



ANOTHER NARGIS STRIKES EVERY DAY

Post-Nargis Social Impacts Monitoring Five Years On



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The photos on the inside covers were taken in a highly affected village in Bogale township, in October 2008 (left) and June 2013 (right). The top photos depicts the footbridge connecting two sections of the village that makes crossing the creek still a precarious undertaking five years after Nargis.

The bottom photos depict the primary school of the village which was destroyed by Nargis and newly constructed as a combined cyclone shelter within two years of the cyclone.

October 2008

June 2013



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**POST-NARGIS SOCIAL IMPACTS
MONITORING FIVE YEARS ON**



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Executive Summary

Natural disasters can have profound impacts on the social and economic fabric of affected communities. These evolve over time, as a function of the strength of community coping mechanisms, the effectiveness of the aid effort, subsequent external events, and changes in the wider social and economic environment. As time goes on, the needs and priorities of affected communities change accordingly. Understanding these evolving impacts and needs is vital for effective delivery of post-disaster and development assistance in the context of longer-term recovery.

Cyclone Nargis hit the Ayeyarwady Delta on May 2, 2008, and killed an estimated 140,000 people. Three rounds of Post-Nargis Social Impacts Monitoring (SIM) accompanied the post-disaster recovery period from 2008-10. By focusing on a limited set of villages, SIM provided in-depth information on how village life was changing post-Nargis and insights into how aid responses could best help Delta communities. This fourth round of SIM (SIM 4) provides a snapshot of village economic and social life five years after Cyclone Nargis struck. It assessed two areas:

1. Socioeconomic conditions:

This examined the compound effects of Nargis and subsequent natural events on the key occupational groups of farmers, fishermen, and casual laborers. It looked at issues of livelihoods, debt and credit, and coping mechanisms.

2. Social relations and institutions:

This explored how Nargis, the subsequent aid effort, and the evolving economic conditions affected social capital, the capacity for collective action, intra- and inter-village relations, and relations between villagers and their leaders.

SIM 4 placed particular emphasis on identifying external stresses subsequent to Nargis and understanding how these played out at the village level, especially with regard to other natural events with adverse impact. It also traced how some of the broader political changes since 2010 have projected down to the village level. SIM 4 was carried out in April–May 2013 and used the same methodology as the previous three rounds of SIM, involving in-depth qualitative interviews, focus group discussions, and key informant interviews with 895 villagers in 40 villages in the 8 townships across the Delta that had been most affected by the cyclone.



Socioeconomic Conditions

Nargis severely weakened the capacity of villages to absorb further external shocks

Five years after Nargis Delta, villages still found themselves in a dire economic situation. This situation cannot be attributed to the cyclone alone, as multiple other factors influenced the path to recovery, such as climatic variability, crab and rat infestations, and flooding. Highly affected villages were significantly more exposed to these events because of Nargis's follow-on effects: the cyclone caused erosion and destroyed embankments, which made the fields more prone to flooding; the duration of daily and monthly tides became longer in the post-Nargis period, making the fields more saline and more prone to pest infestation. In fact, the average frequency of negative external events was almost twice as high in highly affected villages compared to moderately and lightly affected villages.

Nargis had affected livelihoods to such a degree that many villages appeared to have lost their ability to self-recover. In 2013 most of the 40 sample villages were struggling and had yet to recover socioeconomically. Only six lightly and moderately affected sample villages were considered to be in good standing, while 16 were in poor standing, including two-thirds of the highly affected villages.

Recovery in the farming sector appeared to be short-lived

How affected a village had been by Nargis was strongly connected to how well its farming sector was doing five years later. In 2013, farming had recovered in only about one-quarter of the villages, and none of the highly affected villages showed good farming conditions. Sustainable yields are the key to recovery in the Delta. However, on average, yields still remained below pre-Nargis levels even in lightly affected villages. Furthermore, while production costs increased, prices for rice varied from year

to year but in only one year surpassed pre-Nargis levels. Farmers also remained heavily indebted in the highly, as well as most of the moderately, affected villages. The majority of the small and medium farmers in the villages with poor and fair farming conditions had made no profit since Nargis. Only those villages that had been less affected by the cyclone and experienced fewer external events regained their livelihoods through farming, and they had manageable debt levels.

Fishing was severely decimated

After a brief uptick after Nargis, fish stocks declined as a result of overfishing, and so did the returns to fishing in all SIM fishing villages despite reasonable prices. The main reason for the decline was unclear, but the governance of the fishing sector in Pyapon district contributed to it. There, fishing licenses were up to ten times more expensive, and licensed/commercial fishermen were allowed to fish year-round, which resulted in overfishing. Challenges facing small fishermen and the laborers who took up fishing after Nargis were so severe that many had to change their livelihoods (again), becoming laborers and migrants. The crisis also extended to fish collectors who faced both the increased costs of fishing licenses and significantly lower catches as well as higher default rates by the fishermen to whom they had lent money. The challenges facing the fishing sector have been so drastic in several townships that small-scale fishing may cease as a livelihood in the most severely affected villages.

The predicament of laborers reflected the state of the village economy

Being heavily dependent on job opportunities in farming and fishing, the livelihood of laborers was a reflection of the socioeconomic condition in the sample villages. Laborers were doing poorly in two-thirds of the villages. Higher wages at peak season, when compared to before Nargis, had not led to higher living standards, a result of few employment

opportunities during the rest of the year. Secondary income sources on which laborers relied to supplement their earnings also declined, particularly visible with small-scale fishing but also in weaving nipa and collecting firewood. As a result, more laborers were migrating than had been the case prior to or in the immediate aftermath of Nargis.

The debt burden intensified further ...

Indebtedness was directly related to the degree of cyclone affectedness. Villagers in over one-third of the villages were caught in a debt trap, unable to repay even the debts that they had owed from before Nargis. Of the 30 highly and moderately affected villages in the sample, only 3 moderately affected ones did not have repayment problems. Small farmers experienced the sharpest increase in average indebtedness, by a factor of three. Laborers had the least capacity to repay debt; they needed to borrow for consumption, and were, therefore, also affected by increases in the prices of basic necessities.

Interest rates had remained largely unchanged, ranging from 0.75 percent to 30 percent per month. Villagers continued to rely on different credit sources, but their relative importance had evolved. Loans from the Myanmar Agricultural Development Bank (MADB) brought much-needed capital into the Delta; they were highly desirable because of their low interest rates. MADB loans were insufficient to meet demand, however, and private moneylenders and traders remained important credit sources, including for fishermen.

... eventually affecting the distribution of land

Within the first two years after Nargis, many villagers depleted their assets to manage their debt. Over the next three years, low yields and continuing indebtedness led to an increasing number of land transactions. All but one of the eleven villages with a high level of land transactions were highly or moderately affected by Nargis, implying the

transactions were related to economic distress. Even 8 of the 18 moderately affected villages saw high or moderate levels of land transactions. Many of these transactions occurred between 2010 and 2011. With many poorer farmers selling land and a few better-off farmers buying it, a highly unequal distribution of land developed in 15 percent of the sample villages. Villagers felt that the Farmland Law would enable them to use their land as collateral or sell it at a higher price. At the same time, the law intensified existing land conflicts in several villages.

Oftentimes, outmigration was the only viable coping mechanism, and it has increased

Coping strategies had not changed over the previous three years but were being used more intensively. Migration continued to increase as a coping mechanism and as a way to escape job scarcity. In 40 percent of the villages, two-thirds or more of the households had at least one member who migrated. Many migrants were between the ages of 17 and 25. Many more of them had been migrating since 2010, with nearly half of village youth migrating in some instances. They ended up in big cities like Yangon and Patheingyi and worked mostly in factories.

Other forms of coping had potentially negative social and health consequences, such as working even longer hours to survive and thus having less time for social interaction, reducing social expenditures, and reducing the number of meals. A crucial strategy for small and medium farmers to reduce expenditure in over three-quarters of the villages was to reduce investment in fertilizer and other farming inputs, which in turn reduced yields and even led to crop failures.

Social Relations and Institutions

Social relations remained strong ...

In about three-quarters of villages, social relations were considered good or fair, including in two-thirds of the highly affected villages. Where social relations were good, the community was organized and villagers undertook collective activities, mostly socio-religious tasks and regular community works such as road renovation and pond cleaning. Where social relations were poor, villagers were divided into different groups, and communal activities occurred only within these groups. In most cases, poor social relations were a remnant of the aid effort in one way or another.

... but the bonds were getting weaker ...

At the same time, however, villagers felt that relations were worse than before Nargis in about half of the villages, including in two-thirds of the highly affected villages. Socioeconomic challenges had a negative impact on social cohesion. Better-off families that used to sponsor religious activities before Nargis were no longer able to afford them, depriving villagers of an important venue in which to strengthen social cohesion between community members. Increased migration among villagers of working age and the need to work longer hours also left villagers with less time to socialize with their neighbors.

... especially in heterogeneous villages

The passing away of religious leaders during Nargis contributed to strained social relations five years on, especially in villages with both Muslims and Buddhists. This was accentuated by the fact that aid had sometimes been provided along religious lines in the immediate aftermath of the cyclone. Villagers indicated that they were dealing with each other carefully and were no longer as comfortable in engaging with each other. On the whole, however,

villagers maintained social bonds across religious groups in spite of the deterioration of relationships elsewhere in the country. Leadership played a critical role in maintaining good relations.

The role of women and youth continued to evolve

With aid having largely ceased, momentum toward women's empowerment had evolved along new tracks. While after Nargis, women had been involved in aid committees, five years on, most former female committee members had once again assumed traditional gender roles, working for the family business or farm and/or undertaking household tasks. In some cases, however, women were making inroads in broader village affairs. In two villages women were elected as ten household leaders in 2013, the first time this had happened. At the same time, SIM 4 saw a resurgence of youth engagement. There were more youth-led activities in many villages, which may have been a reflection of the recent leadership changes, which brought younger leaders to power. In addition, many previous formal and informal leaders associated with the former regime withdrew from village affairs.

Leadership dynamics had a positive effect on social relations in many villages

For the most part, people responded positively to changes in formal leadership that had taken place since Nargis. Political reforms and the shift to a new government in 2011 led to village tract administrator elections in early 2013. Villagers in 26 out of the 40 sample villages chose new formal leaders, while 13 reelected their former leaders. New leaders were noticeably younger, better educated and better off economically than the old leaders. In three-quarters of the villages, people were largely satisfied with the performance of the current formal leaders; the relations between villagers and their leaders were good and neutral in 21 and 9 villages, respectively. Villagers' perceptions of their leaders did not depend on the latter's age.

Tensions related to the aid effort still lingered on

Previously observed social tension between villagers resulting from real or perceived unequal aid distribution had largely been reversed. However, tensions were noted in 16 sample villages, half of which were highly affected villages. Since highly affected villages received more aid, they were also more prone to aid-related tension: two-thirds of all highly affected villages suffered from such tension, while less than 40 percent of moderately affected villages did. Over two-thirds of the villages with aid tension had newly elected leaders. However, the presence of tensions did not automatically translate into negative perceptions of village leaders. Villagers had negative perceptions of their leaders owing to aid in only five villages. At the same time, villagers recognized the positive effects the aid effort had had on capacity building and participation.

Recommendations and Reflections

Much as was the post-Nargis aid effort, the monitoring of social impacts in Myanmar was undertaken at a unique time in the country's history. As such, SIM provided insights into village life at a time when little was known about state-society relations at the local level. To some degree, the unique political circumstances determined its particular usefulness. Then again, the social impacts of natural disasters have rarely been studied as thoroughly as after Nargis, and important lessons can be drawn from such analysis.

Previous rounds of SIM assessed the post-Nargis aid effort and the path to post-disaster recovery over time through the eyes of affected villagers. These



SIM rounds found that, while tremendously helpful to beneficiaries, aid was not always targeted to the needs of the disaster-affected populations, often did not take a longer-term sector perspective into account, and did not focus adequately on critical actors in the value chain because they were not considered poor but were equally affected by the cyclone. SIM also pointed out that communities were not much involved in decision making about aid and that the emergency committees that aid providers set up tended to negatively affect relations between villagers and their leaders, even far beyond the period of aid delivery.

Beyond being a monitoring tool, SIM also helped enhance understanding of the dynamics that play out in disaster-affected villages over the longer term. SIM showed that major natural disasters can severely damage a community's immune system and its ability to recover on its own, making it more prone to the negative effects of subsequent external events, whether natural, economic, or political. It found that the capacity of the survivors to recover from a major disaster depended more on how many assets they had lost to the disaster than the number of people who had died in their village. SIM pointed out that multiple factors determine recovery and that the importance of these may evolve over time and vary by location. While major disasters such as cyclones affect everyone in their path equally, they also create a new tapestry in the affected area as different communities and groups within a community recover differently. Furthermore, even when social capital is strong and contributes to recovery in the short-term, it is not immune to the effects of continuing economic deprivation. Above all, SIM underlined the fact that recovery takes a long time, and it is never linear.

As a result, SIM demonstrated that qualitative social analysis can help institutions involved in a post-disaster recovery effort understand cross-cutting issues, such as governance and social accountability;

community perceptions, including those on aid effectiveness, vulnerability, and social exclusion; and process tracing, such as on the social dynamics within communities or on how aid plays out at the village level. Social analysis, therefore, enables the aid effort to be more responsive to local realities and helps to ensure that it does not contribute to social fracture.



Section 01

Introduction

Context

Natural disasters have profound immediate impacts. Lives are lost; shelters are destroyed; assets are damaged or destroyed. Those who survive may face acute health or sanitation problems and food or water shortages. When Cyclone Nargis hit the Ayeyarwady Delta and southern Yangon Division in Myanmar on 2 May 2008, it brought devastation in its wake. An estimated 140,000 people died, and damages and losses were estimated at around US\$ 4 billion.¹ In its aftermath, scores of domestic and international actors launched a wide-ranging humanitarian aid effort to address immediate emergency needs. The Government of the Union of Myanmar, ASEAN, and the United Nations formed

a Tripartite Core Group (TCG) to coordinate this aid effort.

After disasters, the needs of affected communities evolve. As immediate survival priorities recede, disaster survivors start focusing on how to rebuild their lives and communities. Communities develop coping mechanisms to help them deal with the disaster and aid effort, which can have wide-ranging impacts on local socioeconomic structures and social relations. At the same time, new obstacles to recovery can emerge as different individuals and institutions adjust their behavior in the post-disaster environment. Resource scarcity can increase competition or promote cooperation.

The success of any post-disaster aid effort depends on how programs respond to and reflect such changing needs and dynamics. After Cyclone Nargis, therefore, the TCG developed a comprehensive monitoring system that aimed to inform aid responses. One component of this was Post-Nargis Social Impacts Monitoring (SIM). SIM aimed to understand the changing needs and priorities of villagers, how social relations and socioeconomic life were evolving, and the impacts of the aid efforts. It focused on 40 villages spread across the Delta. By focusing on a limited set of villages, it provided in-depth information on how village life was changing post-Nargis and insights into how aid responses could best help Delta communities. It complemented the ongoing quantitative Periodic Review assessment, which measured progress against recovery indicators in a wider set of affected villages.

The TCG oversaw the implementation of three rounds of post-Nargis social impacts monitoring. The first SIM (SIM 1) was conducted in November 2008 and assessed how the disaster and aid responses had affected Delta communities in the first six months after Nargis. The second SIM (SIM 2) was undertaken from May to June 2009, i.e., one year after the cyclone. The third SIM (SIM 3) was carried out between March and April 2010. The TCG came to an end in July 2010.

Myanmar has been undergoing a fundamental social, political, and economic transformation since 2010. The dissolution of the State Peace and Development Council in March 2011 following parliamentary elections in November 2010, parliamentary by-elections in April 2012, and a range of economic reforms have not only signaled a transition to democratic governance and a market-oriented economy but have also profoundly affected life in rural Myanmar. In addition, while Nargis was the most destructive natural disaster in the country's recorded history, the Delta and other parts of the

country have been suffering from other natural events with adverse impacts.

The longer-term effects of major natural disasters on the daily lives of those who survived them are often not well understood. How have villages affected by Nargis recovered economically in the longer run? Has village social life returned to what it had been before the cyclone? Have villages struck by the cyclone regained their capacity to withstand the compound effects of subsequent natural shocks? What other factors have shaped a village's path to recovery? Finding answers to these questions became the purpose of the fourth round of SIM (SIM 4) that was conducted between April and May 2013, i.e., five years after Nargis. SIM 4 revisited the same 40 villages across the eight most affected Delta townships (Annex 1) and relied primarily on in-depth qualitative fieldwork.³ It focused on taking stock of the social and economic situation in the sample villages, allowing villagers to reflect on their experiences over the five years since Nargis within a rapidly changing environment.³

Post-Nargis Recovery as Seen through Social Impacts Monitoring

The path toward recovery has evolved over time and differed not only by degree of cyclone affectedness, but also by both location and type of livelihood. This section summarizes salient findings from the initial post-disaster social impacts analysis and the first three rounds of SIM to provide an inter temporal snapshot of the situation in the 40 sample villages.⁴

Setting the stage: the Post-Nargis Joint Assessment

The Post-Nargis Joint Assessment (PONJA) was the first post-disaster assessment that included specific analysis of the social impacts of the disaster. Undertaken within six weeks of the cyclone, the analysis was necessarily preliminary and tentative. It developed a set of hypotheses on forms of social impact that might play out in the post-Nargis period. SIM tracked these issues over time. Field visits during the PONJA observed a high level of unity and social cohesion among survivors, who had no doubt been brought together by their common efforts to survive and rebuild. It also identified the risks of redistributing land away from small-scale farmers to those with larger holdings and of loan-based responses that further indebted affected villagers. Furthermore, the analysis underlined the importance of working with informal local institutions and local leaders. Based on this analysis, PONJA included in its guiding principles the need to: involve communities at all stages in the management of relief, including decision-

making and feedback on the quality of the relief and recovery efforts; maximize the use of local initiative, resources, and capacities; and build the capacity of local communities to participate in every stage of the relief and recovery effort.

Dashed hopes of a speedy recovery: SIM 1

SIM 1 noted that relief and recovery assistance had reached even the most remote villages, with levels of aid varying between and within villages. Aid appeared to be helping villages recover: there was a link between the amount of aid received and the speed of recovery. However, the level of impact was a larger determinant of recovery. Even where aid was relatively large in amount, many moderately or highly affected villages were not recovering quickly. This suggested that the scale of aid and/or its effectiveness was still insufficient. Although relief assistance had reached all villages, much more assistance was needed for communities to recover, particularly in the form of cash grants. Moreover, villagers had so far had little real say in the aid effort. This led to the provision of some kinds of aid that were not adapted to local needs in the Delta.

Farming productivity and crop yields decreased significantly, owing to Nargis. Reductions in harvests were increasing the debt burden of farmers, who could not repay old loans and also had to borrow for consumption. Fishing was severely affected too, as fishermen who had lost their fishing gear were

struggling to recover. This affected those at every point in the value chain. Moreover, Cyclone Nargis drastically reduced the opportunities for paid work for laborers, who faced reduced demand for their labor from the bigger farmers and fishermen who would normally employ them. Laborers received food aid but less livelihood support compared to other groups. As a result, many were facing immense difficulties in getting by. The most recurrent theme was an increasing debt burden. In every village studied, villagers were worried about being able to meet their loan repayments and having enough money for consumption in the following year.

