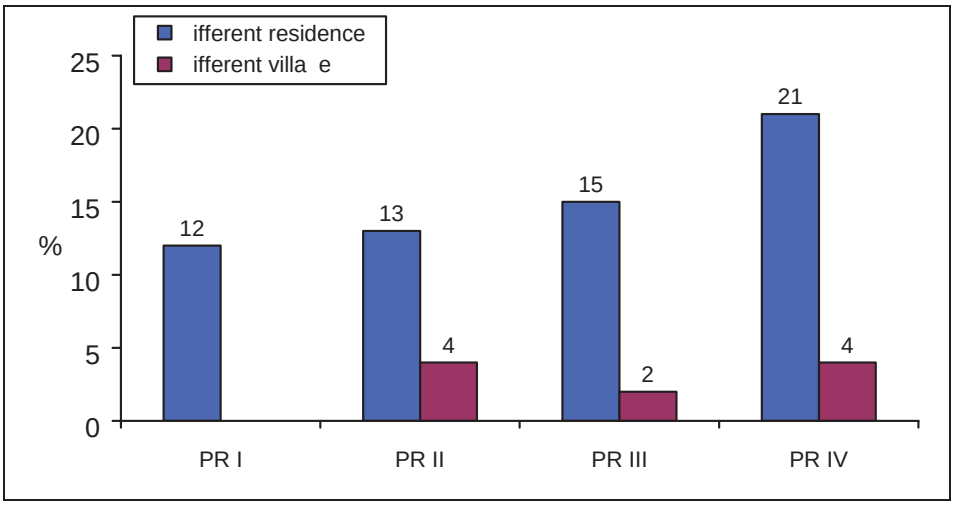
4.5: Return, integration and resettlement

Natural disasters commonly cause large population movements. Cyclone Nargis displaced approximately 260,000 people to temporary camps and informal settlements. In addition, an unknown but significant number of people migrated between or within villages seeking refuge in makeshift shelters or in the home of a family member.

Internally displaced persons in the areas affected by Cyclone Nargis experienced challenges either in re-integrating into their former community or integrating into a new location. Displaced households may have experienced protection issues associated with inadequate shelter, land insecurity, lack of livelihoods opportunities, minimal humanitarian assistance, loss of documentation and limited access to health care and schooling. Households that reported living in a different dwelling after the Cyclone include both those displaced between and within villages.

Since Cyclone Nargis, there was a slow increase in the proportion of households no longer living in their pre-Cyclone dwellings. It is unclear whether this is a result of continued poverty, or whether it is a sign of households making a new start. Across the successive Periodic Reviews, the respective percentages of households reporting changes in places of dwelling since the Cyclone were PR I: 12 per cent, PR II: 13 per cent, PR III:15 per cent, and PR IV: 21 per cent (n=1,400; see Graph 4.3).

Graph 4.3: Households living in a different dwelling and different village after Cyclone Nargis (PR I, PR II, PR III and PR IV)



The destruction caused by Cyclone Nargis likely forced households to change their dwellings. For example, Labutta Township, where Cyclone Nargis first hit land, had the highest proportion of households that moved to a new site (see Map 4.4 and Annex 5.2). Furthermore, 31 per cent (n=661) of PR IV-surveyed households whose dwellings were completely destroyed were in a new dwelling, compared to 12 per cent (n=739) of households whose dwelling was not completely destroyed ($P < 0.01$). A quarter of households in the areas most affected by Cyclone Nargis (n=1,000) had moved, compared to 11 per cent (n=400) in areas less affected ($P < 0.01$).

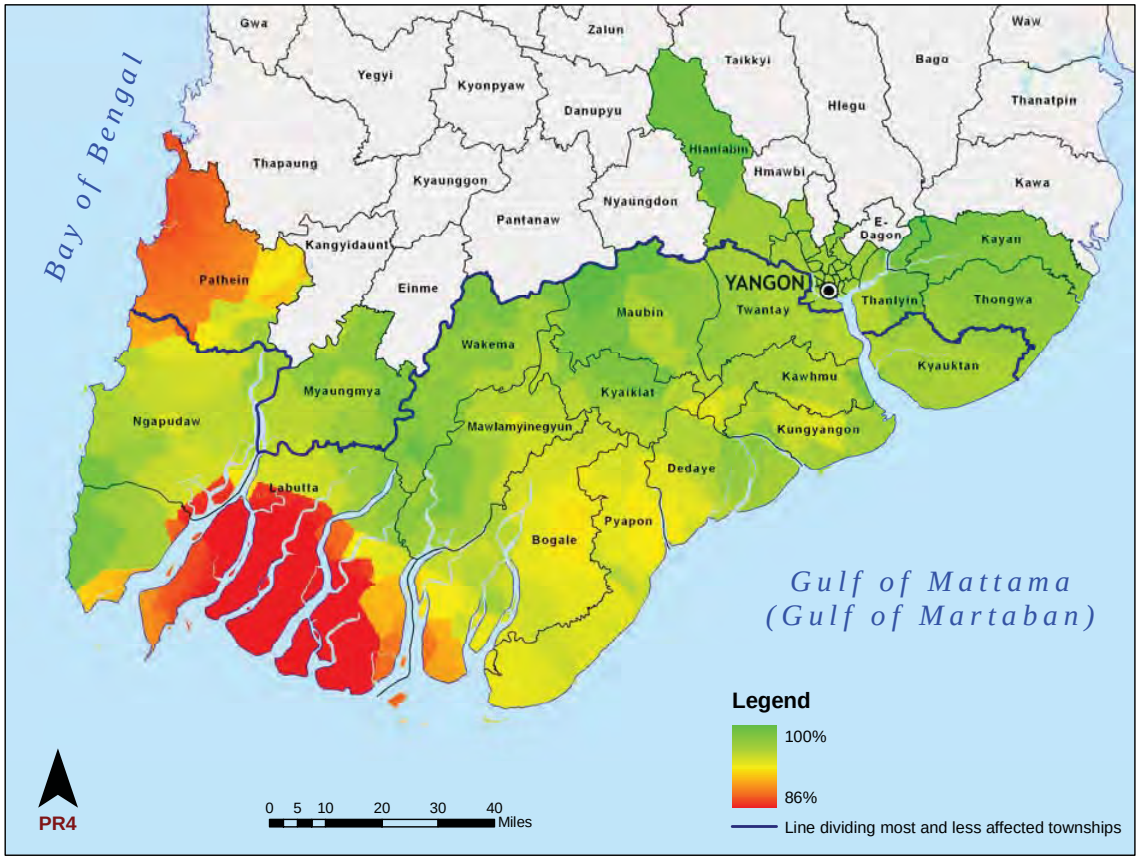
There is some indication that movement to different residences was a result of households making a new start and not due to continued poverty. A greater proportion of male-headed households moved to a new residency: 22 per cent (n=1,212) compared to 14 per cent (n=188) of female headed households ($P < 0.05$). Households headed by younger heads (those aged less than 60; n=1,157) were also more likely to have moved: 23 per cent compared to 12 per cent of households headed by someone aged 60 or older (n=243; $P < 0.01$).

Of those households that no longer lived in the same dwelling, a minority had moved from their primary community. PR IV households whose dwelling was completely destroyed by the Cyclone, 6 per cent (n=661) of them were living in a new community, compared to 3 per cent (n=739) of those whose dwelling was not completely destroyed ($P < 0.01$).

There was no significant statistical difference between the age of the household heads, or between male and female headed households, in whether they had moved to another village or not. Male-headed households, as noted earlier in this section, were more likely to be in a different dwelling, but that movement was mainly within the same village.

Among PR IV households, vulnerability as measured by food security, health and access to education was principally driven by whether the household dwelling was completely destroyed by Cyclone Nargis.

Map 4.4: Households living in the same dwelling as before Cyclone Nargis



4.6: Personal identification and documentation

Myanmar legislation contains provisions in two laws to confer civic rights: the household registration document that shows that a household is registered at a certain geographic location, and the National Registration Card (NRC). In Myanmar, these two sets of documents are important in order to access government services. Together, these documents enable persons to access health facilities, send children to school, travel freely and hold land, among other basic rights.
All citizens aged 10 and older in Myanmar are obligated to have a NRC. The PR II estimated that 13 per cent of surveyed household members lost their NRCs in Cyclone Nargis, whereas the PR IV questions focused on current rather than past NRC possession.

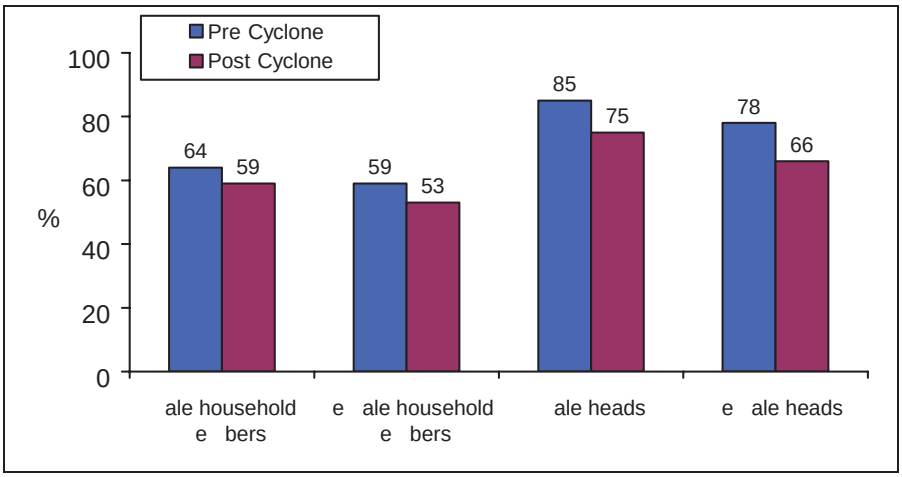
The Government carried out extensive registration efforts to ensure that all eligible persons have the bona fides of citizenship. Nevertheless, in PR III, more respondents had NRCs than in PR IV. In PR III, 75 per cent of household heads and 58 per cent of household members older than 10 years had a NRC. The corresponding PR IV figures were 73 and 50 per cent of household heads (n=1,400) and all eligible household members (n=3,741).

In the areas most affected by Cyclone Nargis, 55 per cent (n=3,660) of household heads and members had a NRC, compared to 57 per cent (n=1,480) of those living in areas less affected ($P < 0.01$). Before Cyclone Nargis the pattern as reported by PR IV household heads was reversed; 61 per cent of PR IV-sampled household members (n=3,659) reportedly had a NRC, compared to 60 per cent (1,480) in the areas less affected by the Cyclone ($P < 0.05$).

In PR IV, men were significantly more likely to have NRCs compared to women, before and after Cyclone Nargis (see Graph 4.4). Before the Cyclone, 64 per cent (n=2,517) of men had a card compared to 58 per cent (n=2,622) of women ($P < 0.01$). Two years after the Cyclone, 59 per cent of men (n=2,518) and 53 per cent of women (n=2,622) had NRCs ($P < 0.01$). Both before and after the Cyclone, male household heads were more likely to have a NRC then female household

heads. After Cyclone Nargis, 75 per cent of male heads (n=1,211) had a NRC compared to 66 per cent of female heads (n=188) ($P < 0.05$). Household heads who moved to a new dwelling after Cyclone Nargis were less likely to have a NRC: 64 per cent (n=294) versus 76 per cent (n=1,105) of household heads who had not moved. Of the elderly (aged 60 or over), 69 per cent had a NRC card. The elderly accounted for about 6 per cent of those without NRC cards.

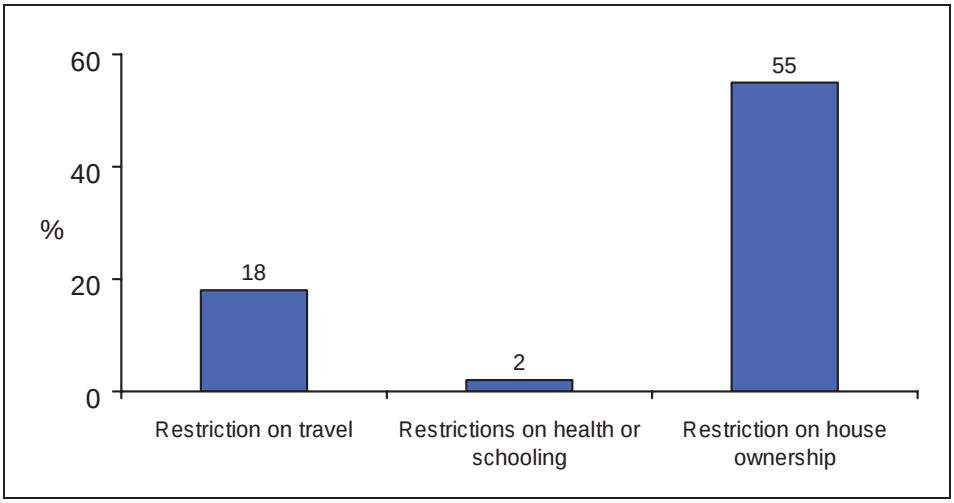
Graph 4.4: Males and females holding a National Registration Card pre- and post-Cyclone Nargis



Before Cyclone Nargis, 84 per cent of Myanmar as a first language speaking heads of households (n=1,245) had a NRC, while 90 per cent of household heads speaking another language (n=154) had the card ($P < 0.05$). However, two years after the Cyclone, only 71 per cent of Myanmar as a first language speaking household heads (n=1,245) had a NRC, compared to 90 per cent among those speaking another language (n=154; $P < 0.01$).

The perception of household heads about the impacts of not having a NRC on household members was similar, for both household heads who had or did not have a card. The overwhelming perception was that the lack of card did not restrict access to health or education services (see Graph 4.5). However for over half of the respondents who gave an answer (n=547), the findings indicated that there were restrictions on accessing land tenure without a NRC.