Cyclone Nargis had a major impact on socioeconomic life in Delta villages. However, despite its immense shock, social relations and local capacity remained strong. Villagers worked together to overcome immediate challenges, which strengthened social relations. Communities remained resilient and functioning. The report concluded that if people's livelihoods and village economies did not begin to recover soon, there would likely be profound longer-term impacts, such as migration out of Delta villages and a tearing of the social fabric. If people could not break out of the Nargis debt trap, there was a risk of longer-term redistribution of assets from many to a few.

Still a mixed picture: SIM 2

Cyclone survivors continued to prioritize aid for livelihoods. However, a year after the cyclone, the needs of affected communities had evolved, with villagers also prioritizing health, education, and small-scale community infrastructure. This reflected a shift from emergency to longer-term recovery priorities. As in SIM 1, aid in the form of cash or affordable credit appeared to be more effective—and was preferred by villagers—than in-kind assistance. However, aid levels dropped sharply and were too low to enable cyclone survivors to adequately recover their livelihoods. Furthermore, aid providers

continued to make aid-related decisions, with aid distribution more formalized through official leaders and village emergency committees. Villagers often lacked clear information about aid, which led to cases of perceptions of misuse and conflict about aid.

Socioeconomic conditions remained challenging and were exacerbated by the wider economic environment. There was little overall progress with livelihoods recovery. Farmers were unable to afford adequate farming inputs and cultivated their land less intensively. At the same time, there appeared to be some progress with restarting fishing, though less progress in the returns of fishing as a source of livelihood. Most fishing aid provided was small-scale fishing gear that enabled fishermen to earn a subsistence income, rather than the kind of larger-scale aid and capital necessary to revive the fishing value chain. Casual laborers also continued to struggle. The inability of big farmers to recover their livelihood and cultivate their land as intensely as before further reduced job opportunities for casual labor. Furthermore, some farmers and fishermen themselves became casual laborers, so competition increased for the jobs that did exist. Debt levels were still rising, and interest rates remained high. Farmers began to lose land to moneylenders as they failed to meet their debt payments.

Social capital was still strong overall. Young people continued to play an active role in relief and recovery activities, such as repairing and renovating schools and pathways. Formal leaders played a strong role in aid-related affairs, though the roles of village elders in aid affairs had decreased somewhat since SIM 1. Similarly, the role of religious leaders had evolved, with only Christian and Muslim religious leaders engaged in day-to-day recovery activities. There was an increasing number of instances where aid-related tensions weakened social relations.

Deceptive indications of a recovery: SIM 3

The steady decline in aid since the immediate aftermath of the cyclone was accompanied by a significant change in the priorities of aid providers. Over the previous year, the decline in credit provision and fishing inputs was particularly noteworthy. Support for small and medium farmers was widespread, but there were concerns that the level of aid was insufficient to make a real impact on livelihood restoration. Overall, SIM 3 noted a significant disjuncture between aid provision and the needs of different groups in the community. Aid providers also continued to be the main decision-makers when it came to determining both the type of project and the process of implementation. Local committees were involved to some degree in delivery. However, relations of accountability between aid providers and the villagers remained limited, and there was little evidence of transparency measures working effectively at the community level.

There were signs of a recovery in the farming sector. Farmers in almost half the villages had grown both monsoon and summer paddy during the second year after Nargis, compared to only one-fifth during the first year. Furthermore, yields had rebounded since the disaster across the 40 villages by over 15 percent on average. Simultaneously, intensive investments in the fishing sector during the previous year led to overfishing and a drastic reduction in output and employment. As a result, it was estimated that many fishermen had lost their traditional livelihood over the previous year, forcing many of them to become casual laborers at a time when farmers reduced their demand for labor even further. In almost half of the villages, laborers became significantly worse off than other villagers. Debt continued to undermine the prospects for recovery. Across all occupational groups, the average maximum debt across villages two years after Nargis was higher than before the cyclone. Farmers went to great lengths to remain

current on at least their interest payments and were selling assets other than land in order to do so. The story of debt in the Delta two years after Nargis was thus one of continued asset depletion but not yet of widespread default.

Due to a strong social fabric, Delta communities stayed resilient despite the continuing challenges they faced. In most aspects of village life, there was little change over the previous year, and social relations were good. Gender relations were good, and women were becoming more empowered through their increased involvement in aid-related committees. At the same time, the role of youth in the aid effort decreased. Religious leaders had largely withdrawn from the aid effort and other secular affairs, and they have taken their traditional place in village life focusing on spiritual matters. Some signs of tensions between villagers and their leaders were reported, most of which related to aid provision. However, in only six villages were relations considered poor.

Findings from Social Impacts Monitoring in a Broader Context

Building on SIM, Qualitative Social and Economic Monitoring (QSEM) was developed in 2011. It uses the same methodology and similar themes of inquiry as SIM in 54 villages in 6 Regions and States. QSEM included nine villages in the Ayeyarwady Delta, none of which were covered by SIM. QSEM aims to monitor and understand rural livelihoods in Myanmar. It examines the different livelihood strategies and activities of people in rural Myanmar, the wider factors that shape these strategies, and how the broader social and institutional features of

community life affect people's livelihoods choices and outcomes. QSEM has also been implemented by Enlightened Myanmar Research (formerly Myanmar Development Research) and the World Bank. By the time of SIM 4, three rounds of QSEM had been completed.⁵ In two inserts, this report presents main findings from QSEM on socioeconomic conditions and social relations that are relevant to SIM. This comparison sheds light on the veracity of SIM findings regarding recovery in the cyclone-affected villages.





Section 02

Socioeconomic Conditions

Most of the 40 sample villages were struggling and had yet to recover socioeconomically. Sixteen villages, most of them highly affected by Nargis, were in socioeconomic crisis, while eighteen others were recuperating, but only slowly. Only six lightly and moderately affected villages were in good economic standing. The recovery in the farming sector that SIM 3 had identified was short lived, eroded by a series of external events that again reduced yields and output, especially of small and medium farmers.

Signs of a recovery in the fishing sector, which had been seen soon after the cyclone, had long faded. The situation had already deteriorated by the time of SIM 3, but fish catches had further decreased since, forcing many more small fishermen to become laborers and/or migrate. Fish collectors were also struggling, and many had to exit the business. The situation of day laborers continued to deteriorate as well. In the months after Nargis, many received food aid and decided to work less or demand higher wages. By the time food aid was reduced, and eventually phased out, farmers had already

started to hire laborers from other villages or use hand tractors, reducing demand for labor. At the same time, labor supply kept increasing steadily as many small farmers and small fishermen became laborers. This trend continued further, forcing laborers to apply more drastic coping mechanisms, especially migration.

While farming and fishing experienced both ups and downs in the five years after Nargis, the debt situation developed only in one direction. The level of indebtedness in the farming sector was markedly higher in 2013 than in 2010, which indicates that farmers still had access to credit, while fishermen and laborers lost creditworthiness and hence access to credit because of their dire economic prospects. Land transactions also increased and, as a result, so did inequality in land ownership. The increase in the loan amounts per acre by the Myanmar Agricultural Development Bank (MADB) as well as the Farmland Law, which was enacted in 2012, added a degree of formality to the mostly informal local credit and land markets, but they did not ease the debt situation.

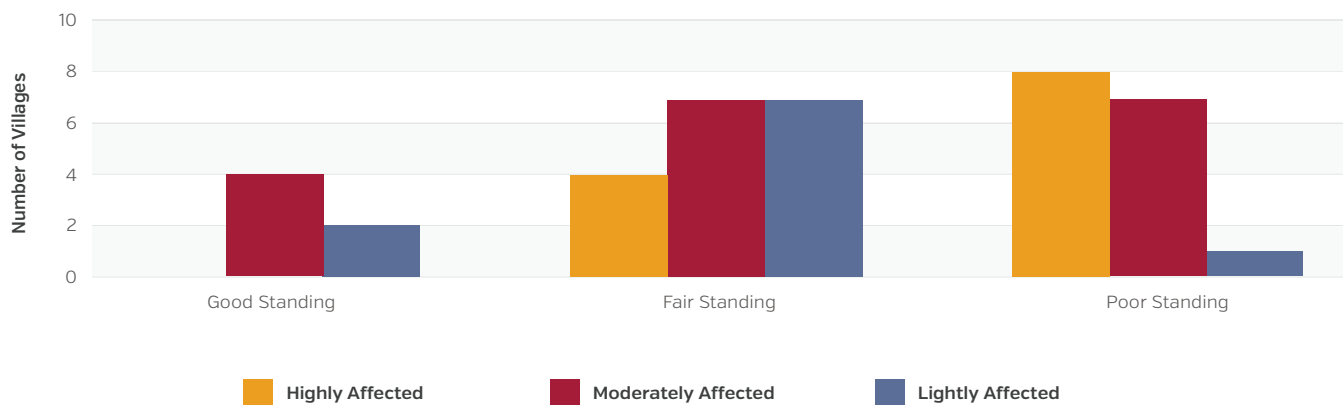
Livelihoods Five Years After Nargis

An Economic Predicament

Five years after Nargis, Delta villages still found themselves in a dire economic situation. The economic situation cannot be attributed to the cyclone alone, as multiple other factors influenced the path to recovery (see below). It is striking to note, however, that only 15 percent of the sample villages were considered in good economic standing (Figure 1).⁷ Even seven out of ten lightly affected villages were doing only fairly.

Several of these villages suffered from frequent flooding, as Nargis had destroyed embankments and spillways. None of the highly affected villages were in good economic standing, while two-thirds were in poor condition. These are the villages that were affected the most by subsequent natural events and where the distribution of land became more unequal over time. Box 1 captures the essence of daily life in these villages concisely.

Figure 1 Economic conditions by degree of affectedness



Box 1 Another Nargis strikes every day

A family in a highly affected village in Dedaye township lost their 16 year old son to Nargis. Without his reliable help, his father had to work even harder doing small-scale fishing to make ends meet. He had a stroke in 2012 and could no longer work. As a result, the family's two daughters had to quit school and, together with their mother, started to work as day laborers to put food on the table and pay the medical fees for the father. Earning only enough wages to eke out a meager living, the mother would describe her daily tribulations as "another Nargis strikes every day".

Table 1 Farming conditions by degree of affectedness

AFFECTEDNESS	GOOD	FAIR	POOR	TOTAL
Highly affected	0	4	8	12
Moderately affected	4	6	8	18
Lightly affected	5	4	1	10
<i>Total</i>	<i>9</i>	<i>14</i>	<i>17</i>	<i>40</i>

Table 2 Farming conditions across townships

TOWNSHIPS	GOOD	FAIR	POOR	TOTAL
Bogale		5	4	9
Dedaye		3	3	6
Kungyangon		1	2	3
Kyaiklat	3		1	4
Labutta		2	3	5
Mawlamyinegyun	4			4
Ngapudaw	2	1	1	4
Pyapon		2	3	5
<i>Total</i>	<i>9</i>	<i>14</i>	<i>17</i>	<i>40</i>

Farming

By the time of SIM 3 in mid-2010, the farming sector had started to recover; however, the recovery was not sustained. Yields and prices had increased right after Nargis, but this trend did not continue. Combined with the loss of villagers' safety nets, the end of the aid effort, and subsequent negative external events, this prevented many farmers across the sample villages from rebuilding the assets they had lost during Nargis. In many instances, farmers in the Delta could not overcome this massive shock to their way of life.

SIM 4 found that farming was considered in poor condition in almost half of the villages (17), fair in 14, and good in only 9. None of the highly affected villages showed good farming conditions (Table 1). Nearly half of the villages considered poor were highly affected, and most of the rest were moderately affected. The villages with good farming conditions were moderately and lightly affected by Nargis. Only four highly affected villages found themselves with fair farming condition.

Farming conditions differed by township.

Good conditions could only be found in Kyaiklat, Mawlamyinegyun, and Ngapudaw (Table 2). The worst-hit townships were those along the southern coast: Labutta, Bogale, Pyapon and Dedaye, as well as Kungyangon.

The state of farming was directly connected to the degree of affectedness. Villages with poor farming had never regained pre-Nargis yield levels. Compared to villages with good and fair farming, they had also faced more frequent external shocks, such as pests, climatic irregularities, and floods. About two-thirds of farmers found themselves in a debt trap in these villages, and up to half the villagers had had land transactions in the past four years. The situation was slightly better in villages in which farming was considered fair.

Farmers could partially repay their debts after each harvest season, but they also had to borrow again at the beginning of the next farming season. In contrast, the villages where farming conditions were good were achieving regular yields at good prices. The yield in these villages had declined right after Nargis but had almost recovered since. Farmers had low indebtedness and could settle debts after every agricultural season.

Villages that were able to grow more diverse crops and have two rice harvests a year had better farming conditions. Seven of the nine villages with good farming conditions grew two crops per year. Of the seven, three (in Mawlamyinegyun, as well as one in Bogale) started to grow two crops after SIM 3. Before Nargis, farmers in these villages grew beans in addition to monsoon paddy, but they experienced price fluctuations. Since 2010/11, many farmers replaced beans with summer paddy. By contrast, in 22 villages farmers grew only one crop (paddy); of these, 13 experienced poor farming conditions. Only 4 of the 18 villages with two crops had poor farming conditions.

Farming conditions varied by locality and could also be independent of Nargis

Elephant trespassing into farmland was a problem in one village in Ngapudaw, in an area located near the forest of the western ranges. Up to 30 elephants roam the area regularly during harvest season. They can eat up to 10 acres

of paddy land within a matter of hours. This was a problem before Nargis but had since occurred more frequently because the forest was progressively depleted: commercial companies had started to grow rubber, and the forests were providing less food for the animals. During harvest time villagers had to watch the farmlands around the clock but could not always drive away the elephants. Forest depletion also meant that villagers could no longer gather as much firewood as they used to.

External events had significant compound effects

Nargis may have been a one-off, cataclysmic event but the Ayeyarwady Delta has been suffering from other significant external shocks since then; these have further weakened farmers' resilience and ability to cope and recover. SIM 4 investigated the external events with adverse impact that occurred in the sample villages in the five-year period since Nargis. The researchers recorded those events that villagers identified as having an impact on farming. The most common natural events affecting yield included infestations by pests, crabs, rats, fish and weeds; climatic irregularities (changing weather patterns); floods; and changes in soil salinity because of tidal changes. Table 3 shows the types of events and the number of villages suffering from these events each year since 2008.

Table 3 Types of natural events experienced by villages from 2008 to 2013

TYPES OF EVENTS	2008	2009	2010	2011	2012	2013
Pest, crab, fish, rat, weed problems	10	12	11	9	16	2
Climatic irregularities*		6	10	12	33	6
Flooding	4	9	8	6	5	4
Changes in soil salinity		3	2	2	1	3

* Most of the climatic irregularities occurred toward the end of the monsoon season at harvest time. SIM 4 took place prior to the harvest.

The external events that took place in the affected villages since Nargis were connected to the cyclone, which changed the ecosystem of the Delta. SIM research highlights the relationships between these events, the degree of affectedness by Nargis, and the pace of recovery of the farming sector. Pest, crab, and rat problems occurred in around one-third of the sample villages, with insects being the most frequent event. These infestations happened more frequently in two heavily cyclone-affected areas: Dedaye and Bogale.⁸ According to farmers in Dedaye, the pest problems occurred particularly in areas with lower altitude, which frequently suffered from seawater intrusion. The duration of daily and monthly tides has become longer in the post-Nargis period, making the fields more saline and more prone to pest infestation. At the same time, in one village in Ngapudaw, fields at a higher location were less regularly covered by the tide. This also led to a decline in agricultural yields, because the high tide would sweep away the crabs. By the time of SIM 4, crabs would stay longer in the paddy fields and destroy more crops.

Irregular rains had become a common problem in the Delta since Nargis. There were two variants of the problem, both affecting agricultural yields: (a) unusually heavy and unusually long rains during both growing and harvest times, which affected over three-quarters of the villages and (b) a lack of rain in over one-third of the villages, with higher than normal temperatures, at a time when the crops needed rain the most. Heavy rains often washed away sown seeds. In over one-third of the villages, many farmers whose farmlands were located at a lower altitude reported having to sow their seeds two to three times almost every year because of heavy rains.

Flooding occurred mainly for three reasons: heavy rains, silted streams, and destroyed embankments. The streams are a quintessential element of the Delta's farming system, as they channel water to the fields and carry off rainwater.

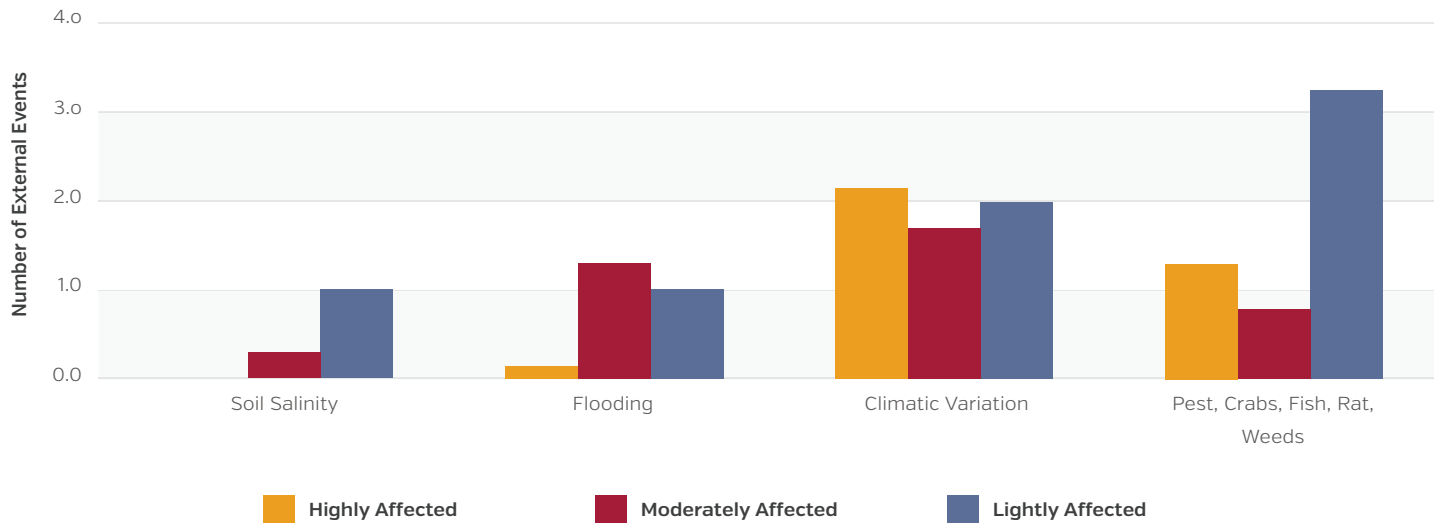
In several of the villages, the streams had become shallower because of silt and could no longer carry out their regulatory function. This resulted in more frequent flooding of the farmlands. Villagers in the townships of Kungyangon, Labutta, Pyapon, and Dedaye felt that the silting had worsened since Nargis because the cyclone eroded the land, which led to the accumulation of more silt in the streams. Before Nargis, villagers used to desilt the streams every 2-3 years. Since Nargis, the higher amount of silt required the use of equipment that only the government could supply.

Farmers experienced the impact of climatic changes in different ways. Unusual weather patterns affected small and medium farmers the most. Lacking labor and machinery, they took longer to finish the harvest and were, therefore, at greater risk of heavy rains washing away their mature crop. In contrast, larger farmers could afford to hire labor and rent machines, and often worked shifts until midnight in order to finish the harvest before the rains arrived.

Several villages reported daily, monthly, and seasonal tidal changes. In Labutta, Bogale, and Dedaye townships, one village each reported a longer daily tide, while other villages reported higher tide levels and a longer duration of monthly and seasonal tides. Villagers indicated that the daily and monthly tides used to be based on the lunar calendar. They now felt that the first daily tide remained longer than it used to before Nargis, with some amount of water remaining in the fields until the second tide arrived. As a result, the soil turned more saline than before, which led to a decline in yield and paddy of poorer quality.

Farmers in Labutta and Pyapon observed changes in the seasonal tide. The seasonal tide in some areas of Labutta used to arrive in July and August, and farmers could start sowing only when the rainwater had sufficiently reduced soil salinity in the fields. After Nargis, farmers felt that the tides were longer, higher, and more saline. They experienced a delay of about 10 days before the

Figure 2 Average frequency of external events per village from 2008 to 2013 by level of affectedness



rain had reduced salinity enough for them to start sowing. In addition, another tide now arrived in early June. Similarly, farmers in Pyapon reported that the tides used to arrive in December and January, but now reached their fields in September and October, a time of harvest for monsoon paddy; this led to crop losses in about 15 percent of the villages. These tidal changes may be the result of the erosion that was brought about by Nargis. In the low altitude areas of the Delta, even small changes to the shoreline would have an impact on the flow of water and result in inundation of the fields closer to the water.

Most of the villages experienced one or more natural events each year, but highly affected villages were more exposed than the other villages. The frequency of negative external events within five years after Nargis was over two times higher in villages with poor farming conditions as compared to villages with good farming conditions,

and over 1.5 times higher in comparison with villages with fair farming conditions. Figure 2 shows the average frequency of various external events (from 2008–2013) faced by villages with different level of affectedness.

All villages regardless of cyclone-affectedness, have suffered climatic variations, such as a change in rainfall patterns; however, pest problems are by far the most severe in highly affected villages.

All but seven of the sample villages are located along rivers or streams. Highly affected villages also suffered more from soil salinity and floods, though of the latter not as often as moderately affected villages. It can thus be surmised that Nargis affected the agro-economic potential in the highly affected villages to such an extent that, absent significant aid, they were unable to withstand later natural events with adverse impact, even if these were of significantly smaller proportions.

Yields are the key to recovery but were still below their pre-Nargis levels

The degree of cyclone-affectedness had a direct impact on the capacity of the farming sector to recover. The yield immediately after Nargis dropped for two main reasons:

1. the decline in productive capacity; and,
2. soil contamination caused by seawater intrusion.

Lacking farming input, investment capital, and human resources, many farmers in highly affected villages could not resume their agricultural activities right after Nargis. Most of the farmland was left fallow. In contrast, most of the lightly affected villages were able to fully resume farming soon after Nargis, though most of them experienced a temporary decline in yield, owing to increased soil salinity.

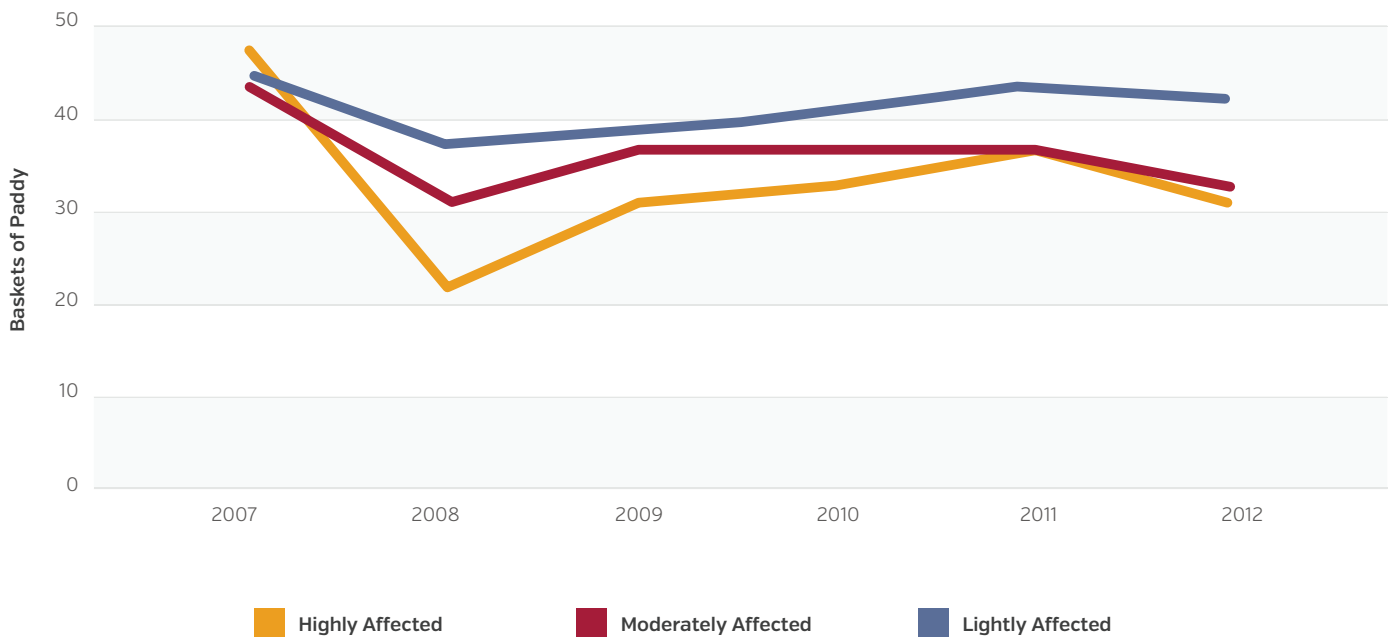
The yield for monsoon paddy across SIM villages had yet to reach its pre-Nargis level.

The yield decline of the first harvest after Nargis was three and two times greater in highly and moderately affected villages, respectively, than in lightly affected villages (see Figure 3). Thereafter, villages experienced an increase in yields until 2011. In 2012, however, yield dropped in 20 villages because of crop failures caused by irregular rains during the harvest season.⁹

Most of the highly and moderately affected villages could resume their farming after Nargis thanks to livelihood assistance, such as farming inputs, fertilizer, and seeds.

This led to a noticeable but temporary rebound in yields. External assistance, though effective, proved insufficient to help these villages regain their resilience in the face of continued negative external events.

Figure 3 Yield per acre by level of affectedness



Farmers also faced increased production costs ...

SIM 4 found the cost of production to be higher than before Nargis in three-quarters of the sample villages. Four reasons contributed to this: additional costs for seeds; mechanized farming; higher wages; and increased costs of fertilizer, and pesticides. Farmers in over half of the villages had to buy more seeds because they were forced to sow seeds two to three times owing to higher soil salinity and irregular rains. Farmers spent roughly an additional 12–24,000 kyat per acre for these reasons.¹⁰

The use of power tillers started in the majority of villages immediately after Nargis to replace the water buffaloes that had perished during the cyclone. Initially, many villagers received tillers as part of the post-Nargis aid effort. Later, larger farmers also purchased tillers, sometimes to replace scarce labor. Tillers were often shared or rented. Such mechanized farming has contributed significantly to the cost of production. Fuel costs¹¹ amounted to 12,000 kyat per acre, and renting a hand tractor cost 10–18,000 kyat per acre, depending on the skills of the farmer. In addition, there were maintenance and repair costs. Farmers reported that the hand tractors had been breaking down more frequently, owing to heavy use over the past several years.

Other inputs, notably labor, fertilizer, and pesticides, also had become more expensive.

The daily wage increased by 32 percent and 38 percent for female and male laborers, respectively. The cost for pesticides increased by nearly 67 percent from before Nargis, not only because of price increases but also because farmers had to use more pesticides.¹² Table 4 compares the production costs of 2008 (before Nargis) with 2012–2013, the last farming season covered by SIM. On the whole, the costs of production was on average 53 percent higher for the 2012 monsoon paddy than before Nargis (68 percent for small farmers) and 41 percent higher for the 2013 summer paddy than before Nargis (33 percent for small farmers). At the same time, crop prices and yields in the post-Nargis period remained below their pre-Nargis levels.

... while prices remained depressed

Paddy prices had gradually recovered since 2009 but remained below their pre-Nargis levels. In 2008, the decline in paddy prices because of the loss in quality from Nargis was compounded by the decline in the export market price as a result of the global financial crisis. Nominal prices recovered steadily until 2011 for both common paddy varieties, Bay Gyar and Achon; by 2012, however, they were still below their pre-Nargis levels in about two-thirds of the villages (Figure 4).¹⁴

Table 4 Average cost of production by type of farmer

TYPES OF FARMERS	MONSOON PADDY (IN LAKH ¹³)		SUMMER PADDY (IN LAKH)	
	<i>Before Nargis</i>	<i>2012</i>	<i>Before Nargis</i>	<i>2012–2013</i>
Large	0.8	1.1	1.2	1.6
Medium	0.7	1	1.2	1.4
Small	0.7	1.2	1.2	1.6

Villagers attributed the low rice prices to two primary reasons: the poor quality of paddy and the need to sell paddy right after the harvest. According to many farmers, the quality of paddy had declined since 2008 because of soil salinity, climatic irregularities, and pest problems. For example, the average price for Bay Gyar dropped by over 10 percent in 2012, mainly owing to poor product quality caused by irregular rains at harvest time.

Before Nargis, farmers could sell at least part of their product some time after the harvest, once the market price had gone up; now many farmers could no longer afford to do so. Farmers in two-thirds of the villages (including lightly affected ones) reported that they had to sell their product right after the harvest, as they were in dire need of cash. For example, about one-third of small and medium farmers in villages with poor

farming conditions had to sell their paddy well in advance of the harvest (right around the time the buyers could assume the fields would produce a yield), usually at half the expected harvest price. They used the money to cover the cost of harvesting and to repay the debt they had incurred during the planting season. This pressure to sell was reflected in farm gate prices: larger farmers, who did not have to sell in distress, consistently received a higher price than small farmers (Figure 5). “If the paddy is in the hands of farmers, the price is always low, and when the paddy is in the hands of traders, the price goes up” was a sentiment frequently heard in the villages.

“The problem of farmers in the Delta is lack of profitability,” said a medium farmer. Before Nargis, the price for monsoon paddy was close to 5 lakh per 100 baskets, with a yield well over 40 baskets per acre. Farmers were also less indebted.

Figure 4 Average farm gate price of monsoon paddy 2007 to 2012

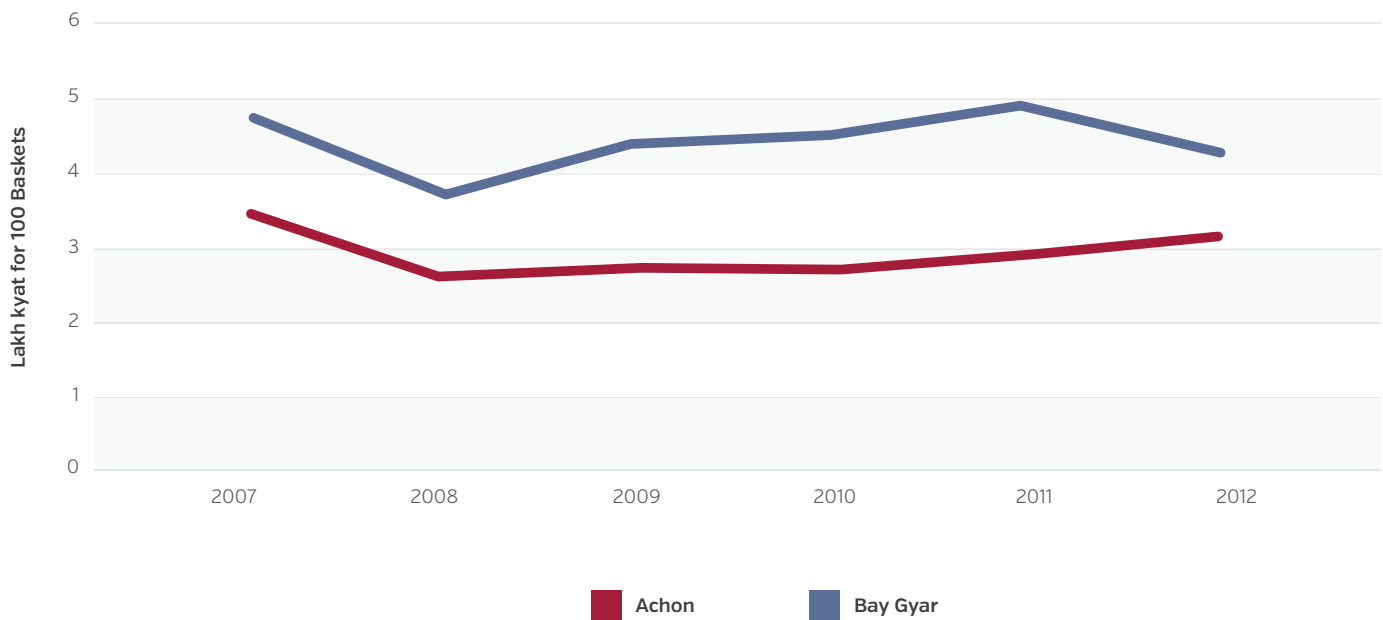
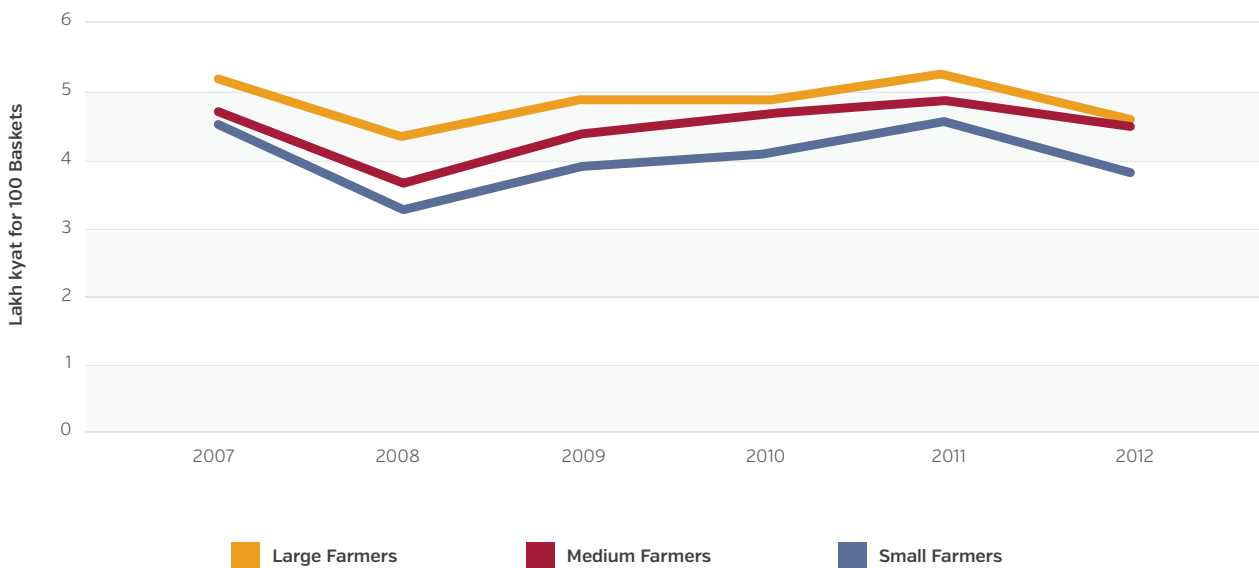


Figure 5 Farm gate prices of Bay Gyar variety in 2007 to 2012 by type of farmer



Five years after Nargis, the paddy price was barely above 4 lakh per 100 baskets and the yield for farmers in the majority of villages was far shy of 40 baskets per acre. Farmers were also deeply indebted, with one-third of small and medium farmers reporting having to give up part of their farmland to creditors. As a result, the majority of the small and medium farmers in the villages with poor and fair farming conditions had made no profit since Nargis. The cyclone largely undermined the capacity and resilience of many a farmer in the path of the storm. This loss in production capacity and resilience was detrimental to the livelihood outcomes of villagers in the Delta. Box 2 reflects on the long-term impact of Nargis on farming communities in the Delta.

Why highly affected farming villages failed to recover

The plight of highly affected farming villages revolved around two detrimental cycles.

Firstly, Nargis disrupted the debt-harvest-repayment cycle that has been a central feature of farming in

the Delta. Farmers would borrow funds to plant and harvest and with the sale of the crop repay their creditors. Nargis struck the Delta around the time of the summer paddy harvest, with crops destroyed either in the fields or in storage. Lower yields meant less income for farmers who could not repay their debt. Even though aid provided agricultural inputs, farmers had to use fewer inputs, which in turn reduced yields. Secondly, Nargis damaged embankments and streams that are central to the ecology of farming villages. With few funds available for repair either during the post-Nargis aid effort or thereafter, the farmlands became more prone to flooding, salinity, and pest infestations, which also reduced yields and income. Figure 6 captures this predicament, which combines both direct impacts of Nargis, and indirect effects that played out over the longer term.

Box 2 How compound effects of natural disasters affected struggling farmers

Case 1: Livelihood outcomes affected by Nargis, and other external events

A large farmer who owned 30 acres of farmland in Labutta township resumed his work right after Nargis, even though he had lost some of his savings and investment capital. That season, seeds cost 4,500 kyat per basket compared to no more than 3,000 kyat per basket before Nargis. To cover the cost increase, he had to borrow 20 lakh for farming inputs, four times the amount he used to borrow, at an interest rate of 15 percent per month. Unfortunately, the yield declined from a minimum of 40 baskets per acre before Nargis down to a meager 18 baskets per acre. He reasoned that the decline in yield was due to his inability to plow as much land; he had shared his draught cattle with other farmers, whose cattle had died during Nargis.

In 2009, he experienced pest problems at the beginning of the farming season and had to do a second sowing. Since then, two to three sowings every year were common, owing to soil salinity. He also hired a hand tractor because the longer duration of the tide after Nargis had made the soil softer, and his draught cattle no longer sufficed. In addition, he had to use more pesticides and fertilizer in order to combat soil degradation. With all this investment, his yield eventually recovered to 30 baskets per acre, but his cost of production also increased by 50 percent since before Nargis.

Worse still, the price of paddy now rarely reached 2 lakh for 100 baskets. This was because he, as did most other farmers in his village, only received half of the harvest farm gate price when they sold their paddy before harvest time. He incurred a loss in the 2010 farming season and since then became highly indebted. That year, he had to sell 8 acres of his farmland for 3 lakh per acre. In 2012, his crops failed again owing to irregular rains at the time of harvest. At the time of SIM 4 research, he was waiting for increased loans from the Myanmar Agricultural Development Bank (in the amount of 1 lakh per acre) and the Farmland Law (which permits the sale of land); he was planning to borrow more money and sell part of his remaining 22 acres, expecting higher prices for his land as a result of the law.