Graph 4.5: Household heads indicating there were restrictions on their household members who did not have a National Registration Card

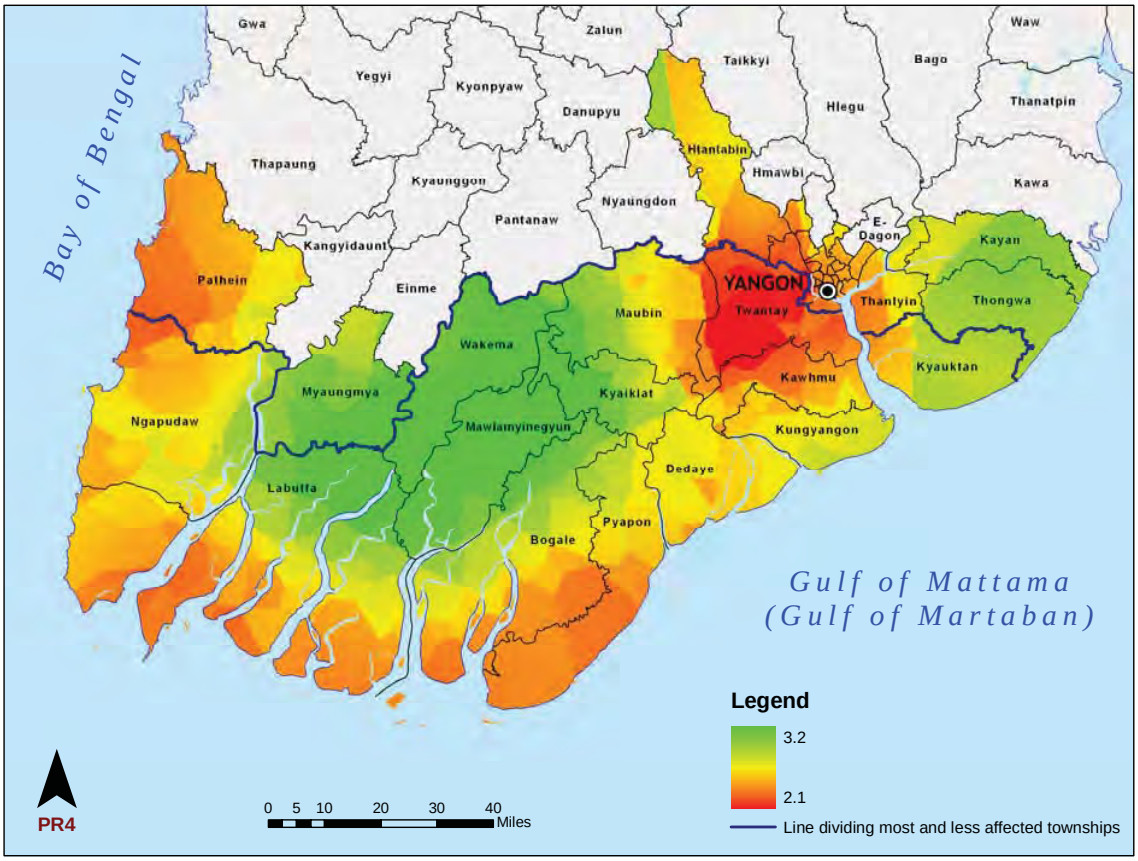


4.7: Disaster preparedness

The extent of death and destruction caused by Cyclone Nargis resulted not only from the strength of the Cyclone, but from the lack of preparedness that communities in the affected areas had. Their housing was not resilient, they lacked safe shelter for refuge and people were unaware of the impending disaster.

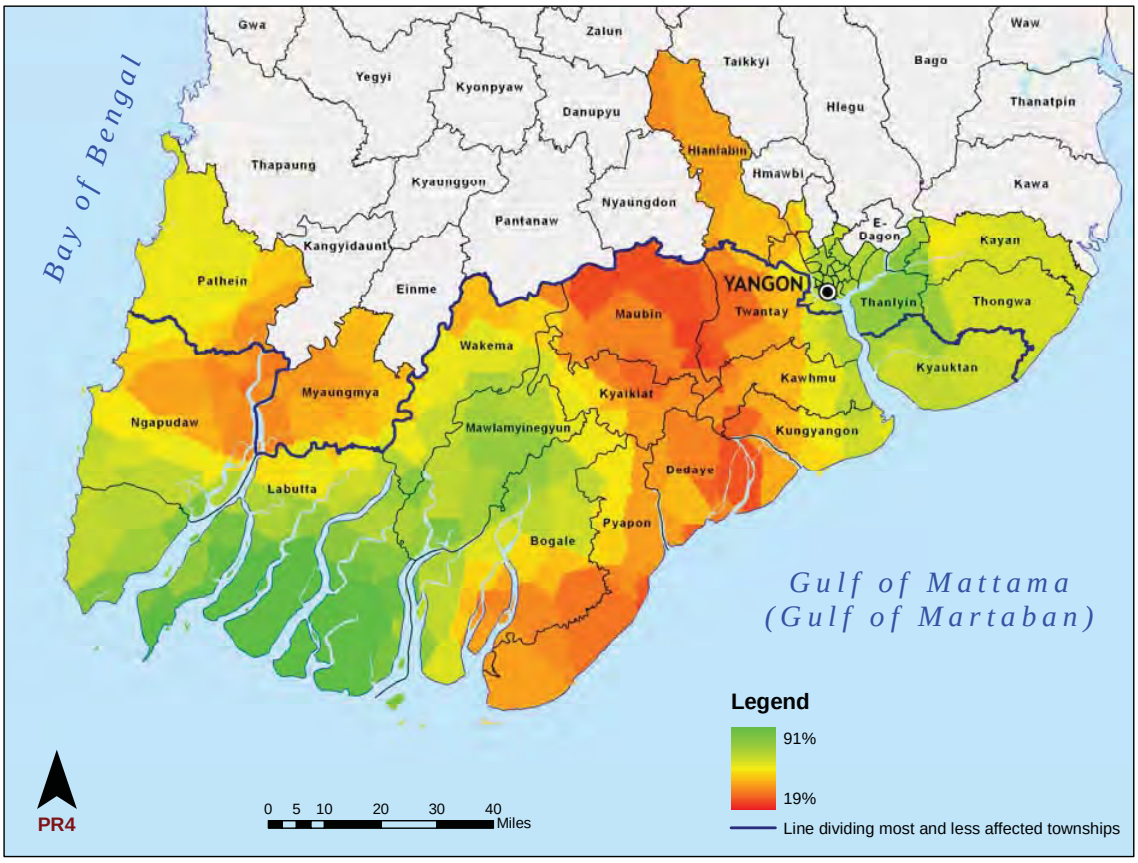
To determine how well households were prepared for a future disaster, PR IV enumerators asked household heads whether they considered their dwellings to be safe against heavy rain, wind or surge. Perceptions of shelter safety do not always coincide with independent verification of features which make for a strong dwelling (see Map 4.5). In some coastal areas shown in green, household heads perceived their dwellings to be safe, when the features assessed indicated that these dwellings were not safe. Elsewhere, perceptions and verified safe shelter status were more aligned. Overall, 82 per cent of household heads interviewed did not view their dwellings as safe.

Map 4.5: Household dwelling preparedness scores for storms or flooding



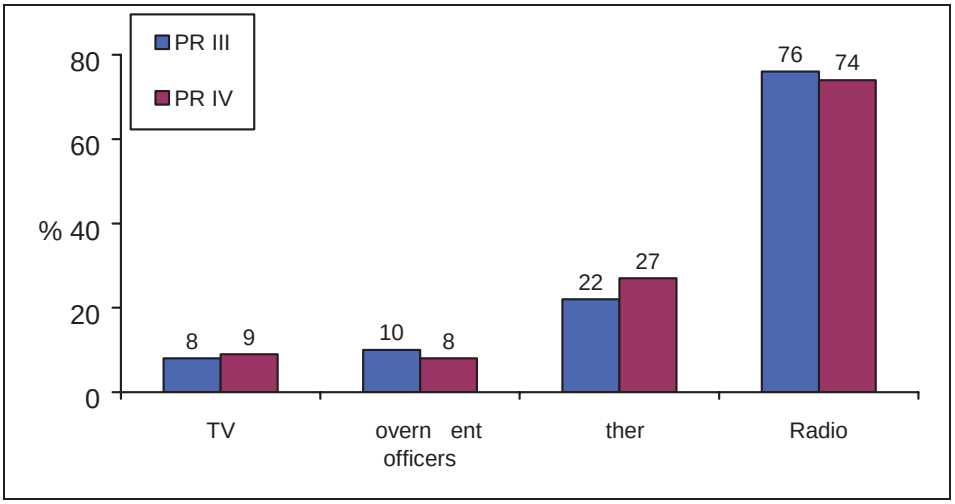
Among the 82 per cent (n=1,154) of households indicating that their current dwelling was not safe against storms, household heads were also asked about access to safe shelter. Among PR IV-surveyed households, 47 per cent said that safe shelter was available within half of a mile from their dwellings, compared to 46 per cent of PR II and 40 per cent of PR III households. This measure includes private homes which may be available to some but not all members of a community. Other types of building most frequently mentioned as safe included monasteries, churches, mosques, schools, and other public buildings. The degree to which these structures incorporate safe shelter features was not assessed. Map 4.6 shows that around Labutta Township, which is where Cyclone Nargis first made landfall, scored well compared to other surveyed areas. Townships west of Yangon Division, had some of the highest proportions of households not having a safe shelter within 0.5 miles of their dwellings.

Map 4.6: Percentage of household heads who perceived their dwelling unsafe who responded that there was a safe shelter within 0.5 miles of their dwellings



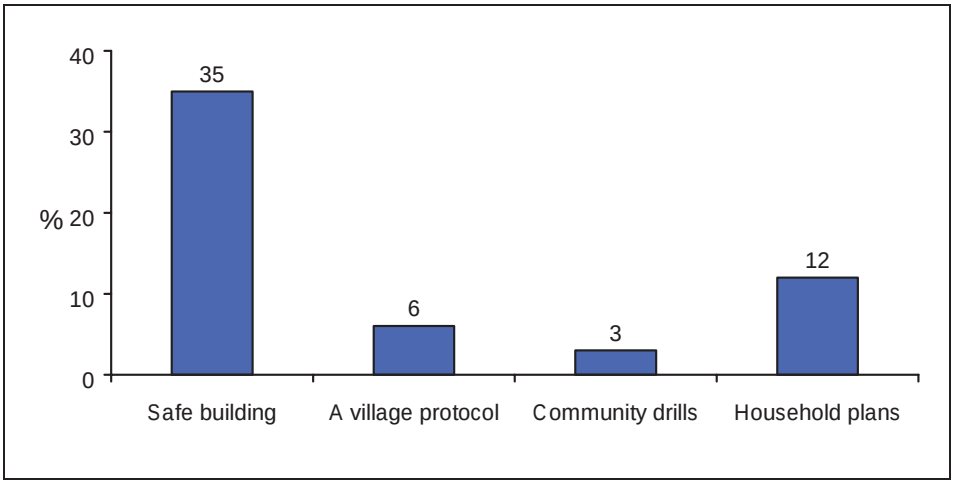
To prepare for future disasters, community members require information to reduce the potential impacts and to provide warnings. Graph 4.6 illustrates the overwhelming importance radio plays as a medium for disseminating information and for emergency warnings in the affected areas. The category 'other' primarily includes 'word of mouth' or 'heard from neighbours' responses. However, in these cases it may well be that the original source of these messages was radio. Township in and around Yangon Division, more respondents used television for information on disaster risk than in the other townships surveyed.

Graph 4.6: Households that received disaster messages by source



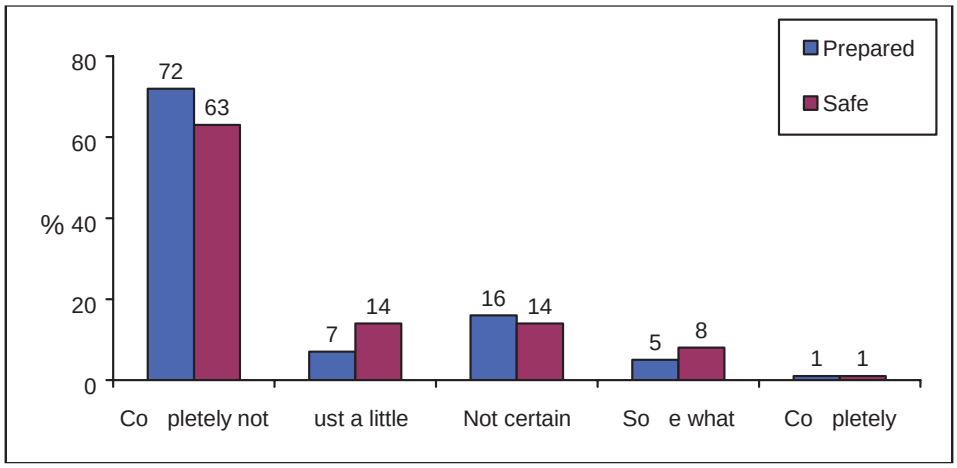
Since Cyclone Nargis, the Government of the Union of Myanmar and international and local organisations undertook interventions to improve disaster preparedness. Despite this, the majority of household heads indicated that they were unprepared for a future disaster (see Graph 4.7). Over a third (n=1,400) of the respondents said that there was a safe building in their village, distinct from being 0.5 miles from their homes, where they could evacuate to. Often this would be a place of worship. Only 12 per cent (n=1,400) of the household heads indicated that they had a plan for an emergency; 6 per cent stated that there was a village emergency protocol; and 3 per of household heads reported community drills had occurred to prepare for a future emergency. The quality of these plans, protocols and drills were not assessed.

Graph 4.7: Households that reported knowledge of community emergency preparedness



The extent that household heads felt safe and prepared to manage a disaster implied that the need for more work to strengthen safety and preparedness. Nearly three quarters (n=1,400) of household heads reported they were not prepared for another disaster, while only 1 per cent (n=1,400) of them felt completely prepared (see Graph 4.8). Further, nearly 80 per cent (n=1,400) of the household heads felt completely not or just a little safe from another disaster. Only 1 per cent (n=1,400) of the household heads felt completely safe.

Graph 4.8: Households that felt completely safe and prepared for another disaster



Summary

PR IV findings demonstrate the continuing vulnerability of households whose dwellings were completely destroyed by Cyclone Nargis.

Two areas of concern regarding protection of groups made vulnerable by disaster, migration and offers of work to women, trended up among PR IV respondents. Interpreting these results, however, is not entirely straightforward.

Among respondents in all Periodic Review assessments since PR II, the movement to a new dwelling was principally within the same village rather than to a different village. Those that moved to new villages were more likely to be male- and younger-headed households than female- and elderly-headed households.

Women were more likely to have been offered farm work and causal labour outside their village compared to assessments over the past year. These offers were largely reported in the western and southern coastal area (see Map 4.1), and may reflect a slight economic upturn.

Reports of knowledge of violence against women were stable over the past year.

Among PR IV-surveyed households, 11 per cent of children under age 15 were living with neither parent, lower than reported in either of the two prior assessments which focused on protection issues. However, children living with only one parent were less likely to be in school than either those living with both or with neither parent. This suggests that single-parent households, whether the parent is a father or a mother, face greater stresses than other households.

Preparedness of household dwellings, through the incorporation of construction features which reinforce against wind, rain and storm surge, remains limited, and 82 per cent of household heads do not view their dwellings as able to protect household members against storms.