Case 2: The impact of the loss of a breadwinner

Before Nargis, a family in Kungyangon township earned a living by cultivating the 12 acres of land inherited from the husband's parents. When the husband died during Nargis, his relatives took back the land, as there was no one left in the family who could work on the farm. The wife made a legal claim against her in-laws for the land and was able to reclaim 6 of the 12 acres. However, since no one in the household could work the land, their income declined. They also became indebted from the legal expenses incurred during the land dispute. The family eventually had to sell their house and compound to the in-laws of one of their daughters. They managed to rent out their farmland to earn a meager living.

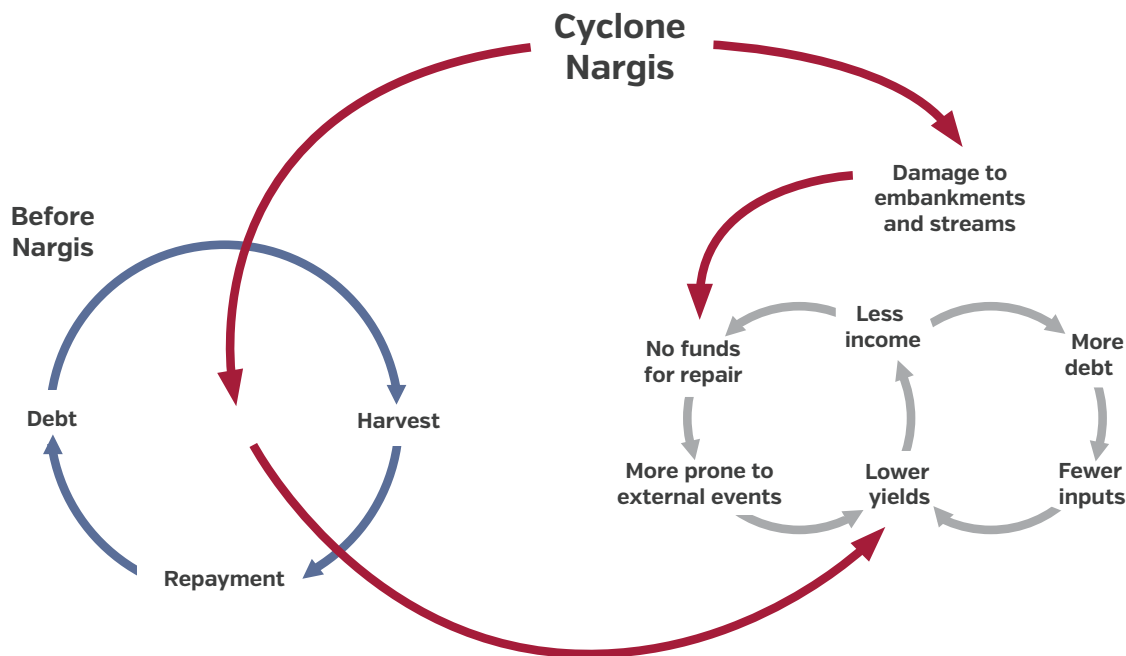
Fishing

Right after Nargis, fishing provided the best chance for many villagers to earn an income, whether or not they had been fishermen prior to the cyclone. Fishermen reported that fish stocks had increased right after the cyclone for some types of catches, especially shrimp. However, as they had lost their fishing gear in the cyclone, they were not able to profit from this increase. In addition, the demand for fish declined after Nargis, because people believed that fish from Nargis-affected areas was contaminated by the dead bodies that had floated in the rivers. By 2009, because of the abundance in fish stocks, a fairly steady yield, and the aid effort, small fishermen and laborers were able to make a living from fishing. Many borrowed money from fish collectors as fishing was considered profitable by both borrowers and lenders, even more profitable than farming at the time. Simultaneously, many villagers received fishing equipment from aid providers, even in villages where fishing had not been an important livelihood before Nargis. Medium-size fishermen, who require more expensive gear, did not receive any assistance but were able to finance investments in motorboats and stronger nets with credit from fish collectors.

Fishing yields collapsed ...

The fishing sector in the eleven predominantly fishing villages in the sample deteriorated sharply from 2010 onwards, especially in the townships of Pyapon, Dedaye, and Bogale. Fishermen considered the drastic reduction in fish stocks and yield as the primary factor for lower profitability. Figure 7 provides reported yield in five of the fishing villages for which time series data are available. By 2012, yields for prawn and shrimp had decreased drastically by c. 80 percent and for Hilsa fish by 60 percent from pre-Nargis levels. Particularly severe was the decline in shrimp yield of over two-thirds

Figure 6 Why highly affected farming villages failed to recover



from 2009 to 2010. The decline in fishing had a much broader impact on the village economy in the Delta, since many laborers and small farmers had entered the sector when farming returns were low. As of 2010, across the sample, fishing remained a reliable income source only in Mawlamyinegyun township, but in all but one village there farming was the predominant livelihood.

Fishermen found it difficult to explain the reduction in fish stocks. The primary causes were likely to be, as SIM 3 pointed out, overfishing in many Delta townships; environmental degradation owing to Nargis (especially the destruction of mangrove forests where fish used to spawn); the use of unsustainable fishing methods (for instance, using electric shocks or nets from aid providers that were too tight); and the loss of knowledge owing to loss of lives during Nargis.

The challenges facing the fishing sector were so drastic in several townships that small-scale fishing may cease as a livelihood in the most severely affected villages. Reflecting on four rounds of SIM, researchers considered it possible that fishing may disappear in the near future in 4 out of the 21 SIM villages where fishing was practiced (Box 3). In fact, one-third to one-half of small and medium fishermen in these villages had already given up fishing and become migrant workers on deep-sea fishing boats. In other fishing villages, small and medium fishermen continued their businesses, hoping that fish catch would improve. In the meantime, they were making most of their living as laborers.

Fishermen were no longer able to benefit from favorable fish prices. Over the period 2008–2012, reported prices for prawn and shrimp had remained largely constant while the price for

Hilsa, which was exported, increased by 77 percent (Table 5). Even for Hilsa, however, the good price could not offset the decline in yield, and profitability declined significantly. Fishermen reported that they now frequently experienced 2–3 days during each two-week fishing cycle without catching a single fish, even during the fishing season.¹⁵ They had rarely experienced such low catch in years prior to Nargis. Moreover, many small fishermen had to take

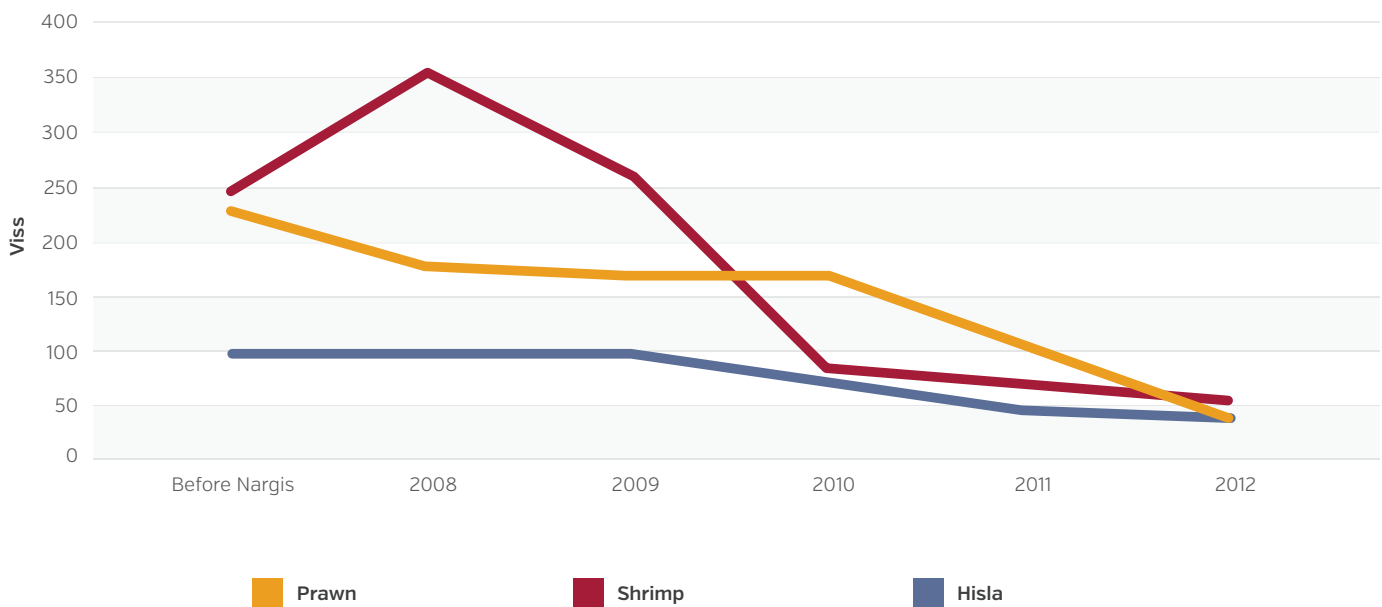
advance payments from fish collectors against their future catch at a discount.

The decline in fishing was not homogenous across Delta townships, however. Fishing villages in the townships of Mawlamyinegyun, Labutta, and Ngapudaw had been faring better than villages in Pyapon, Bogale, and Dedaye. Although they also experienced a decline in fish stocks, the fishermen in Mawlamyinegyun, Labutta,

Table 5 Annual average fish prices in five fishing villages (in kyat per viss)

TYPES OF FISH	BEFORE NARGIS	2008	2009	2010	2011	2012
Prawn	1,533	1,600	1,750	1,600	1,533	1,567
Shrimp	750	900	900	867	933	1,000
Hilsa	16,700	17,200	20,250	24,650	25,900	30,400

Figure 7 Average annual fishing yield in five fishing villages



and Ngapudaw reported during SIM 4 that their fishing business were going reasonably well, all while fishermen in the other three townships had days when they had no catch due to the significant decline in fish stock.

Governance of the fishing sector has played an important role in reducing the ability of fishermen to recover their livelihood.

Governance issues in the fishing sector, especially with regard to the distribution of fishing licenses, predated Nargis (Box 4). However, the limitations they set on fishing became more evident after the cyclone, when the fishing sector failed to recover. Pyapon and Dedaye had significantly fewer common fishing plots than the other townships, because most of the plots were sold to big fishermen by means of competitive auctions and a ballot system, making fishing licenses about ten times more expensive than elsewhere. In order to make up for higher fees, fishermen fished all season long, including during the spawning season, which severely affects fish stocks in the longer run. Fishermen also used damaging fishing methods, such as battery shocks, poison, or very tight nets. The result was overfishing and ecological damage. Moreover, bigger fishermen prevented small fishermen, among whom were many laborers, from engaging in subsistence fishing.

Box 3 A fisherman's predicament five years after Nargis

Before Nargis, a fisherman in Dedaye township caught mainly Hilsa and earned 7 to 8 lakh annually. He used to borrow only from the fish collector and repay his debt with his catch. Unfortunately, the fisherman lost his nets and his boat during Nargis, and did not receive any fishing gear from aid providers. In 2009, in an attempt to start fishing again, he borrowed 10 lakh at a monthly interest rate of 10 percent from a moneylender and some money from the fish collector in the township. The catch was good and he earned 6 lakh—nearly as much as before Nargis.

However, as the Hilsa catch increased and farming was not creating any work in his village, many laborers borrowed money from the fish collector and started fishing, too. With an increase in fishing, fish stocks began declining in 2010. Fortunately, the fish price more than doubled and he still earned 6 lakh in 2011, even though the catch was only half of what he had caught before Nargis. Still, he could not repay the debt he owed to the moneylender. The hardest time came in 2012 when the fish catch declined even further, and he earned only 3 lakh that whole year. At the time of SIM research, he was worried that he would have to sell his boat and nets in order to pay his debt, which would deprive him of his livelihood.

Box 4 Governance of the fishing sector

Pyapon district in Ayeyarwady Region, which covers the townships of Pyapon, Bogale, Kyaiklat, and Dedaye, is the only district in Ayeyarwady Region where the licensed, commercial fishermen are allowed to fish year-round. In the other five districts, licensed fishermen are allowed to fish only during the monsoon season while non-commercial fishermen fish during the dry season. This rule has been in force in Pyapon since 1991.

Before 2011, the licenses were distributed via an auction system, but the floor price of the fishing plots being auctioned was not openly announced to the public; only those affiliated with the District/Regional authorities were made aware of it, so they were the only ones who would participate in the auction. Since 2011, the auctions have gradually become more transparent, with the floor price issued in advance to the public. Yet the auction became highly competitive among businessmen rather than fishermen, which increased the price. The real fishermen then had to repurchase the licenses from the businessmen at more than double the price. In order to make up for higher fees, fishermen used damaging fishing methods. It was only in 2013 that the rules changed again: each person could purchase licenses for only up to five fishing plots, and the size of the fishing plots was reduced to allow more people to purchase licenses at the auction. The price of licenses had since decreased, reducing the pressure to overfish.

By 2013, freshwater fishing in Pyapon district was under the jurisdiction of the regional government. However, the rule in Pyapon District that allows the license owners to fish year-round had yet to change. The significant decline in fish catches in Pyapon, Dedaye, and Bogale townships can be mostly attributed to this rule.

Labor

With farming and fishing sectors struggling to recover, day laborers, who depend on these livelihoods, found themselves in a dire socioeconomic situation. SIM 4 found laborers in 27 villages doing poorly, with the situation of laborers in 7 and 6 (moderately and lightly affected) villages considered fair and good, respectively. Right after Nargis, laborers received different types of aid, especially food aid. “They have seen a whole bag of rice in their homes thanks to aid providers,” was a frequently heard statement by villagers about laborers when recalling the aftermath of the cyclone. Moreover, laborers from most villages benefited from infrastructure rehabilitation projects funded by aid providers. In some of the villages, they also became assets-holders, as they received houses and livelihood tools, particularly small-scale fishing gear. Aid could not provide more than temporary employment and partial relief, however. And when external aid ceased in 2010, the laborers’ normal livelihood sources in the Delta were no longer robust enough to offer sufficient work for all.

Wages at peak season had risen significantly since Nargis but had not led to higher living standards. In the first two years after Nargis, laborers could afford demanding a higher reservation wage because they were receiving aid. Between 2007 and the 2012–2013 paddy season, daily wages rose by 32 percent and 38 percent for female and male laborers, respectively (Table 6). However, higher wages had not translated into higher earnings. First, many farmers switching to mechanized farming after Nargis reduced employment opportunities for laborers in the long run, compounding the effects of a sluggish recovery in the farming sector. Second, higher wages are paid at harvest time when the demand for labor is at its peak. During the rest of the year there is an oversupply of labor in all villages. Third, few laborers have regular, full-time jobs, and most have to accept low-paid odd jobs during the agricultural off-season. Consequently, most laborers had to take an advance from farmers before the harvest season at half the wage rate they would earn at harvest time.



A decline in secondary income sources put a further strain on the livelihood of laborers.

Laborers in four villages used to depend on nipa weaving, which was traditionally used for roofing, especially during the rainy season, when there were few opportunities in farming. The nipa market declined after Nargis because many nipa weavers died and many nipa trees were destroyed in the cyclone. Later, villagers started to use more durable zinc, even though they did not like it as much because of the resulting heat; this was both a result of the aid effort and the scarcity of nipa. Subsistence fishing, an important income source for laborers in all townships and almost all villages, was affected by the decline in fish stocks. Laborers and other small fishermen in Pyapon and Dedaye townships were particularly affected, as big fishermen forbade them to engage in subsistence fishing in the rivers and creeks for which they had purchased expensive fishing licenses. In four villages, laborers depended on the forest to collect firewood and bamboo. This income source was affected by the depletion of the forest and a government regulation limiting the extraction of forest products (Box 5).

The better the economic condition in and around villages, the better the employment situation for laborers. Villages where farming had recovered and those most connected to urban centers offered the most opportunities. For instance, farmers in Mawlamyinegyun had been growing two crops since 2010 and had been creating more work opportunities as a result. Laborers in three villages in Labutta were doing well because of the construction of a nearby satellite town, which created jobs in construction, fish factories, and government offices. There, laborers could also increase their earnings by selling food and providing cycle-taxi services at the newly developed ferry jetty. Moreover, laborers in five villages (two in Kyaiklat and three in Labutta) were faring better socioeconomically, owing in part to better transportation networks developed after Nargis, such as new inter-village and inter-township roads and more regular boat services.

Table 6 Average wages at peak season 2007 and 2012–2013 [in kyat]

MALE LABOR WAGES				FEMALE LABOR WAGES			
2007		2012-2013		2007		2012-2013	
Daily	Monthly	Daily	Monthly	Daily	Monthly	Daily	Monthly
1,947	58,500	2,693	76,429	1,383	n.a.	1,832	n.a.

Box 5 Laborers faced fewer opportunities in their villages

Before Nargis, a family of farm laborers in Bogale township used to earn a secondary income of about 4,000 kyat daily from fishing and firewood collection on a nearby island. After Nargis, the family survived on aid and did not work regularly for a while. However, the laborers started facing hardship in 2010 when food aid ceased. They learned that work opportunities in the village had declined partly because of mechanized farming and partly because farmers had hired laborers from other villages when they had been reluctant to work. As a result, the family had to rely more on illegally collecting forest products and fishing. They often had to pay 5,000 kyat to the police when they were caught fishing around the island. Furthermore, the government started banning resource extraction from the island in 2012 because of the rapid forest depletion. By the time of SIM research, the family was living on 800-1,000 kyat per day from fishing and was facing its hardest time yet.

Small Enterprises

The livelihood of small entrepreneurs is a reflection of the villages' socioeconomic conditions. SIM 4 studied the socioeconomic situation for the following small enterprises: shopkeepers, rice millers, fish collectors, fish-paste makers, salt farmers, charcoal makers, and thatch makers.

The number of shopkeepers had increased since 2010 in all sample villages. In two-thirds of the villages, the number increased two to five times. However, there were few larger shops in the villages. Larger shopkeepers, who sell food in large quantities as well as various household goods, reduced sales on credit significantly from 2010 onwards as buyers, especially laborers, defaulted. As a result, their sales declined significantly. Larger shopkeepers who could earn 80–100,000 kyat per day prior to Nargis saw sales drop to 30–50,000 kyat per day. They started to sell other goods, such as diesel and spare parts for hand tractors and vehicles, in order to diversify. At the same time, other villagers, especially farmers, opened small shops in most of the villages as their economic situation declined and they, too, tried to diversify. In addition, families of laborers who received remittances and those who borrowed from microfinance projects opened small shops as well. Most of them sold on credit to enter the business, but this was unstable, as customers continued to default. In those villages with better connectivity to urban areas, shopkeepers of all sizes struggled, as their customers were able to buy goods at lower prices in the cities, thanks to their lower transportation costs.

All rice millers in the sample villages faced increasing competition from larger rice mills in the towns. There were 8 larger rice mills and 9 smaller rice mills in 16 of the 40 SIM villages. The larger mills ran all season long, while the small mills ran only when farmers needed to grind paddy for family consumption. Twelve of these 17 mills (6 larger and 6 smaller ones) were struggling for two

main reasons. First, owing to better transportation, farmers could grind rice at the more modern mills in the towns that had better technology and more capacity at lower prices. Second, farmers could not save paddy after harvesting. Before Nargis, farmers saved paddy and ground it later when the price was higher. In 2013, farmers had to sell their paddy right after the harvest, which also hurt the rice millers. Only five millers who offered additional services, such as collecting the paddy free of charge or grinding on credit, were doing better. One of these rice millers explained that he was in a position to offer these services because he himself was financially strong (being a large farmer) and had access to low-interest credit.

Most of the fish collectors interviewed in SIM 4 were struggling because of the increased cost of fishing licenses and the decline in fish catches. There were 1–2 fish collectors in each fishing village. Fish collectors in all townships commonly purchase fishing rights for certain plots informally, and often on credit, from big fishermen and businessmen who in turn buy them via auctions. While fishermen have been suffering since 2010, fish collectors have been experiencing a worse economic situation only since 2012. Historically, most of the fishermen borrowed from the collectors and repaid with their catch. Until 2009, the catch was large enough for them to repay all their debt, owing also to steady or increasing prices. By 2012, the decline in fish stock had become so severe that fishermen could no longer afford to repay their debt. Consequently, the fish collectors also defaulted on the loans they had received from the big fishermen (Box 6).¹⁶ Crab collectors in Bogale, Dedaye, Pyapon, Mawlamyinegyun, and Ngapudaw townships found themselves in a similar predicament because of the decline in catches, as well as a reduction in the size and weight (and hence price) of the crabs. Only collectors dealing in eel as well as those who were able to supplement their business with other income sources, such as farming and shopkeeping, were faring better.¹⁷

There were fish-paste makers in two of the sample villages, one in Labutta and another one in Pyapon. Overall, fish-mills were struggling, but for different reasons. There had been four fish-mills in a village in Labutta before Nargis, along with 30 big fishermen and 10–12 smaller fishermen. The big fishermen went to sea with big boats that could carry 2,500 tons of fish. The smaller fishermen only fished in the river with small boats. They were catching *Myin*, a type of fish good for making fish-paste. During Nargis, the fish-mills lost laborers, equipment, and capital. After Nargis, small fishermen could resume fishing with boats supplied by aid providers, but the nets they received were not suitable for *Myin* fishing. With less fish supply, only one of the fish-mills was able to restart business. At the same time, the market for fish-paste shrank, as buyers from upper Myanmar preferred not to purchase fish-paste from the Delta in the aftermath of the cyclone. The price of fish-paste declined from over 5,000 kyat before Nargis to 3,500–4,000 kyat per ten viss after the cyclone. To keep his business afloat, the only remaining fish miller started to use dye that the Myanmar Food and Drug Administration determined was contaminated, and his business plummeted. However, a decline in supply had also created opportunities for new businesses to emerge in this market, and by 2013 there were two other fish-mills in the village in Labutta (Box 7).¹⁸

There were salt makers in only one sample village in Ngapudaw township. Salt making, which was the village's main livelihood, declined significantly because of a decline in the salt price. Prior to Nargis, salt would fetch 70–80 kyat per viss. Right after Nargis, salt makers produced hardly any salt because of the damages incurred from the cyclone, and the price of salt increased to 300 kyat. Since 2009, however, the price of salt had been declining, reaching only 30–40 kyat per viss in 2010 and 2011. Over one-half of the 200 salt makers in the village tract exited the business when the price reached 20 kyat per viss in 2012–2013, leaving

Box 6 The impact of Nargis on fish collectors

Case 1: A fish collector in Ngapudaw could purchase 14 kits [big containers] of different types of fish and shrimp 3–4 days per week before Nargis. Until 2011, he was able to purchase 4–5 kits per week, but in 2013 he could only purchase 2 kits per week.

Case 2: A fish collector in Dedaye township who had lent 2–3 lakhs each to around 25 fishermen reported that he defaulted on nearly 100 lakh to the license owners in town, as most of the fishermen were not able to repay their debt in 2012.

Case 3: One of the crab collectors in Mawlamyinegyun noted that the size and weight of the crabs were smaller than they used to be. Before 2009, the crabs weighed 7–8 Tikal [kyat Thar in Myanmar language] each, which earned 600–1,000 kyat per crab. With 7–8 crabs caught per day, villagers could earn 7,000–8,000 kyat. By 2013, the crabs caught were a lot smaller, weighing 3–4 Tikal each and earning much lower prices. Villagers who managed to collect 60–70 crabs per day only earned 2,000–3,000 kyat. The crab collector attributed the decline in the quantity and weight of the crabs to the fact that struggling villagers would catch anything they could find rather than waiting until the young crabs had matured.

Box 7 The return of a fish-mill owner

A fish-mill owner in the village in Labutta township restarted his business in 2011 by pawning his gold. At the time, he saw an opportunity to make a profit by entering the less competitive market in his village. He noticed that the fishermen in his village were not able to sell *Myin*, a type of fish good for fish-paste, because other mill owners were not coming to the village. He then provided advance funds to eleven fishermen to return to the sea in smaller boats and collect *Myin*. The fishermen were able to catch 13,000 viss of *Myin* in 2011 [compared to 15,000 viss before Nargis]. The fish-mill owner bought the fish and made fish-paste, which he sold in other parts of Myanmar. *Myin* catch declined in 2012 but not significantly, and his business continued to be profitable. In addition to the eleven fishermen who were fishing *Myin* at sea, there were now ten fishermen who fished *Myin* for him in nearby rivers.

only about 90 salt makers. According to the salt makers, the price declined because of the product's low quality compared to imported salt from India and China; the poor technology used in salt production in Myanmar rendered local salt makers uncompetitive.

Salt makers diversified their business. Some of them opened shops or started trading, while three-quarters of salt makers started to convert part of their land to farming as early as 2011. Their land was highly saline, however, and their yields were low as a result. Still, they kept growing paddy with the expectation that the yield would gradually increase as the soil quality improved. The laborers on salt farms were much more dependent on salt makers than the farming laborers. As a consequence, many former salt workers also became farm laborers. Salt makers indicated that they would have to gradually convert all their land to paddy farming if the latter was more profitable. Even so, the remaining salt makers had to cut their labor force by about one-third, owing to declining profits.

Charcoal and thatch making were declining businesses in the sample villages. In the forests in Ngapudaw and Labutta where the villagers used to collect wood to make charcoal, the government gave licenses to companies in 2010–2011 to log wood and grow rubber. At the same time, the market demand for charcoal in cities like Yangon and Patheingyi, where the charcoal was sold, was declining as consumers were switching to (cleaner and cheaper) gas and electricity. As a result, charcoal makers in two villages of Ngapudaw and Labutta had almost disappeared. Only one charcoal maker in the village in Labutta continued to sell charcoal made by small charcoal makers from other villages, but sales were declining. Thatch making also suffered from the shift to zinc as a more durable and stronger roofing material. Businesses in two villages in Bogale and Dedaye had almost ceased to exist, while one in Ngapudaw continued to operate. In all these cases, the decline of these businesses had an impact on the laborers (especially female laborers), for whom charcoal and thatch making were a primary income source during the agricultural off-season.



Debt and Credit

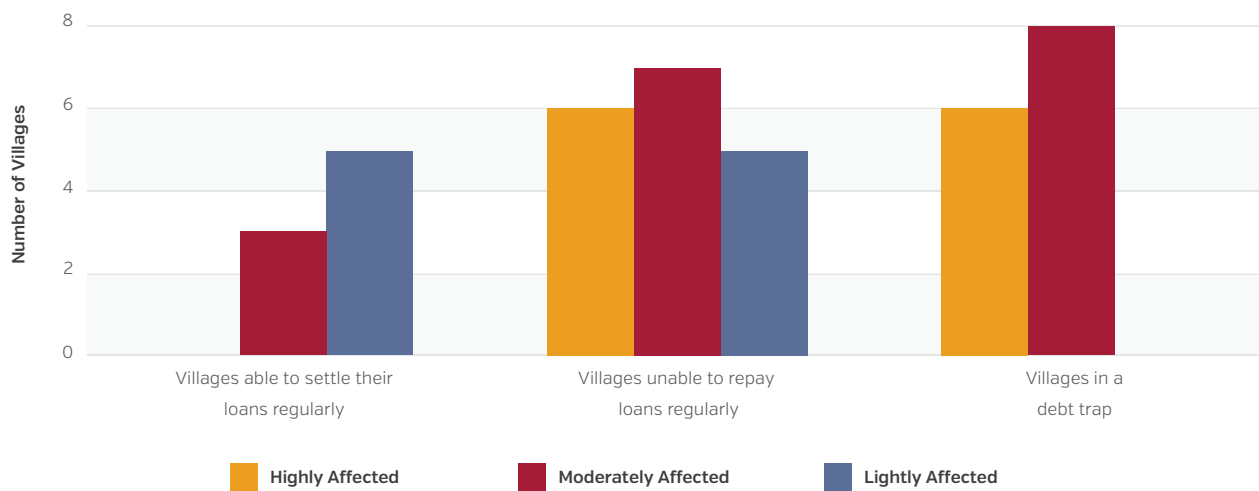
Indebtedness plagued recovery in Delta villages

Debt continued to plague recovery in the majority of villages. Thirty to forty percent of households in 14 sample villages, especially small and medium farmers, were deeply indebted. Thirty to forty percent of households in 18 other villages were struggling to repay their debt. Only in 8 villages were villagers able to repay their debt regularly. In the 14 highly indebted villages, villagers have not been able to repay even the debts they had owed since before Nargis. Some repaid part of their debt by selling or pawning their assets, especially their land and farming tools. Yet because of their inability to increase their productivity, owing to a lack of capital and repeated negative external events, they remained indebted and had only a slim hope of being free from debt. In the 18 villages where villagers

were struggling, they were able to repay only part of their debt every harvest season. They rarely had debts that were outstanding for long, settling them by selling their assets. They hoped to repay all their debt and start investing once they had a year with a good yield and price. In the remaining eight villages there was no severe problem of indebtedness; villagers generally had access to loans, which they were able to settle after every farming season.

Indebtedness was closely related to the severity of the cyclone's impact. Of the 30 moderately and highly affected villages in the sample, only three moderately affected ones did not face debt problems. Overall, in only one-quarter of villages were villagers able to settle their loans regularly (Figure 8). Villagers were struggling to repay debts in all of the highly affected villages.

Figure 8 Indebtedness by degree of affectedness



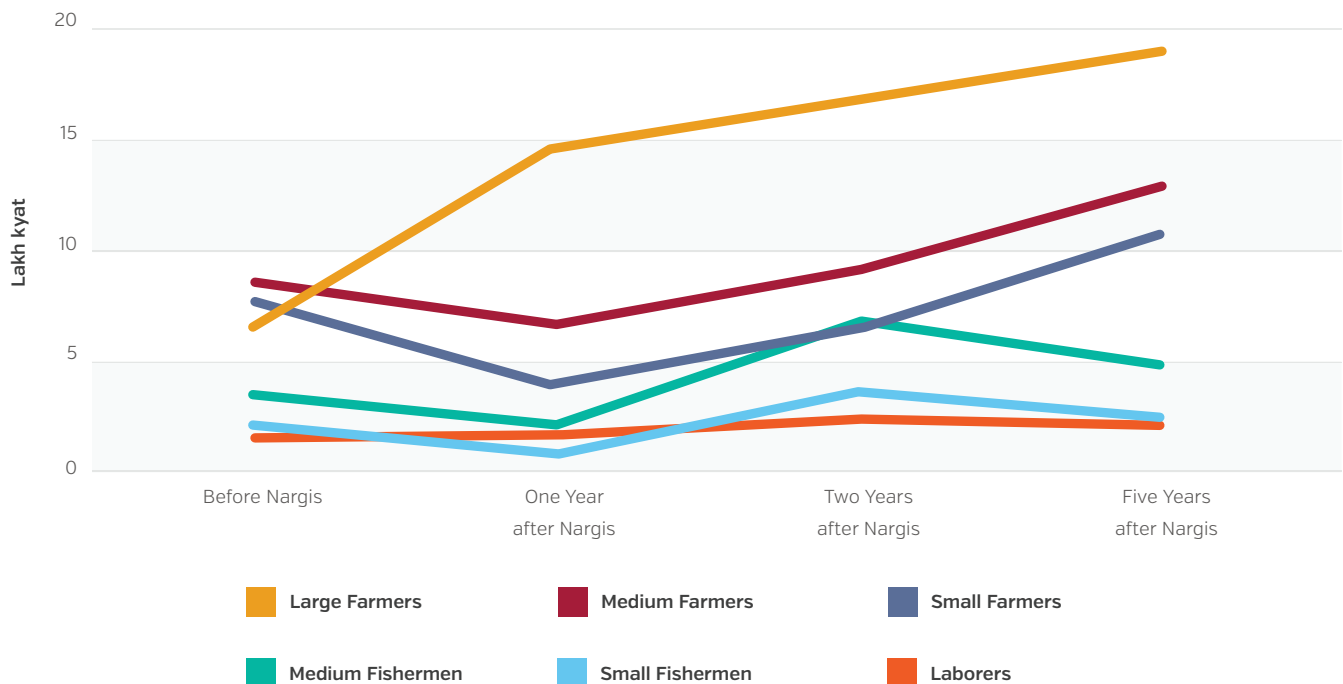
The debt burden was significantly higher than before Nargis ...

The average amount of debt was significantly higher for all types of livelihoods as compared to before Nargis. The average debt was 1.3–1.6 times higher for medium and small farmers and fishermen as well as for laborers. At the same time, the average debt of large farmers was over 3 times higher (Figure 9). These increases were not steady, however, and masked significant variations. Furthermore, Nargis impacted the availability of credit in two important ways. First, many credit suppliers were facing economic hardship themselves and were unable to resume lending at pre-Nargis levels. Second, in many villages, creditors had been increasingly seizing collateral 2–3 years after Nargis. As a result, some small farmers, fishermen, and laborers could no longer access credit because they had no more collateral.

... but the absolute amount of debt masked severe deprivation

The level of indebtedness of farmers varied significantly after Nargis. Within one year of the cyclone, the average outstanding debt of large farmers more than doubled, while that of medium and small farmers showed a significant drop by over 20 percent and 50 percent, respectively. Between 2009 and 2013, small farmers experienced the sharpest increase in average indebtedness, by a factor of 3. Immediately after Nargis, credit was scarce, and farmers were forced to sell or pawn assets to repay their debt. Two years after Nargis, when yield and prices had rebounded, many farmers were able to repay their debts, which allowed them to borrow more to reinvest in their farmland. However, the farming sector declined again, owing to external events, and with it farmers' ability to repay. By 2011, one-fifth to one-half of farmers in

Figure 9 Average debt by borrower before and after Nargis by type of livelihood





villages with poor farming conditions had to pawn assets and/or rent out or sell their land, and many creditors seized their collateral, particularly land; the majority of land transactions in the SIM villages took place that year.

Fishermen experienced a significant drop in debt within the first year after Nargis, only to witness a dramatic increase by 2010.

In the case of small fishermen by over 10 times before decreasing again. In 2009, fish catches were reasonably good, and the prices showed an upward trend. This encouraged fishermen to invest more in the business and to replace the equipment they had lost during Nargis. Simultaneously, middlemen were encouraged by the promising prospects in the sector and lent more. As catches started to decline by 2010, fishermen struggled to repay their loans. While they were able to settle part of their debt to fish collectors in fish, around one-half of the fishermen eventually defaulted on their debts to private moneylenders. Five years after Nargis, catching not a single fish for several days even during the fishing season, there were more fishermen than not who were on the brink of pawning or selling their boats and nets not only to repay their debts but also for their own survival.¹⁹

Many laborers were stuck in a debt trap.

Laborers have the least capacity to repay debt. They need to borrow for consumption and are thus more affected by increases in prices of basic necessities. Their ability to repay is also a direct function of the economic situation of farmers and fishermen. Laborers' average level of debt increased by 80 percent within two years of Nargis. This may reflect not only their need to rebuild their livelihoods after the cyclone but also a greater supply of credit, including from microfinance schemes that existed in 40 percent of the villages. In addition, sales on credit became more prevalent in at least eight villages with good economic prospects. By 2013, average debt had decreased by almost 20 percent, given laborers' lack of creditworthiness. The average amount of 1.5 lakh in debt, five years after Nargis, was equivalent to about two months' wages. In an area suffering from a protracted economic crisis, this amount posed severe challenges to people surviving at the bare minimum. Laborers in about two-thirds of the villages had to take an advance on their wages from farmers for their daily consumption. Once they performed the work, they received only a portion of the remaining wage in order to repay their debt, leaving them little to survive on. This was a debt cycle that laborers in many villages could not escape from.

Delta villagers continued to rely on multiple credit sources ...

Sources of credit in the Delta remained unchanged during the five years following Nargis, but their relative importance evolved. Until the time of SIM 3 in 2010, informal moneylenders— including large farmers, relatives, friends, and private moneylenders— were the primary sources of credit. By 2012, however, the Myanmar Agricultural Development Bank (MADB) had overtaken private moneylenders as the most important source of credit (Table 7). Microfinance providers and traders also gained prominence, while fish collectors and shopkeepers lost ground compared to SIM 3. Villagers viewed microloans favorably, as their terms were better than those of their traditional sources. However, microfinance did not necessarily reduce indebtedness. Laborers and small farmers in about one-quarter of the villages relied primarily on private moneylenders to repay microloans in order to remain eligible for borrowing in the future.

... but their relative importance changed ...

The growing popularity of MADB was a direct result of a change in its lending policy. Before Nargis, MADB provided loans only in the amount of 7,000 kyat per acre. Since Nargis, the loan size had increased sevenfold: from 8,000 kyat (2008) to 10,000 kyat (2009), 20,000 kyat (2010), 40,000 kyat (2011) and 50,000 kyat (2012). In the initial years after Nargis, farmers preferred informal moneylenders over MADB. This was due to the fact that the procedure to access and repay the money borrowed from MADB was not considered worthwhile, given the small amount that was accessible. Because of the increases since then, the increases since then, by 2013, farmers were looking forward to receiving loans from MADB. Many farmers, especially medium and some large farmers, reported that they would no longer borrow money from private moneylenders if MADB increased its loan size to 100,000 kyat per acre, as MADB did starting with the 2013 monsoon season.

Table 7 Sources of credit

DEBT HELD BY *	FREQUENCY
Myanmar Agricultural Development Bank	64
Private moneylenders	59
Large farmers	35
Microfinance providers	33
Traders (crop traders)	32
Relatives/friends	29
Shopkeepers	14
Fish collectors	10
Rice millers	9
Gold/pawn shops	8
Input suppliers (fertilizer, and diesel)	5

* For farmers, fishermen, small businesses, and laborers.

Note: Number of times mentioned by respondents in focus group discussions and key informant interviews.

The impact of MADB loans on the availability of credit and indebtedness varied across villages. On the one hand, in one-quarter of the villages, the anticipation of increased MADB loan amounts prompted informal moneylenders to lend more money to farmers, since substantial MADB loans were expected to make it easier for farmers to repay the informal loans. On the other hand, small farmers actually had difficulties repaying MADB loans. Because yield was lower than expected, 50,000 kyat per acre proved too high a burden for farmers to repay in over one-quarter of the villages. This was aggravated by the fact that some farmers were using MADB loans to pay education expenses for their children (especially for high school and university attendance) rather than for productive purposes. In order to not default on their MADB loans and thus be prevented from borrowing again for the next season, the farmers resorted to borrowing from informal lenders at higher interest rates to repay MADB.