These household heads who feel unsafe in their own dwellings were asked about other places available to protect their households against storms; the hardest hit areas around Labutta Township showed high percentages of households peceiving that there are safe shelters within one half mile of their dwelling. Other vulnerable coastal communities, stretching from Bogale Township to south of Yangon City, were less likely to report access to safe shelter near home.

The dominance of radio as the major source of disaster information noted in PR III was re-enforced by PR IV respondents, with the exception of the area near Yangon City, where television was more important.

Awareness of community emergency preparedness plans was limited. Only 1 per cent of PR IV respondents indicated that they were completely prepared for another disaster. Disaster risk reduction poses continuing challenges in an area subject annually to frequent storms.

Chapter V: Annexes

www.aseanhtf.org/periodicreview.html

Chapter 5: Annexes

5.1: Agencies that contributed to the Periodic Review IV

(ASEAN, Governmnet of Union of Myanmar, United Nations)

TRIPARTITE CORE GROUP (TCG)

Social Vision Services Association

adpc

iMMAP

International Rescue Committee

United Nations ESCAP
Economic and Social Commission for Asia and the Pacific

HelpAge International
age helps

UNFPA

Oxfam

MMRD Research Services
Myanmar Marketing Research & Development Co., Ltd

UNDP

MercyCorps

World Vision

MIMU
Myanmar Information Management Unit

actionaid

merlin
medical relief, lasting health care

unicef

care

Save the Children

UNHCR
The UN Refugee Agency

UNESCO
United Nations Educational, Scientific and Cultural Organization

International Federation of Red Cross and Red Crescent Societies

WFP
wfp.org

IOM International Organization for Migration

OCHA Myanmar

NRC Norwegian Refugee Council

UN-HABITAT
United Nations Human Settlements Programme

ACF
ACF International Network

FAO
Fiat Panis

Samaritan's Purse
International Relief

5.2: Indicator continuity through periodic review assessments

Periodic Reviews regularly assessed over 50 characteristics of households, including 23 items recorded in the household roster. Behavioural characteristics or dimensions indicated below include calculations of multiple indicators utilized in assessing household status. Additional modules were introduced in PR II (women's questionnaire and a protection section). A Disaster Risk Reduction section was introduced in PR III and revised in PR IV. The introduction of new and revised modules, as well as revision of specific questions, was initiated by and developed in consultation with Clusters and Working Groups.

Indicators Continued from PR I through PR IV
Healthy Lives
Food Consumption, by food groups
Adequacy of food consumption
Food Sources
Main water sources
Travel time to get water and return
Water treatment methods
Water storage capacity and container type
Types of toilet facilities
Sharing of toilet facilities
Methods of Child Faeces Disposal
Methods of Solid Waste Disposal
Soap presence in household
Usage of soap
Time to reach nearest health post/clinic
Main reason not using the nearest health post/clinic
Perceived health facility availability of medicines
Perceived health facility availability of health personnel

Indicators initiated in PR II, continued through PR IV
Healthy Lives
Drinking water quantity by season (dry/rainy)
Cost of purchased water
Water availability for livestock
Shelter
Shelter destruction status
Sufficiency of shelter surface area
Livelihoods
Sources of forest products for household use
Registration and migration
Living in the same village
Reasons for relocation (migration)
Possession of household registration document
Possession of NRC card
Perceived access to services without NRC card
Language spoken

Indicators initiated in PR IV
Disaster Risk Reduction
Items Stored/Kept in case of cyclone
Safe Building for evacuation
Village protocol/ standard operating procedures
Community drills
DRR plans/preparations
Actions to strengthen dwelling against strong winds
Actions taken to protect family members against disaster
Knowledge of village preparedness plan
Knowledge of task forces formed in village
Perceived preparedness level
Perceived degree of safety

Continued on the next page...

Continued from the previous page...

Indicators Continued from PR I through PR IV
Shelter
External walls and roof materials
Dwelling features
Live in same dwelling
Shelter repair status
Shelter perceived as worse
Building perceived as safe within 1/2 mile
Livelihoods
Assistance Items Received
Expressed household needs
Main sources of livelihood
Home garden production
Cultivated acreage
Livestock ownership
Fishing equipment ownership

Indicators initiated in PR II, continued through PR IV
Women's survey
Assisted delivery
Births
Infant mortality
Neo-natal examinations
Maternal mortality
Post-natal maternal examinations
Reports of work offers to women
Reports of violence against women
Indicators Initiated PR III, continued through PR IV
Arable land rent
Fishing processing equipment
Pregnancy since Cyclone Nargis
Outcome of pregnancy
Regular care giver
Source of early warning
Home garden purpose (own consumption or income)

5.3: Questionnaire

TRIPARTITE
CORE
GROUP
(TCG)

MYANMAR PERIODIC REVIEW Village-Level Questionnaire©
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Periodic Review Round 4
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TRIPARTITE
CORE
GROUP
(TCG)

MYANMAR PERIODIC REVIEW Village-Level Questionnaire©
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Periodic Review IV
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For office use only

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ousehold Roster

<- Head of Household

	Ask all members of household								Ask those 10 years or older				
	1	2	2B	3		4	5	6	7	8		9	10	11
I Code	Name (Start with all adults ove 18 years old currently living in the household. Then list those who are temporarily out of the house)	Relationship to head of household? 1) Head 2) Spouse/Partner 3) Son/Daughter 4) Son/Daughter-In-Law 5) Father/Mother 6) Father-In-Law/ Mother-In-Law 7) Sister/Brother 8) Grandchild 9) Grandparent 10) Niece/Nephew 11) Other Relative 12) Not Related 999) Don't Know	Has [NAME] been in the household within the past four months? Yes = 1 No = 0 Dont know = 999	e ear	onth	Sex ale 1 e ale 2	Natural ather I C	Natural other I C	oes N have a disability es 1 No 0	oes na e have a National Re istration Card NRC card es 1 No 0 Te p 2 Before	fter	Record [NAME] marital status? 1)Single 2)Married 3)Divorced 4)Separated 5)Widow/er	What is the main activity that [NAME] does now? 1) Domestic worker 2) Go to school 3) Household work/care for members 4) Jobless/unemployed/dependant 5) Pensioner 888) Other 6) Fishing *Specify:* _____ 7) Crop Production 8) Livestock Production 999) Don't know 9) Aquaculture Production 10) Salt Production 11) Government Employee 12) Private Sector Employee 13) Trader / Shopkeeper / Village Broker / Vendor 14) Self Employed / Craftsman / Artisan 15) Bar girl / Massage / Karaoke / Entertainment 16) Charcoal / Firewood 17) Forestry 18) Casual Labour in Agriculture 19) Casual Labour in Non-Agriculture 20) Go to religious institute	What is the number of outpatient visits in the last 12 months?

List all children 18 years or younger

Carers of Children ->

ID Code	Enter Respondent ID	Is N currently bein breastfed es 1 No 0	Children 6 months old or less: Within 24 hours, did [NAME] receive any of the following ?: 14.1) Any other liquids? (Yes = 1, No = 0)	14.2) Solid or semi-solid (mushy) foods? (Yes = 1, No = 0)	Children who are sufficient height or length (65 to 110 centimeters): Compare the height (or length) of the child to the measuring pole. Determine if the child's height (or length) is between the two marks. Yes = 1 No = 0 >> 23	Measure the child's mid upper arm circumference on the left arm and write down number in Centimeters	Is Bilateral Pitting Oedema Present? (Yes = 1, No = 0)	Did [NAME] experience diarrhoea during the last 14 days? Yes = 1 No = 0 >>20	How did you treat [NAME'S] diarrhoea? 1) Increased food or drink given to child 2) Reduced food or liquid given to child 3) Gave special foods to child 4) Oral rehydration therapy 5) Reduce or stop breastfeeding 6) Home remedy 7) No treatment 888) Other Specify:_____ CHOOSE UP TO THREE METHODS: 1st	2nd	3rd	Has [NAME] had a fever in the last 14 days? (Yes = 1, No = 0)	Measles Injection? Yes = 1 No = 0 Don't know = 999	How many Diphtena (DPT) Injections ?- 0, 1, 2, 3 Don't know = 999	Education — Children 18 years and younger: Does [NAME] go to a place specifically for children to learn to play or to be taken care of? (Yes = 1, No = 0)	Which type of place does [NAME] go to? 1) Mother's circle 2) Nursery 3) Playgroup 4) Child friendly space 5) Preschool >> SKIP TO Q30 >>	Did [NAME] attend school before Nargis? (Yes = 1, No = 0)	Does [NAME] attend school now? (Yes = 1 >> 27, No = 0 >> 28)	If yes then, what class does[NAME] attend? 1) Grade 1 2) Grade 2 3) Grade 3 4) Grade 4 5) Grade 5 6) Grade 6 7) Grade 7 8) Grade 8 9) Grade 9 10) Grade10 11) Grade11 >> SKIP TO Q30 >>	What is the main reason that [NAME] does not attend school? 1) Child not interested >> 30 2) Parents not interested >> 30 3) Education costs >> 29 4) Required to work >> 30 5) Child is sick >> 30 6) Child is disabled >> 30 7) Childs looks after others in household >> 30 8) School too far away >> 30 9) No school >> 30 10) No teacher >> 30 11) Completed school (grade 11) >> 30 888) Others Specify:_____	If due to education cost, which costs burden you the most CHOOSE UP TO THREE 1) Textbooks 2) Exercise books 3) Writing supplies and stationery 4) Uniform (school) 5) School slippers/ footwear 6) Lunch 7) School bag 8) Pocket money 9) Transportation cost 10) Tutoring cost 11) Snacks 12) Umbrella/raincoat 888) Other Specify:_____: 1st	2nd	3rd	ID Code
7																											7
8																											8
9																											9
10																											10
11																											11
12																											12
13																											13
14																											14
15																											15
16																											16

ousehold Roster

<- Head of Household

	Ask all members of household								Ask those 10 years or older				
	1	2	2B	3		4	5	6	7	8		9	10	11
I Code	Name (Start with all adults over 18 years old currently living in the household. Then list those who are temporarily out of the house)	Relationship to head of household? 1) Head 2) Spouse/Partner 3) Son/Daughter 4) Son/Daughter-In-Law 5) Father/Mother 6) Father-In-Law/ Mother-In-Law 7) Sister/Brother 8) Grandchild 9) Grandparent 10) Niece/Nephew 11) Other Relative 12) Not Related 999) Don't Know	Has [NAME] been in the household within the past four months? Yes = 1 No = 0 Dont know = 999	e		Sex ale 1 e ale 2	Natural ather I C	Natural other I C	oes N have a disability es 1 No 0	oes na e have a National Re istration Card NRC card es 1 No 0 Te p 2		Record [NAME] marital status? 1)Single 2)Married 3)Divorced 4)Separated 5)Widow/er	What is the main activity that [NAME] does now? 1) Domestic worker 2) Go to school 3) Household work/care for members 4) Jobless/unemployed/dependant 5) Pensioner 888) Other 6) Fishing *Specify:* _____ 7) Crop Production 8) Livestock Production 999) Don't know 9) Aquaculture Production 10) Salt Production 11) Government Employee 12) Private Sector Employee 13) Trader / Shopkeeper / Village Broker / Vendor 14) Self Employed / Craftsman / Artisan 15) Bar girl / Massage / Karaoke / Entertainment 16) Charcoal / Firewood 17) Forestry 18) Casual Labour in Agriculture 19) Casual Labour in Non-Agriculture 20) Go to religious institute	What is the number of outpatient visits in the last 12 months?
				ear	onth					Before	fter			

List all children 18 years or younger

Education

Carers of Children ->

	Children 6 months old or less			Children who are sufficient height or length (65 to 110 centimeters)												Children 18 years and younger														
	12	13	14	15	16	17	18	19			20	21	22	23	24	25	26	27	28	29										
ID Code	Enter Respondent ID	Is N currently bein breastfed es 1 No 0	Within 24 hours, did [NAME] receive any of the following ?	Compare the height (or length) of the child to the measuring pole. Determine if the child's height (or length) is between the two marks. Yes = 1 No = 0 >> 23	Measure the child's mid upper arm circumference on the left arm and write down number in Centimeters	Is Bilateral Pitting Oedema Present? (Yes = 1, No = 0)	Did [NAME] experience diarrhoea during the last 14 days? Yes = 1 No = 0 >>20	How did you treat [NAME'S] diarrhoea? 1) Increased food or drink given to child 2) Reduced food or liquid given to child 3) Gave special foods to child 4) Oral rehydration therapy 5) Reduce or stop breastfeeding 6) Home remedy 7) No treatment 888) Other *Specify:_____* *CHOOSE UP TO THREE METHODS*	1st	2nd	Has [NAME] had a fever in the last 14 days? (Yes = 1, No = 0)	Measles Injection? Yes = 1 No = 0 Don't know = 999	How many Diphtena (DPT) Injections ?- 0, 1, 2, 3 Don't know = 999	Does [NAME] go to a place specifically for children to learn to play or to be taken care of? (Yes = 1, No = 0)	Which type of place does [NAME] go to? 1) Mother's circle 2) Nursery 3) Playgroup 4) Child friendly space 5) Preschool >> SKIP TO Q30 >>	Did [NAME] attend school before Nargis? (Yes = 1, No = 0)	Does [NAME] attend school now? (Yes = 1 >> 27, No = 0 >> 28)	If yes then, what class does[NAME] attend? 1) Grade 1 2) Grade 2 3) Grade 3 4) Grade 4 5) Grade 5 6) Grade 6 7) Grade 7 8) Grade 8 9) Grade 9 10) Grade10 11) Grade11 >> SKIP TO Q30 >>	What is the main reason that [NAME] does not attend school? 1) Child not interested >> 30 2) Parents not interested >> 30 3) Education costs >> 29 4) Required to work >> 30 5) Child is sick >> 30 6) Child is disabled >> 30 7) Childs looks after others in household >> 30 8) School too far away >> 30 9) No school >> 30 10) No teacher >> 30 11) Completed school (grade 11) >> 30 888) Others *Specify:_____*	If due to education cost, which costs burden you the most *CHOOSE UP TO THREE* 1) Textbooks 2) Exercise books 3) Writing supplies and stationery 4) Uniform (school) 5) School slippers/ footwear 6) Lunch 7) School bag 8) Pocket money 9) Transportation cost 10) Tutoring cost 11) Snacks 12) Umbrella/raincoat 888) Other *Specify:_____*	1st	2nd	3rd	ID Code
			14.1) Any other liquids? (Yes = 1, No = 0)																											
			14.2) Solid or semi-solid (mushy) foods? (Yes = 1, No = 0)																											

30) Respondent ID

FOOD: I would now like to ask you a few questions about food.