Villagers in the Delta continued to rely on a multitude of credit sources. The number of sources ranged from five for medium fishermen to nine for medium farmers. Small farmers and laborers had eight credit sources each (Table 8). At the same time, creditors diversified their borrowers as well. Private moneylenders and microfinance providers lent to all seven types of borrowers, and traders, relatives, and friends lent to six types. The table confirms MADB's importance, especially for medium and small farmers.

The relative importance of informal moneylenders was also changing over time. Within one year of Nargis, both borrowers and lenders reported a crunch in credit for farmers. Borrowers' traditional sources—rice millers; rice traders; input suppliers (especially fertilizer shops); and large farmers (for medium and small farmers)—faced financial difficulties themselves and were not able to supply credit; they also did not trust the farmers' ability to repay. Starting in 2010, credit supply from these sources increased again,

Table 8 Credit sources by type of borrower

CREDITORS	LARGE FARMERS	MEDIUM FARMERS	SMALL FARMERS	LARGE FISHERMEN	MEDIUM FISHERMEN	SMALL FISHERMEN	LABORERS
Myanmar Agricultural Development Bank	15	27	22				
Private moneylenders	4	12	11	6	5	7	14
Large farmers		7	8		1	2	17
Microfinance providers	3	6	5	1	6	4	14
Traders	13	7	12		3		2
Relatives/friends	8	4	3	2		4	8
Shopkeepers						2	12
Fish collectors				2	3	6	2
Rice millers	3	3	3				
Gold/pawn shops		2		1	1	1	3
Input suppliers	2	1	1				

Note: Number of times mentioned by respondents in focus group discussions and key informant interviews.

especially from rice traders. However, it was mostly large farmers who benefited from this increase in credit from traditional suppliers, and it was they who were able to regularly settle their debts. Lacking assets that could be used as collateral, small farmers across villages regardless of the level of affectedness found their access to credit still constrained despite their use of multiple sources. Furthermore, many large farmers, particularly in highly affected villages, were still unable to resume their lending to smaller farmers and laborers because of their own economic situations.

Traditionally, fishermen had access to comparatively fewer credit sources than farmers and laborers. Private moneylenders and fish collectors used to be their main sources of credit. However, because of the decline in the fishing industry, these sources had less incentive to lend, a gap that microfinance providers could not fill.

The main sources of credit for laborers remained unchanged, but the availability of credit had declined. Laborers had four sources of almost equal importance: large farmers, private moneylenders, microfinance providers, and shopkeepers. The importance of large farmers



decreased over time, however, since they had been hiring fewer laborers. With fewer jobs and less income, laborers faced even greater challenges in repaying loans—a critical reason for why shopkeepers had also reduced their lending to this group.

... leading to more favorable credit terms overall

The popularity of MADB and microfinance loans was explained by the low-interest rates these creditors were charging. MADB loans carried an interest rate of 0.75 percent per month, while microfinance providers charged 2–3 percent. These rates were significantly lower than those demanded by informal moneylenders, which commonly reached 20–30 percent per month.

The interest rates charged by other creditors remained largely unchanged. Farmers in 30 villages reported that interest rates remained unchanged since before the cyclone. In five villages, interest rates increased from around 6–7 percent per month to over 10 percent, while in five other villages interest rates decreased from 10 percent per month to 6–7 percent. The villages with increased rates suffered from high levels of indebtedness; four of the five were also highly affected by Nargis. The villages with lower interest rates were only lightly affected by Nargis, were easily accessible, and had recovered from the cyclone. The informal credit market in those villages had become more competitive in 2011–2012, as some of the villagers were able to obtain credit in the nearby towns at a low-interest rate, which they on-lent to other villagers at lower than the prevailing interest rates.

Fishermen and laborers faced the highest interest rates, a reflection of their deteriorating economic condition. Two years after Nargis, these groups faced rates ranging from 5–20 percent per month. Three years later, rates from several sources had surpassed 20 percent

and reached up to 30 percent per month for small fishermen. A telling sign of the crisis in the fishing sector was the fact that by 2013, private moneylenders became a more important source of credit for small and medium fishermen than fish collectors. Many of those lenders who knew the fishing sector best had stopped investing in it.

The relationship between formal and informal credit suppliers was complex. Higher-risk borrowers were charged higher rates, a sign of a functioning informal credit market. Low-interest loans, especially from MADB, have been able to increasingly crowd out more expensive informal moneylenders, but not in sufficient quantity to fully replace them. At the same time, these informal lenders served an important bridging function for borrowers who risked defaulting on MADB loans, which would lead to future ineligibility. This phenomenon reflected the broader socioeconomic predicament of Delta villages; high interest rates restrained recovery, but they were high because many villagers had yet to recover economically and were, therefore, at risk of defaulting on their debt. A massive injection of low-interest credit provided breathing space, especially for small and medium farmers, but it could not enhance their socioeconomic prospects. The cumulative effects of Nargis still cast their shadows over all livelihood groups in the Delta.

Land

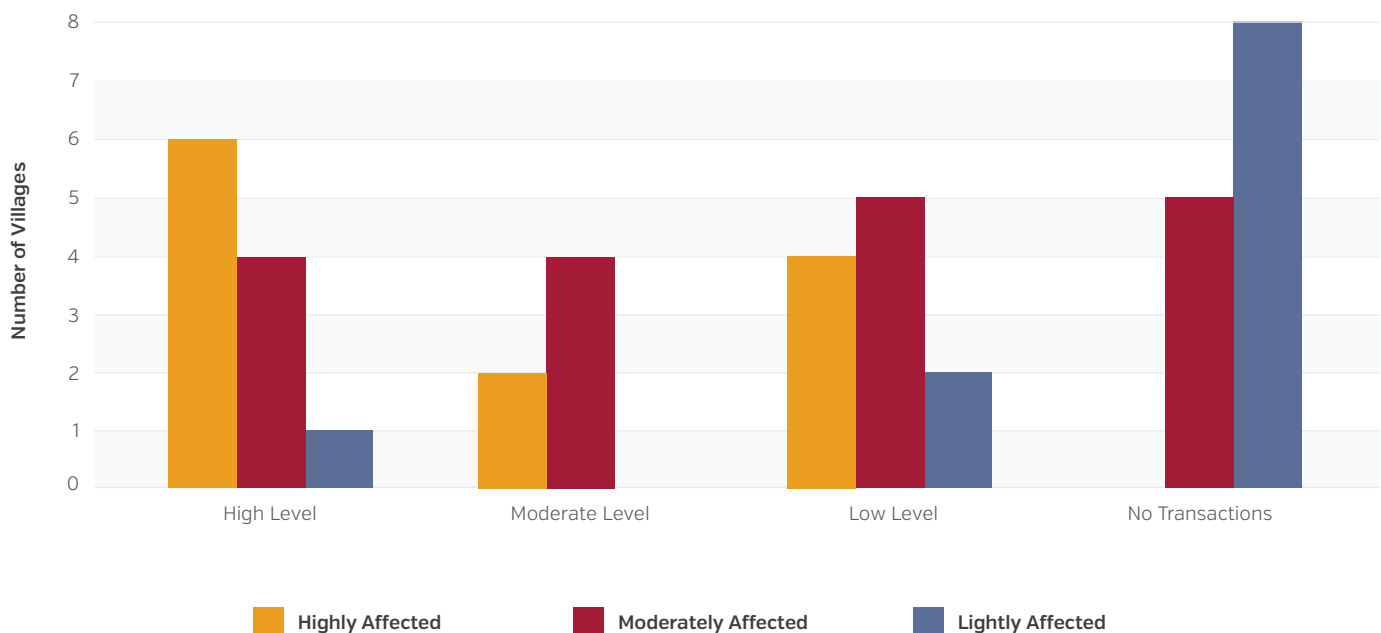
Continued economic strain led to an increasing number of land transactions ...

Low yield and continuing indebtedness had resulted in an increasing number of land transactions. Six months after Nargis, during SIM 1, farmers believed that, in case of difficulty in repaying their debt, creditors would extend the repayment period of outstanding loans because of their long-term relations. Many did not expect their economic woes to last for a protracted period. One year after Nargis, farmers reluctantly acknowledged that they would have to repay their debt by selling land if creditors lost their patience; and they soon did. With the farming crisis continuing and creditors in distress as well, land transactions started in 2009–2010 and intensified in 2011–2012. Unable to

repay their debt, farmers had to increasingly rely on selling, pawning, or renting out their land.

*Over one-quarter of sample villages saw a high level of land transactions since 2010.*²⁰ All but one of these villages were highly or moderately affected by Nargis (Figure 10). Only twelve villages saw no land transactions, none of them highly affected. The most common type of land transaction, in about half of the villages, was pawning (“le pyan ngwe pyan”, or “money return-land return”). The price of land varied from as low as 2 lakh per acre to as much as 15 lakh per acre. Most of the villages without land transactions were lightly affected, located in the townships of Kyaiklat and Ngapudaw, as well as three fishing villages where farming was less important to the local economy.

Figure 10 Level of land transactions since 2010 by degree of cyclone-affectedness



Box 8 Significant changes in landholdings

Case 1: One of the highly affected villages in Dedaye township had 32 farmers and a total landholding size of 426 acres. Of these, about 120 acres were now in the hands of three people—two paddy traders and a large farmer from the village.

Case 2: One of the highly affected villages in Bogale township had 98 farmers and a total landholding size of about 1,270 acres. A large farmer who also owned the village's licensed pawn shop now owned over 400 acres.

Case 3: In another highly affected village in Dedaye township with 43 farmers, 21 farmers from a nearby village came to own over 500 acres, which was half of the total landholding of the village.

Half of the highly affected villages had a high number of land transactions. This did not necessarily mean, however, that the situation regarding land was better in the other highly affected villages. Farmers in these villages reported that they wanted to sell their land if there were people willing to purchase it. The lack of demand for land resulted from the fact that much of the farmland was at a high risk of flooding and soil degradation since Nargis.

... leading to an increasingly unequal distribution of land

A highly unequal distribution of land was reported in six of the eleven villages with a high number of transactions. In five of these, most of the land owned by small farmers had been acquired by their creditors. Four of these villages were highly affected by Nargis, and villagers reported that a handful of people now owned between one-quarter and one-half of the total landholdings. The two remaining villages were moderately affected. There, too, most of the small farmers had lost their land (Box 8).

Debt, land transactions, and the Farmland Law

The Farmland Law affected village life in various ways. Villagers reported that the government was collecting lists of farmers who were actually engaged in farming. The farmers believed

that this information would be used to provide them with title to the farmland they were cultivating. This process was not without complications. Disputes had erupted in over half of the villages, involving farmers who had engaged in informal land transactions or used informally acquired land as collateral. In about one-fifth of the villages, there were around ten cases of disputes per village. In many instances, those farming or 'owning' the land were not the ones who held the original land user rights, leading to competing claims. Farmers felt that resolving these claims and establishing accurate lists would be a time-consuming process which would delay the formal registration and land titling process for everyone. Village leaders perceived many cases as politically instigated, in the sense that some of the political parties and people affiliated with political parties in the village were seen as instigating farmers to reclaim their land.

At least ten percent of farmers in nearly one third of the sample villages indicated that they would sell or pawn their land once the Farmland Law was fully enforced and their land was properly registered. This occurred especially in Dedaye and Kungyangon townships, where farmers grew two crops. They expected these transactions to be more profitable than selling or pawning land informally. In several villages with a strong farming sector, the price of farmland had increased from 5–6 lakh per acre to 10–15 lakh in 2012, which farmers attributed to the Farmland Law.

Coping Mechanisms

Many villagers had been employing various mechanisms to cope with the protracted economic crisis in their villages, and their resilience was wearing thin. As in previous rounds of SIM, coping strategies were of two kinds: increasing income and reducing expenditure. However, the intensity with which they were used had grown since 2010.

Strategies to increase income

Villagers of different livelihoods sought to increase income through five important ways: working longer hours, migrating, changing agricultural practices, selling assets, and changing livelihoods.

Working longer hours

People in all sample villages reported that they had to work longer hours in order to make ends meet. Small and medium farmers who could not produce enough on their own land needed to work as laborers on other villagers' lands during the growing and harvesting seasons. Their family members also had to work. Whereas before and right after Nargis the wives of farmers mostly stayed at home, cooked, looked after the children, and undertook other household chores, nowadays they had to work in the fields as well. Villagers noted that many house doors were closed during the daytime because all household members were out working—consequently reducing social interaction, an essential element of village life. Villagers generally found less time to rest these days, but women even less so (Box 9).

Villagers were supplementing their income through opening small grocery shops. SIM researchers found many more shops selling goods like betel, snacks, cooking oil, and rice than in 2010, especially in villages that were more accessible to towns. These shops were mostly owned by small and medium farmers who used remittances provided by family members who had migrated. Most of these shops were not sustainable for more than a few months. However, as the villagers to whom they sold on credit often were not in a position to repay. Moreover, shop owners frequently ended up consuming their stock as well.

Migrating

The most common coping strategy for laborers to escape from their hardship was migration. In 40 percent of the villages, two-thirds or more of the households had at least one member who had migrated. Migration was one of the most common coping methods used by Delta villagers of all livelihoods: farmers, fishermen and laborers. Immediately after the cyclone, villagers, especially laborers, migrated to escape job scarcity and the trauma left by Nargis. Many of these migrants returned to their villages a year or two later, as they found the working conditions in the towns and cities harsh and the wages low. Furthermore, farming in most of the villages seemed to have recovered. However, five years after Nargis, the Delta economy was still struggling, leaving migration as a last resort for many laborers.

Delta villagers did not migrate for economic reasons alone. Many migrants were between the ages of 17 and 25. Many more of them had been

Box 9 More people working longer hours in the Delta

A farmer reported that his family had been having dinner increasingly late over the last two years. His wife used to stay at home and cook and bring lunch to the farm at around 10:00 am. They used to have dinner when they came back from the farm, before it was fully dark. Now, all family members including his wife had to work outside the home. His three-year old grandchild had to be taken to the fields, as everyone at home had to work. His wife and daughters cooked only when they came back from the farm. They also had to wake up early in the morning at around 4.00 am to cook, in order to get to work on time. Now the family ate dinner late and altogether had less time to rest and to spend with each other.

migrating since 2010, with nearly half of village youth migrating in some instances. They ended up in big cities like Yangon and Patheingyi and worked mostly in factories. Some also worked in restaurants, homes, and shops. In one-third of the villages, one or two young people from a village would migrate to a big city and establish a network that other youngsters could tap into. Villagers reported that young people, including the children of farmers, were less interested on working on the family farms—the push of a village in crisis was amplified by the perceived attractions of life in the city.

Better transportation led to a new form of migration—daily commuting. Local seasonal migration is a long-established practice, especially during the growing and harvesting seasons of summer paddy. Since 2010, 6–7 villages had become better connected to growing urban centers (e.g., through daily boat schedules). For instance, villages in Kyaiklat benefited from the development of three universities in nearby Maubin district. Labutta had also grown because of development in its new town and subsequent road construction. Mawlamyinegyun now had a better road connection to Maubin and hence Yangon. Villagers took advantage of these improved connections by boat or bus and commuted daily to nearby towns, where many of them worked in rice mills and fish factories.

Fishermen found a coping mechanism of their own. After several years of declining catch, about half of the fishing families, particularly the younger generation, in eight villages that used to rely

on streams and rivers to fish (especially in Pyapon, but also in Bogale and Dedaye) found themselves working on big fishing boats in the Indian Ocean, staying away from home for months at a time. They were concerned about the risks on the high seas and their prolonged absences. But they migrated nonetheless for want of a better alternative.

Changing agricultural practices

Farmers in four villages, three in Mawlamyinegyun and one in Bogale, started to grow two paddy crops since 2010. Two of them had grown beans during the summer before Nargis. However, the price for beans had been fluctuating a lot after Nargis, and farmers had incurred significant losses. All these villages had suffered from reduced yields during the main (monsoon) season. By growing a second paddy crop during the summer season, many farmers had been able to supplement their income. However, many small and medium farmers could not afford the necessary investment to grow the second paddy crop. This coping mechanism also did not work in all agroecological areas of the Delta.

Selling assets and changing livelihoods

Farmers and fishermen had been increasingly relying on selling assets that sustained their livelihoods. Changes in livelihoods remained an important strategy to adapt to continuous economic distress. In addition to selling or pawning land, farmers had sold their farming tools, and fishermen sold their boats and fishing gears. This strategy

enabled families to maintain a minimum level of consumption. It also, however, deprived them of the means to regain their income. Between 2010 and 2013, between 20 and 50 percent of medium and small farmers became laborers in about half of the villages with poor farming conditions. This was even more common in the six villages with the highest number of land transactions, where small farmers lost their land to creditors or sold their land in order to repay their debt. Young people in about half of these farmers-turned-laborers families migrated to the big towns and cities, while the parents remained in their native villages and earned livings as laborers. At the same time, the trend of small fishermen becoming laborers continued in eight villages.

Strategies to reduce expenditure

In order to cope with economic hardship, people in the Delta also continued to apply a range of mechanisms to reduce expenditure, such as reducing the number of meals, social expenditure, and investment in farming input. Education and health expenditure had never been a high priority for villagers, and there were no official fees for primary education in Myanmar. However, there were instances where parents sold or pawned their land to send their children to high school or university.



Insert 1 How findings from SIM compare with findings from QSEM on livelihoods

Most of QSEM's findings until 2013 were consistent with those of SIM. QSEM found similar weather-related distress, low agricultural returns, and low profit margins across regions. This resulted in a high level of risk aversion among farmers to try new seeds and fertilizer, even if they were supplied by a nongovernmental organization. QSEM also found that in the Delta, small and medium farmers who lacked reliable fertilizer suppliers were often cheated with fake fertilizer, making them more reluctant to switch brands.

Mechanization also took place in QSEM villages. QSEM found that many farmers in the Delta had jointly rented power tillers, ploughs, and draught cattle since Nargis, often from large farmers, to replace the animals and equipment lost in the cyclone. The level of mechanization was not, however, on a large-enough scale to reduce work opportunities for laborers. Rather, among the most consistent findings across regions and QSEM rounds, including in the Delta, was increasing labor scarcity, owing to migration.

Among the challenges mentioned by fishermen in QSEM was the opacity in obtaining licenses, though this was beginning to change. There was a wide variation in the processes and costs for obtaining licenses across villages, and no receipts were ever provided. QSEM found in 2013 that the Department of Fisheries in Ayeyarwady had increased transparency in the fishing license auctions by moving the location from the region to the township level, which eliminated the middlemen, but most interviewed villagers were not aware of this change.

Consistent with SIM, QSEM also found higher levels of indebtedness, land disputes, and migration as signs of distress in all regions. In Mawlamyinegyun township, QSEM found a significant increase in the number of small-scale land disputes in 2013. In one village tract alone, there were 70 new land dispute cases in a year across six villages. The main drivers of the disputes appeared to be indebtedness and rising land prices. Most cases that emerged were connected to debt; many smallholder farmers who had informally lost their land through debt had begun, with the advent of the farmers' union and land registration, to reclaim their original farmland. The larger landholders, however, did not want to return this land. Meanwhile, there was an increase in the number of out-migrants in all QSEM villages in the Delta.