Please tell e how any days in the past 7 days you or any e ber of your household ate the followin foods *-TICK ONE BOX PER ROW*

ood roup	Examples	Check the nu ber of days 0	1	2	3	4	5	6	7
RIC	rice	○	○	○	○	○	○	○	○
C R S	bread noodles any other foods fro illet sor hu ai e wheat	○	○	○	○	○	○	○	○
VIT IN RIC V T B S N T B R	pu pkin carrots s uash sweet potato broccoli	○	○	○	○	○	○	○	○
IT T B RS N R TS	white potatoes kohlrabi arrowroot cassava tapioca ya s radishes	○	○	○	○	○	○	○	○
R R N V T B S	a aranth ustard reens chinese kale pickle tea leaves water cress	○	○	○	○	○	○	○	○
T RV T B S	to atoes cucu ber lettuce cabba e reen herbs red beet cauliflower dru stick and other ve etables includin wild ones	○	○	○	○	○	○	○	○
VIT IN RIC R ITS	water elon peaches apricots oran es papaya an o	○	○	○	○	○	○	○	○
T R R ITS N RI R ITS	po elo an osteen apples banana	○	○	○	○	○	○	○	○
S TS	beef pork la b oat rabbit wild a e rat	○	○	○	○	○	○	○	○
ORGAN MEATS	liver, kidney, heart, or other organ meats or blood-based foods	○	○	○	○	○	○	○	○
S	e s	○	○	○	○	○	○	○	○
P TR	poultry bird	○	○	○	○	○	○	○	○
IS	fresh or dried fish or shellfish prawns shri p crab fro fish paste seafood	○	○	○	○	○	○	○	○
S N TS S S	beans peas lentils chickpeas ra s cashew roundnuts nuts seeds or foods ade fro these	○	○	○	○	○	○	○	○
I N I PR CTS	butter yo urt ice crea and other products ade with ilk	○	○	○	○	○	○	○	○
I S TS	oils pal oil peanut oil fats or butter added to food or used for cookin	○	○	○	○	○	○	○	○
S TS	su ar su ar cane a ery honey sweetened soda or su ary foods such as chocolates sweets or candies	○	○	○	○	○	○	○	○
SPIC S C N I NTS	spices black pepper salt chili condi ents soy sauce hot sauce onion	○	○	○	○	○	○	○	○
B V R S	coffee tea soft drinks other non alcoholic bevera es	○	○	○	○	○	○	○	○
		0	1	2	3	4	5	6	7
		Check the number of days							

In the past 7 days on avera e how any eals did your household eat each day

[ ] Nu ber of eals per day

In the past 7 days did you have enou h food for your household

○ es 36 ○ No

ow often did you not have enou h food in the last 7 days

○ 1 3 ays -TICK ONE

○ 4 6 ays

○ very day

ow often did you do the followin when your household did not have enou h food durin the last 7 days

-TICK ONE FOR EACH LINE	○ Never	○ 1 3 days	○ 4 6 days	○ Every day
Chose less expensive food				
Chose food that you usually do not eat	○	○	○	○
at less in the ain eal than nor al	○	○	○	○
at fewer eals per day	○	○	○	○
Borrowin food or buyin food on credit	○	○	○	○
ot support fro friends and relatives	○	○	○	○
So e e bers of household went without eals	○	○	○	○

hat are the 3 ost i portant sources of food for your household durin the last 7 days

DO NOT READ THE LIST.

1. Own production
2. Gift from family
3. Purchases
4. Borrow/credit/advance (money)
5. Pre-harvest advance (food)
6. Exchange items for food
7. Exchange work for food (not food aid)
8. Food for work
9. Food aid (UN/INGO, Government, NGO/CBO, Faith Based)

888. Other: *Specify* _____

NUMBER

[ ] First Most Important

[ ] Second Most Important

[ ] Third Most Important

hat are the sources of water for your dwellin -TICK ALL THAT APPLY

Water Source	Drinking Only	Other HH Uses
1 Piped water into dwellin	☐	☐
2 Piped water to yard plot	☐	☐
3 Public tap	☐	☐
4 Protected Tubewell borehole	☐	☐
5. Unprotected Tubewell / borehole	☐	☐
6. Protected dug well	☐	☐
7. Unprotected dug well	☐	☐
8. Protected spring	☐	☐
9. Unprotected Spring	☐	☐
10. Rainwater collection	☐	☐
11. Bottle water	☐	☐
12. Cart with small tank / drum	☐	☐
13. Tanker truck / boat	☐	☐
14. Surface water	☐	☐
15. Protected pond	☐	☐
16. Unprotected pond	☐	☐
888. Other	*Specify* _____	*Specify* _____

38) What is the main source of drinking water for your dwelling? (See codes in question number 35 and write only the code)

ry Season Rainy Season

☐ ☐

39) How many equivalent bottles of drinking water does your household drink per person each day?
(Show 1 Litre Bottle)

Dry Season

- ○ Less than 3
- ○ 3 or more
- ○ Don't know

Rainy Season

- ○ Less than 3
- ○ 3 or more
- ○ Don't know

40) How long does it take to go get drinking water and come back from community water source?

Dry Season ☐ Number of Minutes

Rainy Season ☐ Number of Minutes

41) Who has the main responsibility for fetching water used for your household and drinking purposes?

☐ ID Code of Household Member (select ID from household roster)
(if person is not in the household then write '50')

42) If you purchase water for drinking and household use, how much do you spend per week? -TICK ONE

- ○ < 1000 kyat
- ○ 1000 - 2000 kyat
- ○ 2100 - 5000 kyat
- ○ 5100 - 10000 kyat
- ○ More than 10000 kyat
- ○ Do not buy water
- ○ Don't know

o you treat your water in any way to ake it safer to drink

◯ es ◯No >>45

hich of these ethods do you use to ake the water safer for drinkin

TIC T T PP

- ☐ Boil
- ☐ dd bleach chlorine
- ☐ dd water uard
- ☐ Strain it throu h a cloth
- ☐ se water filter cera ic earthen pot sand etc
- ☐ Solar disinfection
- ☐ et it stand and settle
- ☐ lu iniu sulphate
- ☐ ther *Specify* _____
- ☐ on t know

45) What type of water storage containers does your household have and how many?

Type	How many does the household have?	How many gallons can they store in total?
Pots (Clay , Ceramic)		
Buckets		
Jerry cans		
Barrels		
Water tanks from NGOs		
Other: *Specify* _____		

46) Do you have animals?

◯Yes ◯No >> 48

47) Do you have enough drinking water for the animals in your household?

◯Yes ◯ No

48) What kind of toilet facilities are in your dwelling?

-TICK ONE

Flush/pour flush to:

- ◯ Piped sewer system
- ◯ Septic tank
- ◯ Pit latrine
- ◯ Latrine without a pit
- ◯ Elsewhere

◯ Ventilated improved pit latrine (VIP)
◯ Pit latrine with slab
◯ Pit latrine without slab/open pit
◯ Composting toilet
◯ Bucket
◯ Hanging toilet/hanging latrine
◯No facilities or bush or field >> 51
◯Other: *Specify* _____

o you share this facility with other households

◯ es ◯ No 51

ow any other households share this toilet

[ ] Nu ber of ouseholds

If there is a child under 5 in the household how do you dispose of child s stool

◯ Child used toilet latrine
◯ Put rinsed into toilet or latrine
◯ Put rinsed into drain or ditch
◯ Thrown into arba e
◯ Buried
◯ eft in open
◯ ther *Specify* _____
◯ on t know
◯ No children under 5 in household

hat ethods do you use to dispose of solid waste in your household

N B R

[ ] ost l portant

1 Burn
2 Bury in yard
3 Co post
4 Scaven ers collect
5 Nei hbourhood waste collection local disposal
6 Throw in own yard
7 Throw in the street
8 Throw in river strea
9 Throw in the field
888 ther *Specify* _____

ow lon does it take you to travel to the nearest health post clinic available

Nu ber of inutes If don t know write 999

ow does your fa ily travel to the nearest health post clinic

-TICK ALL THAT APPLY

- alkin
- Canoe
- otor boat
- *yi*
- otorised vehicle car otorcycle bus etc
- Bicycle
- Trishaw
- Horse / cow cart
- Don't know
- ther *Specify:* _____

Are there official health care personnel in the nearest health post/clinic available?

- All of the time
- Most of the time
- Some of the time
- Never
- Don't know

How often are medicines and drugs at the nearest health post/clinic available?

- ll of the ti e
- ost of the ti e
- Some of the time
- Never
- Don't know

IF IN QUESTION 11 AT LEAST ONE FAMILY MEMBER HAS BEEN TO HEALTH POST / CLINIC THEN SKIP QUESTION 57

If in question 11 no family member has been to health post/clinic then; What are the main reasons you did not use the health post/clinic? -TICK UP TO THREE - DO NOT READ OUT LIST

- Too far away
- Wait time to see personnel too long
- Usually no medicines available
- Facility not open every day
- Facility not clean
- Facility has no equipment
- Have to pay too much for the services
- Prefer to use a traditional healer
- Use our own remedies for health problems
- Due to a disability
- No household registration
- No medical staff
- Denied treatment (age limitation)
- I feel healthy / no need
- Quacks
- Transportation cost
- Other *Specify:* _____
- Don't know

hat is the a or construction aterial of the external walls BS RV TI N V RI ICI TI N

1 Sticks and thatch
2 Ba boo and pal leaves
3 Tarpaulin polytarp
4 attle and daub
5 ood
6 Bricks blocks concrete
7 Tin inc
8 ud
9 Ba boo
10 Canvas felt
11 un le wood
888 ther Specify _____

Before Nar is ☐ t Present ☐

hat is the a or aterial of the roof BS RV TI N V RI ICI TI N

1 Sticks and thatch
2 Ba boo and pal leaves
3 hani
4 Tarpaulin polytarp
5 Solid wood
6 Tiles
7 Shin les
8 etal tin or Corru ated alvanised Iron C I
9 sbestos
10 Plastic sheetin
11 un le wood
888 ther Specify _____

Before Nar is ☐ t Present ☐

hat is the a or aterial of the post BS RV TI N V RI ICI TI N

1 Ba boo *e* *e* other types of ba boo
2 Sawn Ti ber ardwood *yi* other type of sawn ti ber
3 un lewood *i p* other type of un le wood
4 Pal wood Toddy Pal wood Coconut Pal wood rica Pal wood etc
888 ther Specify _____

Before Nar is ☐ t Present ☐

61 id you receive any trainin on shelter process

◯ es ◯ No 63 ◯ on t know 63

62 If yes what type

- ☐ Co unity preparedness for shelter
- ☐ isaster preparedness for shelter
- ☐ ow to aintain shelter
- ☐ ther *Specify:* _____

63 ave you received shelter assistance

◯ es ◯ No 65 ◯ on t know 65

64 If yes what did you recieve -TICK ALL THAT APPLY

- ☐ Partial materials assistance
- ☐ Full materials assistance
- ☐ A full shelter
- ☐ Other *Specify:* _____

Does the current dwelling have any of the following features? OBSERVATION & VERIFICIATION

-TICK ALL THAT APPLY

- ☐ Dwelling built on raised ground
- ☐ A wind break of trees or other plants
- ☐ Shorter side of the dwelling faces windward direction
- ☐ Single pitch
- ☐ Double pitch
- ☐ Hip roof
- ☐ Water tight roof able to harvest rainwater
- ☐ Diagonal wind bracing at wall
- ☐ Wind bracing at roof truss/rafter
- ☐ Roof truss/rafters tied up by rope or nail or iron straps
- ☐ Foundation : at least 2.5 ft below the normal ground
- ☐ Ramp

Size of the house (floor space protected from rain where people can sit or sleep)

Length in feet ☐ Width in feet ☐ *Measure length and then width*

Number of people sleeping in this house, on average during the past 14 days

☐

68) Do you live in the same dwelling or compound that you lived in prior to Nargis?

◯ Yes ◯ No >> 71

69) Have you repaired/rebuilt your current house since Nargis?

◯ ully repaired 71

◯ l ost fully repaired

◯ Partially repaired

◯ Not repaired

70) What is the main problem you are still facing when repairing?

-TICK UP TO TWO

☐ Lack of material ☐ Lack of cash

☐ Lack of technical skills ☐ Rainy season

☐ Lack of workers ☐ Other Specify: _____

71) After Nargis, what was the state of your house?

◯ Co pletely destroyed

◯ Severely da a ed

◯ Minor damage

◯ No damage

Is your current house hotter than before Nar is

◯ es ◯ No ◯ on t now

urin the rainy season is your current house wetter than before Nar is

◯ Yes ◯ No ◯ Don't Know

Is your current house ore crowded than before Nar is

◯ es ◯ No

75) Do you consider your current shelter as safe against rain, wind, or surge?

◯ Yes >>78 ◯ No ◯ Don't Know

76) If no, is there a building within 1/2 mile that you consider as safe against rain, wind or surge?

◯ Yes ◯ No >>78 ◯ Don't Know

77) If yes, what type?

◯ Monastery

◯ Public building

◯ School

◯ Stronger house in the community

◯ Church

◯ Mosque

◯ Other *Specify:* _____

What kinds of relief items has your household received since Nargis?
More than one can be marked.

S S S S

-TICK ALL THAT APPLY

- ☐ ater drinkin and household use
- ☐ Shelter
- ☐ Bednets
- ☐ Blankets
- ☐ Soap hy iene kit
- ☐ erry can bucket water container of any type
- ☐ Clothes
- ☐ Personal ite s
- ☐ uel
- ☐ edicine
- ☐ Dignity kits
- ☐ Animal feed/supplements/drugs/vaccines
- ☐ Boats
- ☐ Boat engines
- ☐ Fishing gears
- ☐ Water purification items (water guard, tablets, or ceramic water filter)
- ☐ Latrine construction material (latrine pans)
- ☐ Health and hygiene message (poster leaflet, pamplet, brochure, other communications materials)
- ☐ Disaster risk reduction message (poster leaflet, pamplet, brochure, other communications materials)
- ☐ Agricultural chemicals/fertilizer
- ☐ Agricultural machinery
- ☐ Seeds
- ☐ Agricultural equipment
- ☐ Draught animals
- ☐ Pig
- ☐ Goat
- ☐ Poultry
- ☐ Construction tools
- ☐ Household items
- ☐ Student kits/learning packs/backpacks/textbooks/uniforms
- ☐ Food
- ☐ Special assistance to a person with a disability (for example: wheelchair, physical treatment, house adaptation)
- ☐ Money
- ☐ Tarpaulin
- ☐ Vehicles
- ☐ Generator
- ☐ Tent
- ☐ Radio
- ☐ Did not receive anything
- ☐ Other *Specify* _____

hat are the three ost i portant needs that your household has today

S

0 on t need anythin
1 Bed
2 Blanket beddin
3 Table
4 Chair
5 ishes eatin utensils
6 Cookin utensils
7 Stove
8 Refri erator
9 Clock
10 an
11 Radio
12 ploy ent
13 Sewin achine
14 Bicycle Trishaw
15 otorcycle
16 Vehicles car truck *yi*
17 Seeds
18 Power tiller
19 Thresher
20 ater pu p
21 rau ht ani als buffalo or cattle
22 rau ht ani al tillin e uip ent
23 Pi s
24 Poultry
25 ni al feed and fodder
26 ni al dru s vaccines or healthcare
27 Boat
28 Boat en ine
29 ishin ear nets crab traps etc
30 ish processin e uip ent cuttin boards buckets knives etc
31 heelbarrow
32 oe
33 xe
34 and
35 ouse repair
36 ouse rebuild
37 Cash rant
38 ater
39 Pesticide insecticide
40 ood rice
41 ertiliser
42 Clothes Shoes Slippers
43 TV
44 ell
45 enerator
46 Toilet
47 ater cart
50 edicine
60 ducation
70 ealth Care
80 ner y uel
888 ther *Specify:* _____

[ ] ost I portant Need

[ ] 2nd I portant Need

[ ] 3rd I portant Need

S

0 on t keep anythin
1 Bed
2 Blanket beddin
3 Table
4 Chair
5 ishes eatin utensils
6 Cookin utensils
7 Stove
8 Refri erator
9 Clock
10 an
11 Radio
12 I portant docu ents
13 Sewin achine
14 Bicycle Trishaw
15 otorcycle
16 Vehicles car truck *yi*
17 Seeds
18 Power tiller
19 Thresher
20 ater pu p
21 rau ht ani als buffalo or cattle
22 rau ht ani al tillin e uip ent
23 Pi s
24 Poultry
25 ni al feed and fodder
26 ni al dru s vaccines or healthcare
27 Boat
28 Boat en ine
29 ishin ear nets crab traps etc
30 ish processin e uip ent cuttin boards buckets knives etc
31 heelbarrow
32 oe
33 xe
34 Cash
35 ater
36 Pesticide insecticide
37 ood rice
38 ertiliser
39 Clothes Shoes Slippers
40 edicine
41 uel
42 TV
43 enerator
44 ater cart

888 ther *Specify:* _____

☐ ost I portant Need

☐ 2nd I portant Need

☐ 3rd I portant Need

hat are the three ain sources of livelihood for the household at this ti e
(Do not read the list)

1 ishin own production
2 Crops production own production
3 ivestock production drau ht ani als pi s and poultry own production
4 uaculture production shri p prawn crabs etc own production
5 Rent or lease of property
6 Salt production
7 overn ent e ployee
8 Private sector e ployee
9 Trader shopkeeper villa e broker vendors
10 Re ittances
11 Self e ployed crafts an artisan
12 Bar irl assa e karaoke entertain ent
13 Savin s
14 endin not icro finance
15 Borrowin not icro finance
16 icro finance initiative
17 Charcoal anufacture sale firewood
18 orestry
19 ifts fa ily
20 Pawnin of assets
21 Sale of assets
22 Casual labour in the a ricultural sector
23 Casual labour in non a riculture
24 untin
888 ther *Specify:* _____

[ ] ost i portant livelihood
[ ] 2nd i portant livelihood
[ ] 3rd i portant livelihood

oes your household have a ho e arden

◯ es ◯ No 85

hat is your ain production in your ho e arden tick 1 only

◯ ruits ◯ Ve etables ◯ ther *Specify:* _____

hat is your purpose of your ho e arden

TICK ALL THAT APPLY

☐ Self consu ption ☐ Co ple entary inco e eneration

Is anyone in your household able to cultivate crops now or was anyone able to cultivate crops last season

◯ es ◯ No 88

Cultivated Crops	ow any acres did you cultivate in CR P this year	ow any acres did you cultivate in CR P last year	ow any baskets did you produce in CR P this year	ow any baskets did you produce in CR P last year	If there was a reduction in baskets produced what is the ain reason	If there was a increase in baskets produced what is the ain reason
onsoon paddy						
Su er paddy						
Pulses						
Ve etables						
il crops sunflower sesa e etc						
thers corn betal leaf etc						

Reduction Ite s 1 and spoiled 2 a a e to draina e 3 a a e to irri ation syste
4 Not enou h labour 5 ppropriate seeds not available 6 ack of drau ht ani als power tillers
7 No capital credit 8 arketin production proble s 9 ess land owned rented available
10 Seedin s da a ed lost 777 Not applicable 888 ther Specify: _____

Increase Ite s 11 rant in cash fro any source 12 Power tiller fro any source 13 ricultural inputs fro any source 14 ore labour force in the fa ily
777 Not applicable 888 ther Specify: _____

o you rent so e land fro others

◯ es ◯ No 88

ow any acres do you rent

[ ] acres

o you rent so e land to others

◯ es ◯ No 90

ow any acres do you rent

[ ] acres

hat is the si e of your arable land you hold own

[ ] acres

91) Do you have any livestock now?

◯ Yes ◯ No >> 92

Livestock	Number of Animals		
	Before Nargis	Immediately After	At Present
Chickens (Quails)			
Ducks, geese, *ee*			
Milk cows			
Cattle			
Buffalo			
Horses			
Goats			
Pigs			

o you have any boats now or did you have any before Nar is

◯ es ◯ No 93

Type of Boat	How many boats do you have now?	How many boats did you have before Nargis?	How many boats have you received as aid?	Main use of boat?
ffshore vessels ocean oin over 10 iles				
Inshore vessels ocean oin under 10 iles				
Inland boat without otor				
Inland boat with motor				

Boat se 1 ishin 2 Transportation 3 isc fa ily purposes
888 ther Specify: _____

Do you have any fishing gear now or did you have any before Nargis?

◯ Yes ◯ No >> 94

Type of Fishing Gear	How many [ITEM] do you have now?	How many [ITEM] did you have before Nargis?	How many [ITEM] did you receive as aid?
Set gill net			
Drift gill net			
Trammel net			
Stow net			
Net fence			
Push net			
Cast net			
Long-line			
Crab trap			
Prawn trap			
Eel trap			
Other Specify: _____			

Do you have any fishing/ shrimp processing equipment/ tools now or did you have any before Nargis?

◯ Yes ◯ No >> 95

Type of Processing	How many [SETS] do you have now?	How many [SETS] did you have before Nargis?	How many [SETS] did you receive as aid?
Fish/ shrimp drying			
Fish/ shrimp paste			
Other Specify: _____			

What are your main sources of forest products for your household, like poles, posts, roofing material, fuel, wood, or charcoal?

-TICK ALL THAT APPLY

Before Nargis	At Present	
☐	☐	Community forests
☐	☐	Natural an roves
☐	☐	Non an rove forest
☐	☐	o e arden
☐	☐	Boundary plantation
☐	☐	Bou ht
☐	☐	ther Specify: _____

id your household live in this villa e ward before Nar is

◯ es 100 ◯ No

Since Nar is in how any different villa es have you lived

☐ Nu ber

hat are the ain reasons that you ca e to this villa e co unity

-TICK ALL THAT APPLY

- ☐ Shelter
- ☐ ork
- ☐ ood
- ☐ ater
- ☐ Scared of another cyclone feel safer in this villa e
- ☐ a ily in this villa e
- ☐ Asked to leave the last place where I lived
- ☐ Other *Specify:* _____
- ☐ Don't know

99) Do you want to :

- ◯ Stay in this village/ ward
- ◯ Return to the place I lived before Nargis
- ◯ Move to a new place

100) Do you have a "right to use/ *y* " document for your land rights?

◯ Yes ◯ No >> 102

101) Can you get this document?

◯ Yes ◯ No

102) At this present time, do you have a permanent household registration document?

◯ Yes ◯ No

103) At this present time, is there any person in your household without an National Registration Card (NRC) card?

◯ Yes

◯ No >> 107

104) Has this person been able to travel without the NRC card?

◯ Yes ◯ No ◯ Don't know

105) Has this person been able to access government services such as health or school without the NRC card?

◯ Yes ◯ No ◯ Don't know

106) Has this person been able to buy or apply for ownership of land for housing without the NRC card?

◯ Yes ◯ No ◯ Don't know

107) What is the main language spoken in the household? -TICK ONE

- ◯ Kachin
- ◯ Kayah
- ◯ Kayin
- ◯ Chin
- ◯ Bamar
- ◯ Mon
- ◯ Rakhine
- ◯ Shan
- ◯ Other *Specify:* _____

ro which source s can you obtain the infor ation about an i inent disaster N T R T IST TIC T T PP

- ☐ Radio
- ☐ Television
- ☐ Villa e authorities
- ☐ Villa e co ittee
- ☐ ther *Specify:*_____

Is there any safe buildin available in your villa e for evacuation

- ○ es
- ○ No
- ○ on t know

110) Is there a village protocol or standard operating procedures for families to follow during evacuation?

- ○ Yes
- ○ No
- ○ on t know

111) Are there community drills being conducted in the village for disaster preparedness?

- ○ Yes
- ○ No
- ○ Don't know

112) Do you have any plans/preparations in your household to mitigate the impacts of a disaster?

- ○ Yes
- ○ No >> 129

113) Will store dry rations (foods)?

- ○ Yes
- ○ No >> 115
- ○ Don't have >> 115

114) What foods will you store for adequacy during and after the cyclone?

-TICK ONE FOR EACH LINE	Yes	No
Rice	○	○
Dried boiled rice	○	○
Others *Specify:*_____	○	○

115) How will you store the foods?

-TICK ONE FOR EACH LINE	Yes	No
Plastic container/box	○	○
Glazed earthen pot	○	○
Barn	○	○
Polypropylene bag (Penang bag)	○	○
Others *Specify:*_____	○	○

ow uch food will you store

- ◯ or 1 day
- ◯ For 3 days
- ◯ or 1 week
- ◯ thers *Specify:* _____

117) Will you store drinking water?

- ◯ Yes
- ◯ No >> 120

ow will you store drinkin water

-TICK ONE FOR EACH LINE	es	No
In plastic box	◯	◯
In la ed earthen pot	◯	◯
In bottles of Purified rinkin ater	◯	◯
Others *Specify:* _____	◯	◯

119) How much drinking water will you store?

- ◯ For 1 day
- ◯ For 3 days
- ◯ For 1 week
- ◯ Others *Specify:* _____

120) Will you pack up clothes?

- ◯ Yes
- ◯ No >> 122

121) How will you pack up the clothes? Where will you keep them?

-TICK ONE FOR EACH LINE	Yes	No
In bags	◯	◯
In trunks	◯	◯
Others *Specify:* _____	◯	◯

122) Will you keep paddy seeds in a safe, waterproof place?

- ◯ Yes
- ◯ No >> 125

123) Where / how will you keep the paddy seeds for cultivation?

-TICK ONE FOR EACH LINE	Yes	No
In a barn	◯	◯
In a glazed earthen pot	◯	◯
In plastic containers	◯	◯
In polypropylene bags (*Penang* bags)	◯	◯
Others *Specify:* _____	◯	◯

ow uch uantity of seeds for cultivation will be kept safe fro water

- ◯ less than 1 basket
- ◯ 1 to 4 baskets
- ◯ 5 10 baskets
- ◯ 11 to 20 baskets
- ◯ over 20 baskets

125) Will you keep important documents (eg. NRC, HH registration) in a safe place?

- ◯ Yes
- ◯ No >> 127

ow will you keep the i portant docu ents e NRC ousehold re istration land rant etc

-TICK ONE FOR EACH LINE	es	No
To be cast in plastic cover	◯	◯
To be kept in plastic ba s	◯	◯
To be kept in trunks	◯	◯
Others *Specify:*_____	◯	◯

127) Will you keep animals in a safe place?

- ◯ Yes
- ◯ No >> 129

128) How will you keep the animals safe?

-TICK ONE FOR EACH LINE	Yes	No
To keep on a high mound	◯	◯
To be kept in a cyclone shelter	◯	◯
To be kept in your house compound	◯	◯
Will unleash them	◯	◯
Others *Specify:*_____	◯	◯

129) What work have you implemented on your house so that it can stand strong winds?

-TICK ONE FOR EACH LINE	Yes	No
Still live in the present house without modification	◯	◯
There is a plan to re-build the house	◯	◯
Have strengthened it	◯	◯
The house was re-built	◯	◯

130) What disaster preparedness plan have you implemented to save the lives of your family members?

-TICK ONE FOR EACH LINE	Yes	No
Have learnt swimming	◯	◯
Have kept life buoys ready	◯	◯
Have prepared to move to a nearby safe house	◯	◯
Have prepared to move to another village/town	◯	◯
Have no plan >> 136	◯	◯
Others *Specify:*_____	◯	◯

ave these plans been ade in your own capacity or with any outside help

-TICK ONE FOR EACH LINE	es	No
In y own capacity	◯	◯
ith outside help	◯	◯
Both of the above	◯	◯

Is there a disaster preparedness plan in your villa e

◯ Yes ◯ No >> 136 ◯ Don't know >> 136

-TICK ONE FOR EACH LINE	es	No
or ation of Villa e isaster Preparedness Co ittee	◯	◯
oldin educative talks on disaster preparedness	◯	◯
vacuation and related trainin	◯	◯
First aid	◯	◯
Search and rescue	◯	◯
Early Warning and Evacuation	◯	◯
Shelter Management	◯	◯
Others *Specify:* _____	◯	◯

133) What other preparedness and mitigation measures are being undertaken at the community level?

-TICK ONE FOR EACH LINE	Yes	No
Development of community risk maps	◯	◯
Development of community preparedness plans	◯	◯
Construction of facilities which can be used for evacuation (school, multi purpose building, specialised water collection tanks, etc)	◯	◯
Villages moved to higher grounds	◯	◯
Improvement of evacuation routes: roads , jetties and bridges	◯	◯
Others *Specify:* _____	◯	◯

134) Does your village have any particular plan for the vulnerable persons such as:

-TICK ONE FOR EACH LINE	Yes	No
Women	◯	◯
Children	◯	◯
Disabled	◯	◯
Elderly	◯	◯

135) Do you know if the following task forces have been formed in village?