Reducing the number of meals remained an important way to reduce expenditure in about one-third of the villages, regardless of affectedness. Laborers were the worst-affected livelihood group. In 5–6 villages, about 10 percent of laborers, especially men, had started to skip their lunch and consume betel, cigars, and coffee and tea mix instead, which cost them only 100–200 kyat. This strategy may keep the balance in their households' books in the short-term, but, if continued for a prolonged period of time, may have adverse effects on their ability to work or require higher health expenses.

Reducing social expenditure was one of the most significant forms of reducing household expenditure. Of particular relevance were the costs for weddings and funerals. Small and medium farmers and laborers in almost three-quarters of the villages reported that they used to attend weddings and funerals of extended families even if they did not know them very well. Nowadays, they only

went to weddings and funerals of relatives or close friends, as they could no longer afford the cost of wedding presents or funeral-fund contributions. This may in turn weaken the social bonds within and between villages.

A crucial strategy for small and medium farmers to reduce expenditure in over three-quarters of the villages was to reduce investment in farming input, especially fertilizer, and labor. Over half of the farmers in these villages reduced their use of fertilizer by one-half to three-quarters. They commonly previously used two bags of fertilizer per acre but reduced the use of fertilizer to half a bag to one bag per acre. In addition, farmers in over three-quarters of the villages were no longer able to mobilize the resources needed to renovate the embankments, which had resulted in more frequent flooding of their farmland and required more frequent sowing (2–3 times). Inevitably, both these coping mechanisms had reduced yields and even led to crop failures.



Section 03

Social Relations

As a longitudinal study, SIM witnessed the changes in social capital of Delta villages, both positive and negative, that resulted from Nargis and subsequent local and national events, such as the aid effort, the socioeconomic impact of the cyclone, leadership changes, shifts in intergroup relations, and the introduction of new laws.

SIM 1 noted the remarkable social strength of Delta villages as they responded to the emergency by helping each other—sharing food, shelter, and labor, building homes—and contributing to rebuild village infrastructure such as water ponds, roads, and bridges. SIM 2 recorded the damage to social relations because of the real or perceived unequal distribution of aid among different socioeconomic, ethnic, and religious groups in many villages. By the time of SIM 3, less aid had noticeably reduced aid-related tensions, yet by SIM 4 some still lingered on. Overall, villages considered social relations mostly good or fair. At the same time, the economic decline in most of the villages resulted in fewer social activities, which had commonly helped cement social bonds within and between communities. Conversely, leadership and socioeconomic dynamics had a positive effect on social relations in many villages.

SIM 2 and 3 indicated that women were more empowered largely because of the aid effort. With aid having largely ceased, momentum toward women's empowerment has evolved along different tracks. While women were no longer members of newly formed development committees in the sample villages, women were elected as ten household leaders in two villages. Overall, however, women were again expected to abide by traditional gender norms. At the same time, SIM 4 saw more youth-led activities in many villages related to recent leadership changes. Relations between ethnic and religious groups in the SIM villages remained good overall, although communities with Buddhist and Muslim members were challenged by recent tensions in other parts of the country.

Political changes at the national level (elections in 2010, formation of a new government in 2011) and the local level (elections of village tract administrators in 2013) had a significant impact on the relationship between villagers and their formal leaders, mostly for the better. New leaders were elected in almost three-quarters of villages. Overall, villagers found the performance of leaders to be satisfactory. SIM 4 also observed a shift to a younger and more educated generation of local leaders.

Intra-Village Relations

SIM studied the social relations of the sample villages from different aspects: the relations between villagers, inter-ethnic and inter-religious groups, inter-generational groups, village leaders and villagers, and genders. Intra-village relations encountered ups and downs, owing to a number of factors: direct and indirect impacts of Nargis, the aid effort, socioeconomic challenges, and political changes. Many villages in the Delta had tackled these challenges successfully and maintained strong social bonds. However, in several cases social relations five years after Nargis were noticeably weaker than before the disaster.

Social cohesion and relations between villagers

Social relations were generally good ...

Social relations between villagers were considered good or fair in about three-quarters of the research villages. Where social relations were good, the community was organized and villagers undertook collective activities, mostly socioreligious tasks, and regular community work such as road renovation and pond cleaning. Where

social relations were poor, villagers were divided into different groups, and communal activities occurred only within these groups. Where relations were fair, villagers did not undertake many collective activities but also did not have conflicts or tension. Table 9 shows intra-village social relations in villages according to their degree of cyclone affectedness. About half of the villages with poor social relations were highly affected by Nargis, and one-third of highly affected villages had poor relations. Relations in moderately and lightly affected villages were noticeably better; over 80 percent of these villages had good or fair relations.

... and the aid effort strengthened local capacity

The aid effort had a positive impact on social relations in several villages, with villages more cohesive than before Nargis. Villagers who had been involved in aid committees applied their newly acquired organizational skills, were taking more initiative, and participated more in activities organized by the community (Box 10). With the end of the post-Nargis recovery phase, however, emergency aid committees were dissolved in sample villages.

Table 9 Intra-village relations by degree of cyclone affectedness

AFFECTEDNESS	GOOD	FAIR	POOR	TOTAL
Highly	3	5	4	12
Moderately	8	7	3	18
Lightly	5	3	2	10
Total	16	15	9	40

However, in the long run, aid also weakened social capital

Previously observed social tension between villagers resulting from real or perceived unequal aid distribution had largely been reversed. Within a year of Nargis, aid was targeted by aid providers to specific socioeconomic groups in most villages, with types of aid frequently inconsistent with needs.²¹ Since 2010, many highly affected villages experienced greater social tension since they had received more aid than lightly affected villages. Little aid reached villages affected

by Nargis, which in several instances contributed to improvements in social relations.

Five years after Nargis, social relations were poor in about one-quarter of the villages, in most cases, this was a result of the aid effort. In these villages, there was a noticeable lack of social cohesion. The participation of villagers in activities that had been traditionally communal, such as religious and village development activities, declined. While these activities continued, they were undertaken by smaller groups rather than the community as a whole. Table 10 summarizes the cases of poor social relations between villagers.

Table 10 Villages with poor social relations

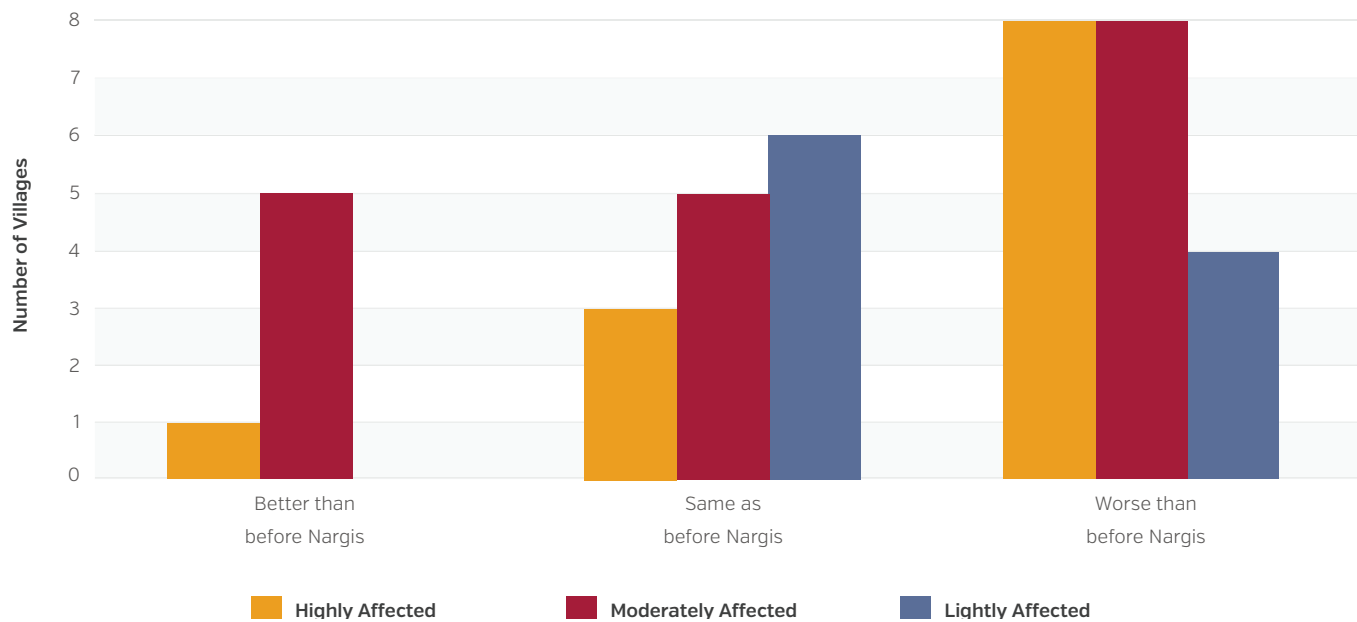
CASES	NUMBER OF VILLAGES
Division between those who were involved in beneficiary selection and aid delivery, and those who were not involved and considered these decisions nontransparent and corrupt.	4
Villagers divided into two groups owing to competition between two leaders, one the formal leader, the other one the leader of an aid committee.	1
In the initial years after Nargis, farmers had to hire laborers from other villages, as laborers from the local village did not want to work or demanded higher wages while they were receiving aid. Relations between farmers and laborers remained strained because farmers did not give work to many laborers in the village nor lent them money when they needed it.	2
Villagers divided into two groups that had differing views on the best location for a bridge to connect the two sides of the village.	1
Relations between inter-religious groups declined initially because of identity-based aid, which was provided to Muslims only, and recently because of the broader tensions between Buddhist and Muslim communities occurring in different parts of the country.	1

Box 10 How aid contributed to social cohesion

In one village two organizations emerged in 2011: a funeral organization and a social welfare organization. Both were initiated and led by middle aged and younger villagers, some of whom had been involved in the local aid committee right after Nargis. The funeral organization provided free funeral services to all households regardless of their economic status. The social welfare organization provided sick, poor elders with funds for healthcare using donations from the young members who contributed 1,000 kyat per month per person. Villagers remarked that the youth in their village became capable of undertaking such activities because of their exposure to and capacities gained from working in aid activities initiated by nongovernmental organizations.

Villagers in another highly affected village indicated that they enjoyed stronger community relations after a housing project by an aid provider. Before Nargis, the houses of their village had been scattered in small hamlets and villagers would meet only on religious or social occasions, rarely helping each other. After Nargis, everyone in the village received a house by a donor based on a community plan. Each house had a garden, and roads and ponds were also built. As villagers were now living next to each other they had come to know each other better, understand common challenges, and had started helping each other. For example, they shared reusable diapers and food and took care of each other's children. The villagers reported that they now enjoyed village life much better.

Figure 11 Changes in intra-village relations by degree of cyclone affectedness



... and social relations were no longer as strong as before Nargis

Social relations weakened in the longer run. In six villages social relations were better than before Nargis, in two villages owing to an improved socioeconomic situation and in four other villages owing to leadership changes. Three of the six villages with better social relations had good economic conditions. In half of the sample villages, however, relations were considered worse five years after Nargis compared to before the cyclone (Figure 11). In eleven of these villages, improvements were observed right after Nargis, but the situation had deteriorated since then. By 2013, intra-village relations were especially worse in highly affected villages. Two-thirds of these villages showed worse relations than before Nargis, compared to less than half of the moderately and lightly affected ones.

Villages responded to socioeconomic challenges differently

The socioeconomic challenges villagers faced had some positive impact. In three villages where laborers constituted the majority of the population, family members of small and even medium farmers became laborers on others' farms and in factories in order to cope with the lack of profitability in farming. These villagers benefited from their interactions in a range of social and development activities (Box 11).

More often, however, socioeconomic challenges had a negative impact on social cohesion. Many villagers reported that they had had more extensive religious activities before Nargis sponsored by better-off families (especially large farmers), with the rest of the villagers contributing small donations and labor. Now those better-off families were struggling financially and were no

Box 11 How economic hardship strengthened the social fabric

In one village, young people from both farming and landless households worked in factories in Yangon in order to earn a living. They had come to know each other better in Yangon and were looking after each other in an unfamiliar city. The families they left in the village also became closer because the remittances, information, and other items the migrants sent home were often delivered together. The young migrants returned to the village on holidays and contributed money and labor for religious occasions. The villagers reported feeling more united now, regardless of their economic status.

In another village, several farmers had become laborers to continue providing a living for their families. They respected the established laborers in the village because these laborers were better skilled and had good networks. At the same time, as the group grew in size, laborers became more powerful and were able to negotiate higher wages. At the time of SIM 4 research, the group was led by a youth group leader, who decided to be more flexible with rules ever since former farmers joined the group. For example, he permitted smoking during working hours. With most of the village youth taking part in the group of laborers, it was also easier to organize human resources for social events. Between 2010 and 2011, the laborers gave financial and labor contributions to renovate roads and bridges and rebuild a classroom in the village school.

Box 12 Failing to break the glass ceiling

One woman in Kyaiklat township came from a well-off farming household. Before Nargis, she did not participate much in village affairs, except in supporting roles, and focused on working on the family farmland and doing household chores. After Nargis, she took up a leading role in an aid committee for about three years and became influential in the village. During that time, she helped resolve a number of important issues in the village. Nevertheless, the village tract administrator, informal leaders, and village elders criticized her repeatedly for trying to transcend traditional gender roles. As a result, her mother and husband pressured her to stop being involved in any village affairs, as they thought her contributions were not only under-acknowledged but also undeservingly castigated. Finally, she complied and stopped taking part in village affairs. And thus a village lost an active and well-meaning leader because traditions dictated that women should not lead.

longer able to afford large donations. In some cases they had moved to towns in order to find new economic opportunities, as farming alone was no longer profitable. Without these donors, villagers could not muster enough resources to organize the religious activities that used to be an important venue in which to strengthen social cohesion between community members. Another reason for the decline in such activities was increased migration among their main participants, the villagers of working age. Moreover, with villagers having to work longer hours, they found less time to socialize with their neighbors.

Relations between ethnic and religious groups

While relations between ethnic and religious groups had deteriorated right after Nargis in five of the nine heterogeneous sample villages because of identity-based aid, they had normalized as aid activities ceased.

Five years after the cyclone, however, relations between religious groups were considered weaker in these five villages compared to before Nargis. Social relations were strained especially in villages with Muslims and Buddhists because of the recent tensions between these two groups in other parts of the country. Villagers indicated that they were dealing with each other carefully and were no longer as comfortable in engaging with each other. For instance, Muslim villagers in one village reported that social interactions between the two groups had diminished because of a ban on celebrating Eid in 2011. Eid used to be the occasion when the two communities interacted most closely with each other.

Relations between religious leaders played an important part in shaping relations between religious groups. For instance, in one village, a Buddhist leader remarked that the relations between Muslim and Buddhist villagers had declined after the death of the older generation of leaders in Nargis. The elders from the Muslim community in their village had been friends with the elders from the Buddhist community; a Muslim elder was even considered among the respected informal village leaders. With the passing of the Muslim elders during Nargis, the younger generation of Muslim leaders rarely interacted with Buddhist elders, and relations had suffered since then. A similar case was found in a village with Christian Karens and Buddhist Bamars. Relations between the two communities had been good before the death of a Karen village leader in 2011 who had paid attention to both Karen and Bamar interests. Relations between the two different communities had declined since.

On the whole, villagers maintained social bonds across religious groups in spite of the deterioration of relationships elsewhere in the country. For instance, Buddhist leaders and elders in one village where nearly half of the population is Muslim stated that the relationship between the two groups worsened owing to the “identity-based donation of twenty houses to Muslim villagers”. However, they also indicated that village leaders were still supporting all villagers who were in need of help. They pointed to a village health fund as a good model for the provision of aid across religious boundaries in the community, as both Muslims and Buddhists participated in its management and villagers from both faiths benefited from it. SIM 4 researchers found Muslim and Buddhist villagers working together collegially as members of the committee for the management of the revolving fund.

Gender relations

Most women who used to participate in aid committees were no longer part of village development committees. During SIM 2 and 3, women were actively engaged in local committees established by aid providers. Five years after Nargis, there were development support committees formed by the government in early 2013; in a few villages these new committees were based on the post-Nargis emergency committees but without the female members. Instead, most former female committee members had once again assumed traditional gender role, working for the family business or farm and/or undertaking household tasks.

Instead, the momentum toward women’s empowerment had evolved along new tracks. Rather than maintaining their role in development committees, women were making inroads in broader village affairs. In two villages, women were elected as ten household leaders in 2013, the first time this had happened. Prior to this, formal village leadership was firmly in the grasp of men. The villagers who elected the women considered them capable because they had gained experience as members of post-Nargis aid committees. Several other women in other villages indicated that they would have stood for elections if they had known that they were eligible to do so. Nevertheless, traditional gender roles continued to limit women’s potential to participate in formal village leadership. Researchers encountered a case of a woman who decided to enter the elections for village tract administrator and retreated because male village elders, family members, and even her husband were unsupportive. While gender relations were considered good in all villages, access to formal leadership roles for women in Delta villages continued to remain severely limited (Box 12).

Table 11 Inter-village networks

NETWORKS	NUMBER OF VILLAGES	REMARKS
Health-care extension	13	2 villages in Pyapon, 4 villages in Labutta, 4 villages in Mawlamyinegyun, and 3 villages in Dedaye. Different NGOs provided financial and technical support in different townships.
Human trafficking	33	In Kungyangon township.
Youth	3	1 Pyapon, 2 in Mawlamyinegyun.
Fishery development	71	2 networks covering many villages each, 1 in Pyapon and 1 in Dedaye. This network started in 2009 with 26 villages.

Box 13 Competition for power between villages

Villagers from a tract village (village A) remarked that their relations with one of the villages under the tract (village B) had been poor because of the competition for power. According to the villagers, this competition started in the village tract administrator election, in which a candidate from village B was elected. The villagers from village A perceived that it was the wealth of the other village that helped him come into power. They did not like it when the villagers from village B no longer sent their children to the middle school located in their village. Instead villagers from village B hired more teachers for their primary school and started a middle school in their own village. The villagers from village A thought that villagers from village B acted like this because they now felt more powerful.

Intergenerational relations

The younger generation was again taking a more active part in village affairs. Right after Nargis, young people became engaged in the aid effort and assumed greater prominence in village affairs. This role, however, diminished over time with the decline in aid. Five years after Nargis, they once again asserted a greater presence, a development linked to the broader political changes in Myanmar since 2012. The village administrators who were elected or selected in 2013 in most of the villages were middle-aged, and villagers felt that they were better at working with youth than leaders in the old regime.

At the same time, previous leaders had withdrawn from village affairs. Many former informal leaders (village elders and respected persons) in the sample villages had supported the National Unity Party (NUP) in the 2010 general election. When the NUP failed to win more than a few seats in the upper and lower houses of parliament, these once actively engaged and influential elders became discouraged and progressively withdrew from village affairs. This generational change in village leadership did not have an adverse effect on the relationship between younger and elder villagers.