◯ Yes ◯ No >> 137 ◯ Don't know >> 137

-TICK ONE FOR EACH LINE	Yes	No
Early Warning Task Force	◯	◯
Search and Rescue Task Force	◯	◯
First Aid Task Force	◯	◯

s re ards the i ple entation of the villa e disaster preparedness plan how uch do you feel prepared

- Co pletely not prepared
- ust a little prepared
- Not certain whether it is prepared or not
- eel prepared to so e extent
- Co pletely feel prepared
- on t know

To what de ree do you feel safe about your life in case of a natural disaster now

- Co pletely not safe
- ust a little safe
- Not certain whether it is safe or not
- eel safe to so e extent
- Co pletely feel safe
- on t know

Please ask uestions to
ption 1 the other of the youn est child under 5 years of a e in the household
ption 2 any wo en with children under 5 years of a e
ption 3 pre nant wo en If there is ore than 1 pre nant wo an in the household
Choose the wo an who has been pre nant the lon est
ption 4 if no children or no other ask a wo an over the a e of 15 in the household

[ ] (refer back to the household roster)

139) as any wo an irl in this household been pre nant since cyclone Nar is
- ○ es
- ○ No 149

140) urin pre nancy did you receive the co plete TT2 vaccination 2 shots
- ○ es
- ○ No
- ○ on t now

If yes what is the a e of the wo an irl now

[ ] ears old

hat was the outco e of the pre nancy
- ○ Pre nant Now 149
- ○ iven Birth
- ○ Abortion
- ○ Pre ature delivery
- ○ Still Birth
- ○ Mother died 149

ho if anyone assisted durin the delivery
TIC T T PP
ealth Professional
- ☐ octor
- ☐ e ale health visitor ealth assistant
- ☐ Nurse idwife

ther person
- ☐ uxiliary idwife
- ☐ Traditional birth attendant
- ☐ Relative friend
- ☐ ther *Specify:* _____
- ☐ No one
- ☐ on t know

here did this birth occur

-TICK ONE

o e

- ○ our ho e
- ○ ther ho e

Public Sector

- ○ overn ent hospital
- ○ overn ent clinic health center
- ○ C aternity clinic
- ○ ther public *Specify:* _____

Private edical Sector

- ○ Private hospital
- ○ Private clinic
- ○ Private aternity ho e
- ○ ther *Specify:* _____

Is the child still alive

- ○ Yes
- ○ No >>147

146) In the 4 to 6 weeks after the birth, did any health care provider or a traditional birth attendant check on the child's health?

- ○ Yes
- ○ No

147) Is the mother still alive?

- ○ Yes
- ○ No >>149

148) In the 4 to 6 weeks after the birth, who checked on the mother's health at that time?

-TICK ALL THAT APPLY

Health Professional

- ☐ Doctor
- ☐ Female health visitor/Health assistant
- ☐ Nurse/midwife

Other person

- ☐ Auxiliary midwife
- ☐ Traditional birth attendant
- ☐ Community health worker
- ☐ Relative/friend
- ☐ Other: *Specify:* _____
- ☐ No one
- ☐ Don't know

149) Who is the most regular care giver of the child (0-59 months old)?

- ◯ Mother
- ◯ Father
- ◯ Grand parents
- ◯ Other relatives
- ◯ Other children under 16
- ◯ Neighbours
- ◯ Other *Specify* _____
- ◯ No children under 5 in household

ave any wo en in your villa e been approached about earnin oney in another location

◯ es ◯ No 152

or what type of work are these wo en approached

- ☐ actory work
- ☐ o estic work
- ☐ Casual labour
- ☐ ar in
- ☐ Karaoke/ massage parlour
- ☐ Other *Specify* _____
- ☐ Don't know

o acts of violence a ainst wo en of any a e occur in your villa e

- ◯ ften
- ◯ So eti es
- ◯ Rarely
- ◯ Never
- ◯ on t know

153) Is there soap in the household?

◯ Yes ◯ No >>155 ◯ Don't Know >> 155

154) Does the person who cooks the meals for the household wash his/her hands with soap before preparing the food?

- ◯ Yes
- ◯ No
- ◯ Don't Know

155) Result of women's interview:

- ◯ Completed Interview
- ◯ Partial/incomplete interview
- ◯ Refusal
- ◯ No permanent female member in the household

5.4: List of townships

Division	Division P-code	Township	Township P-code	No of Village Tracts (VT)	No of Villages	Population														
						Total					Female					Male				
						Before Nargis	Deaths+ Missings	After Nargis	Current (Dec 08)	May-10	Before Nargis	Deaths+ Missings	After Nargis	Current (Dec 08)	May-10	Before Nargis	Deaths+ Missings	After Nargis	Current (Dec 08)	May-10
Ayeyarwady	MMR017	Bogale [1]	MMR017024	71	589	285,909		249,584	349,427	328,575	145,685		127,643	173,811	165,932	140,224		121,941	175,616	162,643
Ayeyarwady	MMR017	Dedaye [1]	MMR017026	90+3 (Urban wards)	390	211,353	3,748		216,959	225,630	106,870	2,259		109,551	113,919	104,483	1,489		107,408	111,711
Ayeyarwady	MMR017	Kyaiklat [1]	MMR017025	87	438	177,339			196,406	190,764	90,238			99,940	97,243	87,101			96,466	93,521
Ayeyarwady	MMR017	Labutta [2]	MMR017016	115	684	394,553	84,454		310,099	494,914	198,665	47,901		150,764	243,316	195,888	36,553		159,335	251,598
Ayeyarwady	MMR017	Maubin [1]	MMR017019	76	470	397,421			309,921	311,188	200,489			158,597	158,734	196,932			151,324	151,454
Ayeyarwady	MMR017	Mawlamyinegyun [1]	MMR017018	108 (Incl. 7 add. from Labutta TS)	632 (Incl. 57 add. from Labutta TS)	267,989	5039+776 =5815		256872 (+ 31142 to add from Labutta 7 VTs)	318,015	135,809	3,366		129972 (+ 15099 to add from Labutta 7 VTs)	160,365	132,180	2,449		126900(+ 16043 to add from Labutta 7 VTs)	157,650
Ayeyarwady	MMR017	Myaungmya [1]	MMR017014	98+16 (Urban wards)	489				282,388					144,157					138,231	
Ayeyarwady	MMR017	Ngapudaw [4]	MMR017004	83	412	330,058	5325		343,343		161,692			138,261		168,366			137,170	
Ayeyarwady	MMR017	Pathein [4]	MMR017001	60	236	352,915			359,292		175,999			157,665		176,916	0		149,829	
Ayeyarwady	MMR017	Pyapon [1]	MMR017023	52	211	240,091	728		310,321	309,844	128,295	408		157,360	156,981	111,796	320		152,961	152,863
Ayeyarwady	MMR017	Wakema [5]	MMR017017	126+14	584				310,914					159,654					151,260	
Yangon	MMR013	Dagon Myothit(north) [6]	MMR013019	27 wards		161,848		163,487			85,916		86,338			75,932		77,149		
Yangon	MMR013	Dagon Myothit(Seikkan)	MMR013021	39	5	92,139	2	93,823			47,792	1	48,733			44,347	1	45,090		
Yangon	MMR013	Dagon Myothit(South) [6]	MMR013018	44 wards		284,077	2	284,530			148,372	0	148,657			135,705	2	135,873		
Yangon	MMR013	Dala [6]	MMR013030	23+23 (Urban wards)	50	139,712	14	143,688			70,882	11	72,499			68,830	3	71,189		
Yangon	MMR013	Hlaingtharya [6]	MMR013008	29 (of which 8 are wards)	18	288,877		340,322			142,882		176,435			145,995		163,887		
Yangon	MMR013	Htantabin [6]	MMR013006	59	230	115,833	1	120,454			58,680	0	61,165			57,153	0	59,289		

Division	Division P-code	Township	Township P-code	No of Village Tracts (VT)	No of Villages	Population														
						Total					Female					Male				
						Before Nargis	Deaths+ Missings	After Nargis	Current (Dec 08)	May-10	Before Nargis	Deaths+ Missings	After Nargis	Current (Dec 08)	May-10	Before Nargis	Deaths+ Missings	After Nargis	Current (Dec 08)	May-10
Yangon	MMR013	Insein [6]	MMR013001	21 Wards		221,013	0	269,286			116,346	0	142,148			104,667	0	127,138		
Yangon	MMR013	Kawmhu	MMR013028	55+ 7(Urban wards)	125	124,311	130		123,276	125,070	63,162	75		62,594	615,61	61,149	55		60,682	635,09
Yangon	MMR013	Kungyangon [1]	MMR013029	43+ 7(Urban Wards)	118	114,771	1,446		114,925	116,376	58,535	621		59,401	56,710	56,236	825		55,542	59,666
Yangon	MMR013	Kayan [6]	MMR013026	53+ 12 (Urban wards)	163	164,796	1	165,151			84,356	1	84,876			80,440	0	80,275		
Yangon	MMR013	Kyauktan [6]	MMR013024	44+ 13 (Urban wards)	75	103,299	13	107,817		160,997	52,749	11	54,934		82, 0996	50,550	2	52,883		78,881
Yangon	MMR013	North Okkalapa [6]	MMR013012	19 wards		271,152	2	271,006			137,117	1	141,871			134,035	1	129,135		
Yangon	MMR013	Seiktyikanaungto [6]	MMR013031	9 wards		28,797	2	28,174			14,817	1	14,410			13,980	1	13,764		
Yangon	MMR013	Shwepyithar [6]	MMR013007	4 + 23 (urban wards)	13	166,478	11	212,422			83,200	n/a	109,622			83,278	n/a	102,800		
Yangon	MMR013	Thaketa [6]	MMR013013	19 wards		215,042	2	214,633			110,364	1	110,168			104,678	1	104,465		
Yangon	MMR013	Thanlyin [6]	MMR013023	28+17(Urban wards)	58	182,384	3	181,330			93,810	2	92,270			88,574	1	89,060		
Yangon	MMR013	Thingangkuun [6]	MMR013009	39 wards		181,304	3	180,594			94,540	1	94,182			86,764	2	86,412		
Yangon	MMR013	Thongwa [6]	MMR013025	64+ 12 (Urban Wards)	166	156,654	6	156,993			80,208	0	81,541			76,446	6	75,452		
Yangon	MMR013	Twantay [6]	MMR013027	65+8 (Urban wards)	220	200,954	25	202,221		206,678	101,695	12	103,199		101,373	99,259	13	99,022		105,305

Source : MIMU Township Profile (June, 2010)

Population from Health Management Information System 2007:

Ahlone (46,992), Bahan (70,988), Botahtaung (35,417), Dagon (26,718), Dawpon (79,664), Hlaing (122,044), Kamayut (46,058), Kungyangon (111,343), Kyauktadar (37,017), Kyimyingdaing (90,941), Lanmadaw (40,093), Lathar (27,665) Mayangon (143,644), Mingalaytaungnyun (119,856), Pabedan (38,738), Pazuntaung (44,094), Sanchaung (74,597), Seikkan (1,171), Soakkala (157,207), Tarmwe (134,520) and Yankin (87,832)

Population provided by:

1) Township Peace and Development Council (December, 2008)

2) General Administration Department (Gazetteer)

3) Agencies woking in the Township

4) Township Medical Officer office Ngapudaw and agencies working in Township

5) Department of Health (Ministry of Health) (2006)

6) Agencies working in the Township (April, 2009)

5.5: TABLE OF TOWNSHIP ESTIMATES

Presented in order of appearance in the main report

Indicators	Bogale	Dedaye	Htantabin	Kawmhu	Kayan	Kungyan*	Kyauktan	Kyimyin*	Labutta	Maubin	Mawlamy*	Myaungm*	Ngapudaw	Pathein	Pyapon	Thongwa	Twantay	Wakema
Health																		
% of HHs indicating a health facility within an hour of their dwellings	60.0	84.0	80.0	62.7	89.3	88.0	40.0	100.0	82.3	65.0	93.3	74.0	50.0	97.6	42.7	79.0	74.7	92.0
% of HH perceiving medicines available all/most of the time	87.0	80.0	76.0	64.0	94.7	93.3	82.7	88.0	74.0	60.0	97.3	94.0	76.0	84.8	98.7	86.0	65.3	91.0
% of HH perceiving health personnel available all/most of time	89.0	85.3	84.0	72.0	96.0	97.3	89.3	86.0	88.3	68.0	97.3	94.0	80.0	85.6	97.3	94.0	77.3	99.0
Average No. of health facility visits/HH in the last 12 months	2.0	2.3	3.9	2.7	2.3	2.8	1.9	2.0	2.4	2.2	1.5	1.6	1.7	2.7	1.8	2.1	2.8	2.2
Maternal Health																		
% of women receiving Tetanus Toxoid Vaccination	69.4	57.9	60.0	66.7	80.0	90.0	100.0	91.7	88.2	78.9	68.0	88.9	70.0	79.2	75.0	76.5	90.5	70.8
% of women reporting skilled healthcare personnel attending birth	100.0	92.9	100.0	92.3	100.0	100.0	100.0	100.0	98.6	100.0	100.0	100.0	100.0	100.0	82.6	100.0	100.0	90.5
% of women reporting giving birth at health facility	10.0	14.3	13.3	14.3	30.0	10.0	16.7	36.4	20.5	0.0	17.4	0.0	0.0	13.6	8.7	26.7	30.0	4.8
% of women receiving newborn care	86.4	76.9	57.1	38.5	70.0	40.0	72.7	72.7	82.4	42.9	73.7	33.3	81.2	90.0	60.9	69.2	50.0	47.6
% of women receiving post-natal care	66.7	78.6	33.3	50.0	60.0	20.0	58.3	63.6	75.3	38.9	69.6	44.4	78.9	77.3	63.6	60.0	45.0	57.1
% of child alive after birth	91.7	92.9	100.0	100.0	100.0	100.0	91.7	100.0	98.6	87.5	95.0	100.0	94.1	100.0	100.0	100.0	100.0	100.0
Children Health																		
% of Global Acute Malnutrition (GAM)	1.9	0	0	7	2.9	0	0	2.2	1.2	2.5	2.8	0	5	8.8	3.1	1.8	0	1.6
% of children aged 6 months to 5 years immunised against Measles	79.1	76.3	78.3	93.5	86.2	65.0	92.3	100.0	95.8	80.0	62.1	76.2	97.4	81.4	100.0	100.0	90.9	76.2
% of children aged 6 months to 5 years immunised against DPT3	79.1	57.9	52.2	80.0	82.8	65.0	69.2	88.2	80.5	68.9	75.9	81.0	82.1	72.1	96.0	87.5	82.2	58.5
% of children aged 6 months to 5 years with fever in the prior 14 days	34.6	8.9	25.8	14.3	12.1	29.2	38.2	15.2	18.2	25.9	30.6	20.7	31.7	29.8	23.4	28.1	20.0	29.0
Water, Sanitation And Hygiene																		
% of HH that reported using improved drinking water sources (rainy season)	99.0	94.7	64.0	49.3	81.3	86.7	85.3	62.0	75.7	67.0	72.0	76.0	56.0	45.6	96.0	87.0	82.7	21.0
% of HH that reported using improved drinking water sources (dry season)	35.0	4.0	6.7	9.3	4.0	38.7	0.0	0.0	25.3	7.0	9.3	0.0	35.0	24.8	53.3	1.0	18.7	0.0
% of HH that treated their drinking water adequately	69.8	76.0	69.4	53.5	89.3	86.7	86.3	80.0	80.7	71.7	70.7	78.0	76.8	82.5	84.0	84.0	60.8	76.3
HH water storage capacity (gallons)	14,453	10,931	8,814	7,900	12,172	11,075	16,559	4,222	33,242	9,496	9,195	3,887	4,569	7,841	8,304	13,613	5,432	5,924
% of water-related assistance items received	22.0	24.0	0.0	28.0	0.0	24.0	0.0	14.0	43.7	6.0	49.3	2.0	1.0	0.0	18.7	18.0	33.3	0.0
% of HH that reported needing water items	2.0	0.0	6.7	1.3	9.3	2.7	9.3	12.0	9.3	8.0	0.0	4.0	3.0	8.8	13.3	6.0	1.3	0.0
% of HH that reported using improved sanitation facilities	75.4	80.6	86.8	85.0	90.8	98.1	44.7	9.8	89.4	57.1	77.8	80.6	66.0	82.7	53.8	90.2	90.7	78.6
% of HH with young children reporting adequately disposing child faeces	22.0	28.0	18.7	22.7	21.3	17.3	16.0	32.0	21.3	14.0	26.7	28.0	14.0	9.6	22.7	26.0	24.0	24.0
% of HH having soap	76.4	87.7	86.5	86.3	95.8	98.7	97.3	96.0	93.6	74.5	95.7	96.0	92.9	97.4	87.8	96.9	85.1	92.7
% of HH reporting receiving hygiene items	58.0	57.3	4.0	40.0	4.0	36.0	1.3	30.0	60.3	2.0	62.7	0.0	2.0	0.0	72.0	27.0	48.0	1.0
% of HH reporting receiving hygiene messages	8.0	2.7	0.0	6.7	0.0	8.0	0.0	0.0	19.0	0.0	24.0	0.0	1.0	0.0	9.3	4.0	10.7	0.0
% of HH reporting receiving latrine construction materials	51.0	18.7	0.0	21.3	0.0	34.7	0.0	0.0	35.7	0.0	30.7	0.0	5.0	0.0	20.0	11.0	28.0	1.0
% of HH buying water	39.0	0.0	8.0	9.3	1.3	10.7	6.7	98.0	22.7	0.0	2.7	0.0	1.0	24.8	74.7	16.0	16.0	2.0
Food																		
% of HH with poor food consumption	42.9	52.4	65.0	55.6	26.7	72.7	83.3	50.0	41.8	50.0	47.1	53.8	50.0	75.0	66.7	36.4	33.3	51.5
% of HH reporting receiving food assistant	81.0	89.3	0.0	60.0	61.3	78.7	58.7	82.0	67.3	12.0	88.0	64.0	16.0	0.8	88.0	68.0	56.0	5.0

Indicators	Bogale	Dedaye	Htantabin	Kawmhu	Kayan	Kungyan*	Kyauktan	Kyimyin*	Labutta	Maubin	Mawlamy*	Myaungm*	Ngapudaw	Pathein	Pyapon	Thongwa	Twantay	Wakema
Livelihoods																		
Average No. of fishing gear owned by HH before Cyclone Nargis	13.6	10.3	5.4	10.9	0.0	1.8	2.3	0.0	18.4	30.7	6.1	1.8	8.6	27.3	27.0	10.3	3.5	1.8
Average No. of fishing gear owned by HH May 2010	7.4	5.5	40.4	14.7	0.0	1.5	2.7	0.0	7.8	10.8	6.6	5.1	6.6	7.3	11.2	8.1	4.0	1.5
Average No. of boats owned/HH before Cyclone Nargis	1.2	1.0	1.0	0.6	0.0	1.0	1.2	0.0	1.6	1.5	1.2	0.7	0.9	0.9	0.9	1.3	1.0	1.2
Average No. of boats owned by HH in May 2010	1.0	0.9	1.1	0.9	1.0	1.0	1.3	0.0	0.9	1.3	1.0	1.0	0.9	0.8	0.8	0.6	1.2	1.3
% of HH that reported receiving boats	50.0	41.3	22.7	8.0	1.3	5.3	17.3	0.0	31.0	40.0	34.7	42.0	14.0	16.8	28.0	4.0	14.7	45.0
Average No. of draught animals owned/HH before Cyclone Nargis	2.4	0.6	1.8	0.5	1.8	1.9	2.0	0.0	2.0	0.9	0.6	0.8	1.6	1.0	1.0	1.0	0.8	1.1
Average No. of draught animals owned/HH May 2010	0.6	0.2	1.4	0.5	1.7	1.3	2.2	0.0	0.8	0.8	0.6	0.7	1.8	1.2	0.9	0.8	0.7	1.0
% of HH that reported receiving livestock	9.0	8.0	0.0	1.3	0.0	0.0	0.0	0.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	11.0	0.0	0.0
Shelter																		
% of HH whose dwellings were completely destroyed and severely damaged	97.0	98.7	53.3	87.8	50.7	82.7	78.7	72.0	88.3	58.0	86.7	52.0	37.0	16.8	96.0	82.0	84.0	71.0
% of dwellings perceived as fully and almost fully repaired	81.9	80.4	68.8	56.9	79.5	75.7	91.7	51.2	73.1	65.2	87.0	100.0	90.0	76.9	62.5	81.8	62.3	73.0
% of HH living in dwellings of insufficient size	28.0	32.0	25.3	28.0	21.3	26.7	25.3	54.0	19.7	29.0	21.3	10.0	14.0	16.0	40.0	21.0	37.3	33.0
% of HH that perceived their dwellings to be worse	80.0	85.3	81.3	92.0	72.0	74.7	68.0	86.0	80.7	88.0	80.0	62.0	65.0	81.6	62.7	75.0	90.7	85.0
% of HH ranking shelter needs high	29.0	20.0	48.0	62.7	29.3	50.7	26.7	60.0	30.0	42.0	50.7	30.0	18.0	21.6	34.7	39.0	30.7	26.0
% of HH receiving shelter assistance	53.0	46.7	0.0	22.7	1.3	17.3	5.3	16.0	45.5	0.0	37.3	0.0	2.0	2.4	74.7	23.0	32.0	3.0
Education																		
% of school attendance among children aged 5 to 10 years	79.5	82.4	91.4	85.3	81.2	82.8	77.8	80.0	89.7	66.2	87.8	88.9	88.3	76.6	84.2	75.6	80.4	84.7
% of school attendance for children aged 11-15 years	75.5	62.9	80.6	63.4	77.8	81.8	72.4	79.4	81.0	50.8	72.7	74.2	67.4	80.0	73.9	62.5	68.5	62.3
% of HH that received educational relief items	25.0	21.3	6.7	13.3	5.3	9.3	9.3	22.0	27.3	3.0	30.7	2.0	7.0	0.8	21.3	11.0	10.7	0.0
Protection																		
% of women aware of other women offered jobs outside their villages	9.0	6.8	18.9	12.3	5.6	33.3	21.6	14.0	16.5	16.3	35.7	30.0	19.4	34.2	0.0	21.4	28.4	13.5
% of women expressing knowledge of violence against women in their communities	13.0	6.7	21.3	17.3	10.7	17.3	22.7	16.0	19.7	28.0	10.7	12.0	23.0	32.8	1.3	19.0	26.7	18.0
% of children ≤17 living without their biological mother and/or father	22.4	10.2	5.2	10.5	15.7	11.4	5.0	24.0	8.8	12.9	18.4	11.3	14.8	9.9	10.7	15.1	6.9	10.2
% of HH heads perceiving their dwelling unsafe responding a safe shelter (< 0.5 miles)	58.8	26.8	45.9	41.1	53.0	43.1	54.9	55.3	69.6	21.8	33.8	36.8	32.5	50.9	9.7	57.0	42.0	45.9
% of HH members having a NRC after Nargis (Total)	46.3	47.3	58.6	50.8	54.3	70.6	52.0	52.2	54.7	58.1	54.9	72.2	56.3	64.1	61.5	52.0	63.0	54.9
% of HH members having a NRC after Nargis (Male)	53.7	46.7	56.2	52.7	60.4	78.6	59.4	52.3	60.6	62.9	63.3	76.3	59.8	67.1	63.8	46.4	60.0	61.2
% of HH members having a NRC after Nargis (Female)	39.2	48.0	60.8	48.9	48.3	64.1	44.9	52.0	49.1	53.7	45.6	68.8	52.9	61.0	59.5	57.0	65.7	48.8
% of disabled HH members	1.1	4.4	5.8	4.5	1.5	3.0	2.8	2.1	1.9	1.1	2.4	0.8	2.0	1.7	2.0	2.0	2.5	0.2
Disaster Risk Reduction																		
% of HH living in the same dwelling as before Cyclone Nargis	95.0	96.0	98.7	96.0	100.0	98.7	94.7	100.0	92.3	99.0	100.0	96.0	98.0	91.2	96.0	99.0	94.7	98.0
% of HH perceiving a safe building is available in their community for evacuation	42.0	22.7	41.3	31.1	49.3	28.0	45.3	48.0	61.7	1.0	37.3	44.0	19.0	5.7	14.7	51.0	29.3	31.0
% of HH perceiving evacuation village protocols or standard operating procedure exist	19.2	1.4	0.0	4.2	0.0	0.0	1.4	0.0	18.5	0.0	0.0	0.0	0.0	5.3	0.0	5.1	1.4	2.0
% of HH knowing of community drills for disaster preparedness in their community	22.0	0.0	0.0	4.1	2.7	1.3	0.0	0.0	3.4	0.0	0.0	0.0	1.1	0.0	0.0	2.0	0.0	0.0
% of HH with any mitigation plans	24.0	6.7	14.7	21.3	9.3	6.7	13.3	4.0	15.3	4.0	30.7	38.0	3.0	6.4	6.7	17.0	12.0	13.0

Kungyan* = Kungyangon; Mawlamy* = Mawlamyinegyun; Myaungm* = Myaungmya; Kyimyin* = Kyimyingdaing

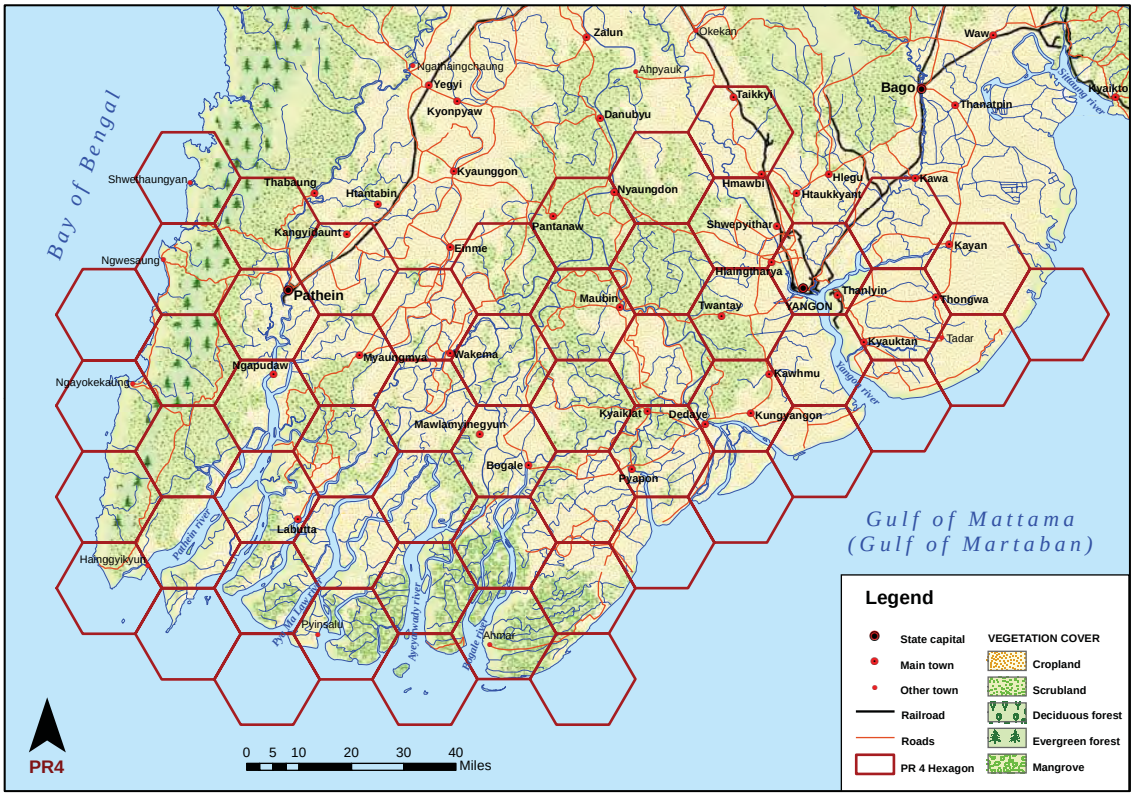
5.6: Methods

5.2.1 Survey design

The targeted population lived in the townships worst-affected by Cyclone Nargis in the Ayeyarwady and Yangon Divisions. The term 'worst affected' was defined as having experienced loss of life and/or loss of property that had an impact on the livelihoods of the individual, family or community, and is a definition continued from the Village Tract assessment (VTA).

The PR IV used a two-stage sampling design in which the primary sampling units were communities in the cyclone-affected areas and the secondary sampling units were households within the primary sampling units. Exact households and communities surveyed were usually different in each PR. Based on post-Cyclone satellite imagery, the primary sampling units were selected using the centric systematic area sampling (CSAS) approach. The CSAS approach separates an area (for the Periodic Review process, the Ayeyarwady and Yangon Divisions) into non-overlapping and equal-sized shapes, in this case hexagons. The community located closest to the centre of each hexagon becomes the sample community (see Figure 5.1).

Map 5.1: The sampling area of townships worst affected by the Cyclone, covered by 56 non-overlaping equal-sized hexagons

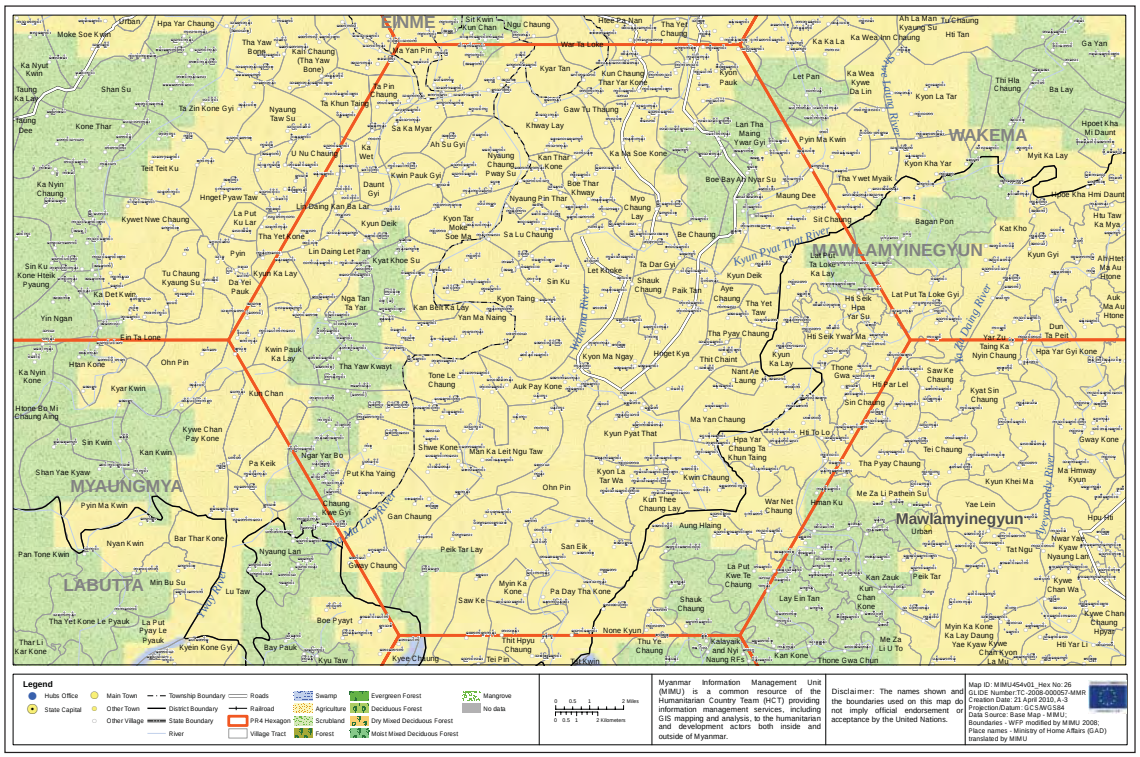


The advantage of this method is that it provides spatial distributions of household characteristics yet allows each household an equal opportunity to be selected. The size of the hexagonal tiles used was 19.2 miles in diameter, it was determined by the spatial detail required and the need for a practical number of primary sampling units (according to cost). One exception was made in the hexagon near Yangon City where a rural community was selected instead of a random community.

The community nearest to the centre of each hexagon was chosen (see Map 5.2) by examining satellite images taken after the Cyclone. Using this area-based sampling method, 56 communities were selected in the first stage. However, 12 additional communities (one in each of 12 townships) were

added to ensure that each township was represented by 75 households to enable a representative sample size. In the event that a community had fewer than 25 households, the enumerators went to the next nearest community. In the field, two more communities were added when the first community chosen in the hexagon that did not contain enough households to provide sufficient data. A total of 70 communities in 18 townships were assessed altogether representing 30 townships. One township, was used to represent 15 similar townships in Yangon City.

Map 5.2: Single hexagon showing communities



In the second stage, 25 households in each of the communities were selected using a representative random sampling method. In hexagons in which a second community was added because the first was too small, all the households were surveyed in the first community. In the second community, enumerators interviewed only enough households to reach the 25 household interview threshold needed to complete the interview process in a hexagon. This sampling method is based on a rapid community mapping conducted jointly with local community members.

Area-based sampling approaches differ from population-based sampling methods in that each person in the survey area has an equal chance of being interviewed. An area-based sampling approach has several advantages. First, a complete list of villages is not always available and the grid-based sampling approach includes villages which exist but which are not included in official lists of villages and populations. Second, unlike traditional population-based approaches, the area-based sampling approach is not biased towards towns and more populated areas. Third, the area-based sampling method better accounts for spatial heterogeneity. This is important in post-disaster situations in which areas vary significantly both in types of household needs and in the extent of relief efforts by agencies. Finally, the hexagonal sampling method allows for the presentation of results using an easy-to-understand map format.

5.2.2 Questionnaire and interview process

The PR IV questionnaire incorporates revisions and additions to previous PR questionnaires needed to capture data appropriate to the recovery phase of the response and to sharpen responses appropriate to the local context. This was the practice throughout the Periodic Review process. For example,

in PR III previous questions related to the loss of fish and crab ponds were omitted, and questions related to shelter, and access to reproductive health services were added as they were more relevant to the recovery phase. In addition, in all Periodic Review assessments some questions were modified after experience showed that they did not obtain the required information, or as advised by expert partners in the feedback sessions which were part of the multi-sectoral consultative process.

The PR IV questionnaire largely built on the PR III questionnaire used six months earlier. Annex 3 contains the PR IV questionnaire.

A total of 42 enumerators visited households in the cyclone-affected areas. After checking the correct geographic positions of villages using a handheld GPS device, the enumeration team met with village leaders and selected households to survey. In each of the selected households, the enumerators used a questionnaire designed to provide information on a wide range of topics. Interviews are conducted with up to 2 household members according to their suitability for answering the different modules of the questionnaire (for example, questions concerning reproductive health were directed only to women and questions on livelihoods were directed to heads of households).

5.2.3 Data collection process for the PR IV

Outreach team formation

Six enumerator teams were used to collect PR IV data. Criteria were used to select team members, who preferably had:

- previous experience in humanitarian assistance or the development field;
- general knowledge on the dynamic of the post-Nargis assistance in Myanmar;
- proven ability to undertake activities through a participatory, inclusive and consultative process;
- proven ability to negotiate and work in the Nargis-affected areas;
- experience in conducting questionnaires or assessments, such as the Village Tract Assessment or the Periodic Review.

The majority of the 42 outreach team members were recruited, with seven of these enumerators seconded from three government agencies (the Ministry of Agriculture and Irrigation, the Ministry of National Planning and Economic Development and the Ministry of Social Welfare, Relief and Resettlement).

Each of the six teams consisted of seven people: a team coordinator, a logistics assistant, a data checker/finance assistant, and four enumerators. All but one of the 42 enumerators had participated in previous PR data gathering exercises. Gender balance in team formation was taken into consideration as much as possible. Of the 42 team members, 12 were female and assigned to each team as evenly as possible. Enumerators ages ranged from 21 to 48 years old.

Training of outreach teams

The outreach team members for PR IV were given a general orientation and trained on team building, logistics and finance issues for five days, from 5 to 9 April 2010.

From 22 to 30 May 2010, 24 technical trainers with expertise relevant to specific questionnaire modules conducted training on the technical aspects of those modules for their sector. The trainers came from 12 organisations (see Annex 1). Many of the trainers were involved in the development and revision of the PR IV questionnaire.

The training included a one-day field exercise for all team members. This allowed for a test of the Myanmar language survey instrument, familiarised enumerators with its use and determined an average household interview time. Two villages in Kyauktan Township in Yangon Division were selected for the field exercise.

A feedback session was conducted with all team members and trainers after the field exercise. The feedback from the team members was taken into consideration when finalising the PR IV questionnaire, in both English and Myanmar languages.

Outreach team deployment

The six teams collected data in Yangon Division, then were deployed to base locations in the Ayeyarwady Division. Two teams were based in Pyapon, one in Bogale and one in Pathein. The other two outreach teams were based in Labutta. Each of the teams was given a similar number of communities/hexagons to be covered. Area division among the teams was determined according to the logistical practicalities in reaching a particular village from their base locations.

Field data collection

From 7 to 9 May 2010 logistical teams went to the field bases to undertake preparatory work needed before data collection could begin. This preparatory work included arranging transportation and other logistical requirements. This advance team also met with local authorities in the respective townships to inform them about the PR IV assessment process. The names of the communities the teams would assess remained confidential until the day before enumeration.

All teams were deployed to the field on 3 May 2010 and finished collecting data on 29 May 2010.

Roles and responsibilities of different positions in the outreach teams

Each of the six outreach teams travelled from their field base to communities by boat, motor vehicle and/or foot to undertake interviews. Safety of the team members was the top priority during fieldwork.

The team coordinator made certain each enumerator had the correct information and tools needed for properly conducting the interviews. Once in a community, the team coordinator met with the local authority to seek access to individual households. After access was granted, the team coordinator selected the households that would be interviewed using a random sampling method, in which a small number of households (the sample) are chosen at random from a hand-drawn sketch map of the community developed by using several key informants as sources.

The team coordinator also determined the workload distribution of household interviews, supervised the enumerators and observed households while enumerators conducted interviews.

Before leaving the community, the team coordinator reviewed all questionnaires to ensure quality control of data collection to ensure that these had been appropriately marked and that all questions had been answered where possible. In case of an incomplete questionnaire, the team coordinator sent the enumerator back to the household to attempt to complete it.

The data finance assistant, who remained in the field base, was in charge of data quality control as well as all the financial arrangements for each team. Upon a team's return to the base, the data/finance assistant verified the questionnaires and gave feedback to the enumerators to ensure the quality, accuracy, legibility, and consistency of the data. The assistant was not allowed to alter the data.

Data transport

During the collection period, Periodic Review staff based in Yangon and selected enumerators carried data back to Yangon at intervals from the field bases to ensure timely data processing, while handling the questionnaires according to strict security guidelines. The first batch of data was sent to Yangon on 4 May. The questionnaire responses were kept in secure conditions in Yangon.

5.2.4 Data management

The PR IV assessment tools were developed to meet the needs of i) the enumerators conducting the household survey in the field, ii) the data checkers to verify data collection in the field, and iii) the data-entry operators. The PR IV survey team developed an Adobe Acrobat questionnaire in English that was later translated into Myanmar. The Adobe PDF form was used to collect the household information in hard copy. Boxes were ticked according to the answer, which minimised mistakes for the majority of the questionnaire answers. The questionnaire was initially piloted to test the format, speed and accuracy of the survey process. The format proved valuable because it allowed for double data validation during the collection process, providing 100 per cent validation to the analysis team after data collection was completed.

With PR IV survey team supervision, data processing started on 4th May and ended on 31st May 2010. The data was single and double entered by 7 data entry operators. After double entry, the data was validated by 2 data validators.

The Adobe Acrobat PDF form allowed each enumerator to complete an interview within one hour per household. Using the digital version of the same form, the data entry operators could enter data in just over 40 minutes per form. The digitised information from the PDF was then saved in XML format. The XML document was then loaded to a Microsoft SQL Server database, allowing the analysis team to start developing preliminary results while data collection was still ongoing.

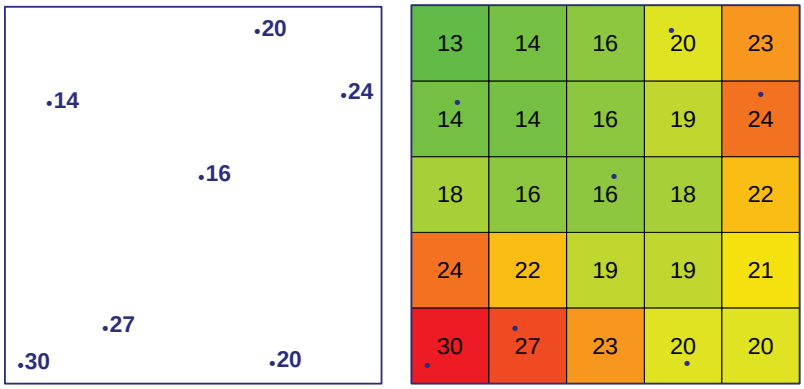
5.2.5 Mapping area-based estimates

The final sample size was 1,400 households, including a total of 6,370 household members. Data analysis and presentation employed by the Periodic Review process involved the use of chloropeth maps, in which areas are coloured in proportion to the indicator values depicted.

In the PR IV, as in previous Periodic Reviews, geospatial interpolation using the surveyed sample villages was implemented to predict values for locations which were not sampled. These predicted values were then used to develop the maps. The patterns that emerged in the maps convey a visual interpretation of situations in the area affected by Cyclone Nargis.

Figure 5.1 shows a simple example of interpolation. The illustration on the left is the input point dataset. The illustration on the right shows a grid interpolated from these points. Unknown values are predicted with a mathematical formula based on the values of nearby known points with an assumption that spatially distributed objects are spatially correlated; in other words, the values of points close to sampled points are more likely to be similar than those that are farther apart. Kriging, a geostatistical method was applied for interpolation for PR IV.

Figure 5.1: Geospatial interpolation



5.7: Seasonal calendar

	January	Feb	March	April	May	June	July	August	Sept	October	Nov	Dec
Monsoon in Delta					Monsoon							
Agriculture	Cropping Calendar for Paddy and Pulses in Ayeyarwady Delta region											
Monsoon Paddy					Land preparation	Sowing time				Harvest time		
Summer Paddy	Sowing time									Land preparation	Sowing time	
		Harvest time										
Pulses		Harvest time									Sowing time	
Fisheries	Fishing Calendar in Ayeyarwady Delta Region											
In-shore						Sprawning season; no fishing						
Off-shore						Sprawning season; no fishing						
In (Inland/Fresh)					Sprawnig season; no fishing							
Open (Inland/Fresh)						Sprawning season; no fishing						
Fish Processing	Season to make salted & dried fish				Fermented shrimp paste and any other fish procucts					Season to make salted & dried fish		
Livestock	Calendar for Livestock Distribution											
Draught animals			Off season									
Chickens	Off season											Off season
Ducks	Off season											Off season
Pigs			Off season									
Education	School Time	Exams	Break (B)			School Time			B	School Time		B
Buddhist Festivals				*Thingyan* (Myanmar New Year Festival)								

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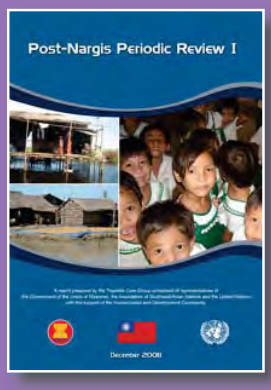
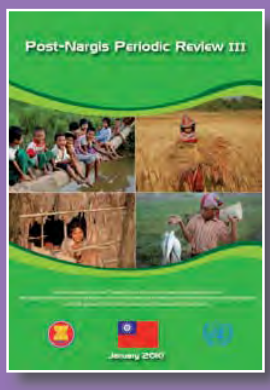
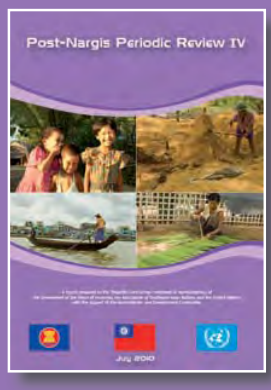
Notes







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