Inter-Village Relations

Inter-village relations in the sample villages were good overall, but the frequency of interactions had diminished. In one-quarter of the villages, villagers from different villages worked together to, for example, renovate ponds, roads, and monasteries. Villagers in three-quarters of the villages, however, reported participating less in social and religious activities in neighboring villages because of economic hardship.

Activities initiated by local and international nongovernmental organizations (NGOs) since 2010 had become an important venue in which to strengthen inter-village relations. These activities were not related to the post-Nargis aid effort, and may have been linked to other concrete projects. Villagers often identified themselves as belonging to a particular network (Table 11). According to the villagers, they were familiar with other villages because of villagers involved in the same network. For example, villagers may not know the name of a village but called it “the village of Maung Maung”

since a villager called Maung Maung represented this village in the network. A case in point were villages in Mawlamyinegyun and Bogale townships where different nongovernmental organizations established a network of health workers. The organizations trained the health workers together, and now the health workers were looking after the health of the villagers. The township health department also took part in this effort. Village health workers came together at monthly meetings held at the township where they met with government health workers. They also reported emergency health situations in their village to the government health department.

SIM 4 found a few cases of new inter-village rivalry. It was common for some competition to exist between the tract village and some larger villages in the same tract. However, the village tract administrator election intensified this rivalry in three sample villages during the election period (Box 13). This rivalry was observed in three sample villages.

Insert 2 How findings from SIM compare with findings from QSEM on social relations

Consistent with SIM, QSEM found that social cohesion across regions was strong, though several villages faced tension over the election for village tract administrators. By mid-2013, every QSEM village except six in Shan State had held elections for their village tract administrators. These elections became an important locus of competition. In Ayeyarwady, Rakhine, and Magway, strong competition or social tension around the electoral process arose in one-third of the sample villages, though the competition also became a means for villagers to select better leaders. QSEM also noted that the lack of reference in the law to the role of the 100 household leader at the village level led to ambiguity and, in some villages, a leadership vacuum. In some townships, such as in Labutta and Mawlamyinegyun in Ayeyarwady, the newly elected village administrators appointed de facto 100 household leaders in their villages. In other townships, however, such as in Bogale, the role of the 100 household leader effectively disappeared from villages, which caused confusion and a leadership gap at the village level. Unlike in SIM, there was less mention of lingering tensions owing to aid delivery.

QSEM's findings on the consistent lack of women in leadership roles did not differ much from SIM's. QSEM found that public institutions in which women participated most were traditionally and specifically set up for women, such as women's groups for religious functions and village development committees. In all of these groups, women rarely made the key decisions, even to the extent of what carries to make; they would provide comments and ideas, but men would make the actual decisions.

Leadership and Institutions

National political reforms had an immediate local impact

There were some important changes in formal leadership at the village level. Political reforms and the shift to a new government in 2011 led to changes in administrative policies at the village tract and village levels. In the village tract administrator elections in early 2013, villagers in twenty-six villages chose new formal leaders, in thirteen villages former leaders were reelected, and in one village no formal leader was elected. Owing to a more open and participatory way of selecting formal leaders compared to the previous regime (Box 14), villagers were able to choose those whom they felt were best suited for leadership positions.

The profiles of new and old leaders differed quite considerably

There were some noticeable differences between old and new leaders. New leaders were noticeably younger; over half were between the ages of 18 and 45, compared to fewer than one-third of the former leaders (Table 12). Newly elected leaders were also more educated, with almost three-quarters having completed higher education compared to just over half of the old leaders. As during SIM 3, economic status continued to play an important role in the selection of formal leader. Half of the formal leaders chosen were considered well-off, with newly elected leaders somewhat better off than old leaders.²²

Table 12 Characteristics of old and new leaders

CHARACTERISTICS	REELECTED FORMER LEADERS	NEWLY ELECTED LEADERS	TOTAL
Total	13	26	39
Age 18–45	4	14	18
Good economic standing	6	14	20
Education [University or high-school graduate]	7	19	26

Table 13 Leadership and cyclone affectedness

AFFECTEDNESS	NEW LEADER	LEADER AGE 18–45	EDUCATION*	TOTAL
Highly	8	5	6	12
Moderately	12	9	14	18
Lightly	6	4	6	10
Total	26	18	26	40

*University or high school graduate.

The degree of cyclone affectedness did not appear to correlate with differences in leader characteristics. Roughly two-thirds of villages, regardless of affectedness, chose new leaders (Table 13). The age structure of leaders was also similar, with leaders over 45 years old slightly outnumbering younger leaders. Highly affected villages had a lower proportion of highly educated leaders, however: one-half compared to an overall average of two-thirds.

The majority of villagers were satisfied with their leaders

In three-quarters of the villages, people were largely satisfied with the performance of their current formal leaders. During the first two years after the cyclone, aid and recovery activities created more responsibilities for formal leaders, more important roles for informal and religious leaders, and new spaces of participation for villagers. Five years after Nargis, the relations between villagers and their leaders were good and neutral in 21 and 9 villages, respectively (Figure 12).²³ The most common reasons villagers cited for their satisfaction included financial contributions to and active participation in social, religious, or development affairs of the village; good interpersonal skills; integrity; and prior experience in village administrative activities (Box 15).

Villagers' perceptions of their leaders did not depend on age

Regardless of age, villagers had a positive or neutral perception of four out of every five leaders. Slightly less than half of the leaders were between the ages of 18 and 45. SIM 4 researchers found that in most cases, younger formal leaders were able to develop collaborative and mutually respectful relationships with older informal leaders in the village. Villagers liked young leaders; they

Box 14 How are formal leaders selected?

Before 2011, the Village Tract Peace and Development Councils (VTPDC) and Village Peace and Development Councils (VPDC) had been the official administrative entities at the village tract and village level, respectively. The method of choosing members of VTPDC and VPDC varied from place to place, but the most common ones were direct appointment by higher-level authorities and nomination by village elders. However, with the demise of the State Peace and Development Council (SPDC) in 2011, VTPDCs and VPDCs also ceased to exist. The current way of choosing formal leaders at the village and village tract level changed drastically with the Ward or Village Tract Administration Law of 2012.

Now village households select '10 household leaders' through informal elections. Then, these 10 household leaders elect the village tract administrator through voting. Five Yat Mi Yat Pha are also elected at the same time. Because a village tract can be comprised of many villages, not every village can have a Yat Mi Yat Pha. For these villages, the village tract administrator commonly designates an administrative official from among the 10 household leaders (commonly called by villagers '100 household leaders') in consultation with village elders and respected persons. In most of the sample villages, the preselected candidate was then confirmed by consensus at a village meeting.

Fifteen of the sample villages were home to a village tract administrator. The other villages were led by 100 household leaders, village elders and respected persons, and 10 household leaders as follows:

HIGHEST FORMAL LEADER POSITION	NO. OF VILLAGES
Village tract administrator	15
100 household leader	19
Yat Mi Yat Pha *	2
10 household leader	3
No formal leader	1

* Village elders and respected persons.

Box 15 Poor social relations turned around by good leadership

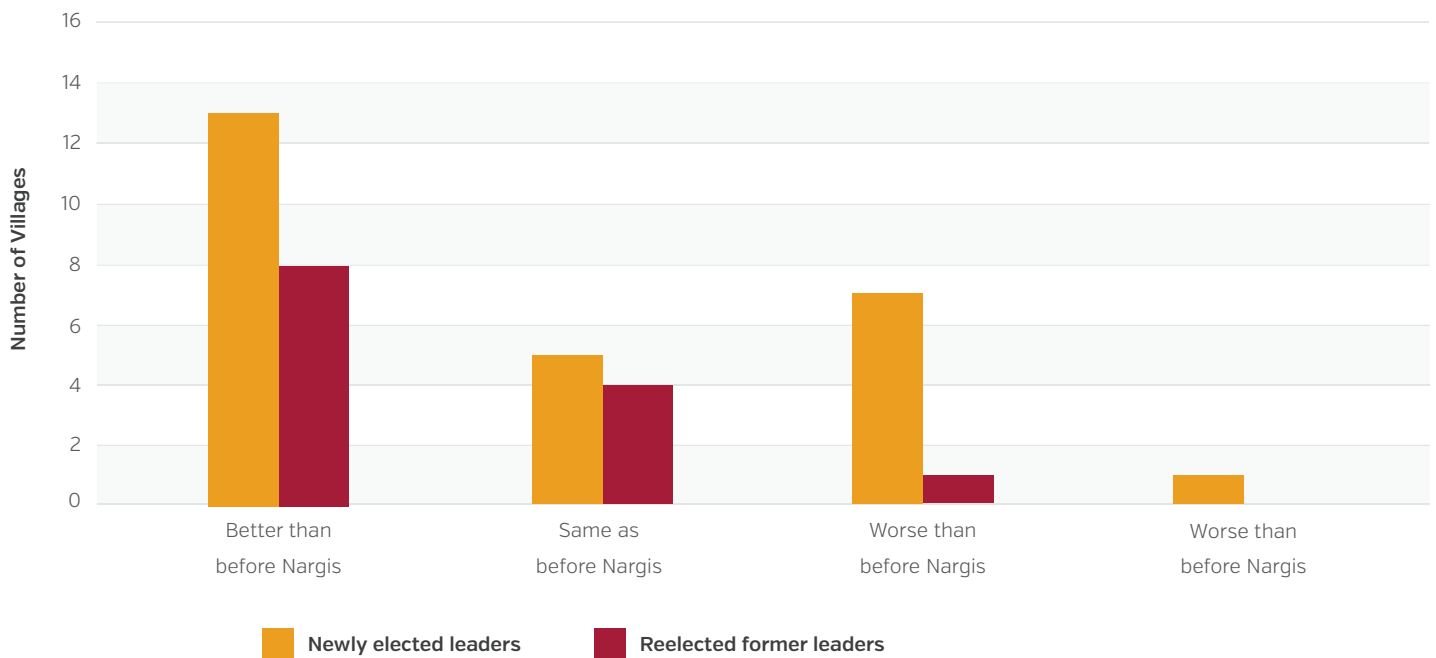
In a village in Labutta, there had been tension between villagers since 2011, when the community jetty and bridge were built. The tension had started between two different livelihood groups: fishermen in the lower part of the village and farmers in the upper part. At the time, the village tract administrator appointed a 100 household leader who lived in the upper part of the village. The villagers in the lower part thought that the 100 household leader was biased in favor of the upper part in every dispute that arose between the two groups regarding the provision of external assistance. At the 2013 election, a new village tract administrator was elected from another village.

As the number of households was over 170, he assigned a 100 household leader each to both the upper and the lower parts. The new village tract administrator was a university graduate, and the villagers felt that he had the right approach to addressing village needs and discussing them with the township. Consequently, the whole village supported his decision. Since he was a rich man who owned over 100 acres of farmland, he also contributed to projects in cooperation with the township, for example, to the renovation of the village health center and to land registration of the whole village. Because of his efforts, the village gradually became united again.

Table 14 Leadership perceptions and cyclone affectedness

AFFECTEDNESS	POSITIVE	NEUTRAL	NEGATIVE	N.A.	TOTAL
Highly affected	4	4	4	0	12
Moderately affected	10	3	4	1	18
Lightly affected	7	2	0	1	10
Total	21	9	8	2	40

Figure 12 Villagers' perception of their formal leaders



were considered as having good social relations, being more educated than the older generation, having more exposure to donors because of the training they had received from aid providers and international organizations, having better connections with authorities and officials in the township, having better initiative in collective work in the villages, and being more willing to provide villagers with monetary and labor support (Box 16).

Although the legitimacy of the formal leaders was rarely questioned, they were not always the most influential in the village. As during previous rounds of SIM, the lines between formal and informal leaders were often blurred. In many villages, village elders and religious leaders had the power to challenge the decisions of the formal leaders, and therefore, provided an important check on their authority. In eight sample villages, five of which had new leaders, informal leaders had more say than formal leaders in making decisions for the village. In five villages, religious leaders appeared to be the most influential because villagers were more willing to listen to them than to formal and/or informal leaders. In all but six villages, the core group of village leaders (including formal, informal, and, in some cases, religious leaders) was found to be working together effectively.

A minority of leaders was perceived negatively by villagers

Villagers had a negative perception of their leaders in one-fifth of the sample villages. Particularly noticeable was the fact that seven of these eight villages had newly elected leaders (see Figure 12). Highly and moderately affected villages accounted for all these cases (Table 14). In relative terms, one-third of all highly affected villages were considered to have poor leadership, but only less than one-quarter of the moderately affected villages did.

Box 16 Leadership matters for social cohesion

In one village, many villagers, regardless of age and gender, reported that their village had become more united and organized for village development and religious activities under the leader who took office in early 2013. Until then, the village had been led for over 15 years by a 100 household leader²⁴ above the age of 55. Villagers did not like the former leader because he cared more about his relations with his superiors than about the interests of the village. Even worse, most of the villagers believed that he had misused a lot of the aid that the village had received after Nargis.

After the village tract election in January 2013, the newly elected village tract administrator initially asked the old 100 household leader to continue to lead the village. But villagers, including several elderly and respected persons and members of male and female youth groups, went to the newly elected tract administrator and asked that a new village leader be appointed. They proposed that the 44-year-old village healthcare worker who had received training from a nongovernmental organization to be the new village leader; he was also the leader of the male youth group. In response to the request of the villagers, the village tract administrator visited the village, consulted with the village elders and other villagers, held a village meeting, and appointed the proposed 100 household leader with the approval of the villagers.

Since his appointment, the new 100 household leader would discuss the needs of the village with different groups but especially with young people as the ones who would implement the activities. He would also acquire the endorsement of the village elders. Within a few months of him taking office, the village road was upgraded, the village drinking-water pond was fenced, and the two village bridges were renovated. The villagers willingly provided monetary and labor contributions. Poor elders and the disabled were exempted from contributions, and the gap was filled by village youth and by fines imposed on those who violated village rules, such as villagers who were violent to others when they were drunk. Villagers mentioned that the former village leader did not pay attention to the needs of the village. The youth also mentioned that the villagers had been following the village rules introduced by the new leader, such as restrictions on the hours to fetch water in order to save water during the summer. If the rules had been in place under the former leader they distrusted, the villagers would not have followed them.

Box 17 Elected, but ineffective

In a village in Kungyangon township, villagers were dissatisfied with the performance of the new village tract administrator. The waterways beside their farmlands had become too shallow and the village required support from the government to repair them. The villagers asked the village administrator to request help from the township and he mentioned the problem to the township administrator. The township administrator replied that he would provide machines with the villagers covering the cost of fuel. But the monsoon paddy season arrived and no machine ever came. Therefore, the villagers asked the village administrator to contact the township administrator again, but he did not do so.

Moreover, compared to the former village tract administrator, he did not actively try to address village needs. The former administrator had paid attention to the needs of the village after Nargis and had requested assistance from the township authorities. This was how the village road, bridge and ponds had been rebuilt. Comparing the current and former village administrators, the villagers were not satisfied with the current leader.

In three cases, villagers simply considered the performance of new leaders to be inadequate and ineffective. In other villages they were perceived as incapable of solving problems, and lacking experience and influence in the village (Box 17). They were seen as relying too much on the police to resolve more complex issues, such as fights between neighbors and gambling.

The shadows of ineffective aid could still be seen five years after Nargis

SIM 4 found vestiges of tensions between villagers and their leaders that had resulted from the aid effort. Previous rounds of SIM found that real or perceived inequalities in aid distribution sometimes became the primary cause of complaints against village leaders. SIM 3 research reported signs of tension between villagers and their leaders in 21 villages. In SIM 4, tension was still encountered in 16 villages (Table 15). Highly affected villages

accounted for half of all cases, and two-thirds of all highly affected villages suffered from aid-related tension. In comparison, less than 40 percent of moderately affected villages showed tension.

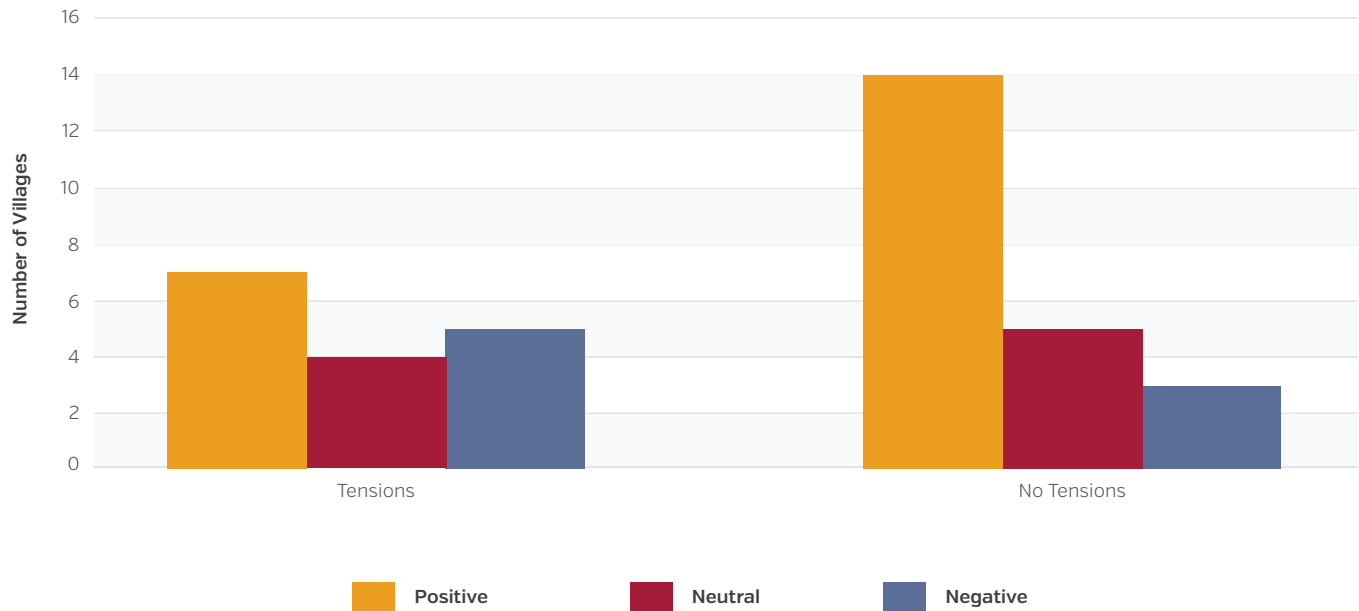
Over two-thirds (11) of the villages with aid tension had newly elected leaders. This may indicate that villagers elected new leaders in order to resolve long-standing conflicts. Given the short timespan between the local elections and SIM 4, these leaders might not yet have been able to resolve the conflicts.

However, the presence of aid-related tension did not automatically translate into negative perceptions of village leaders. Villagers had negative perceptions of their leaders, owing to aid issues in only five villages (Figure 13), down from six villages during SIM 3. Four of these villages had newly elected leaders. In three villages, there was a clear division between leaders or groups in the

Table 15 Aid-related tensions by level of cyclone affectedness

AFFECTEDNESS	TENSION	NO TENSION	N.A.	TOTAL
Highly	8	4	0	12
Moderately	7	10	1	18
Lightly	1	8	1	10
<i>Total</i>	<i>16</i>	<i>22</i>	<i>2</i>	<i>40</i>

Figure 13 Aid-related tensions and the perception of leaders



village: one village was divided into two between the rich and the poor, and two villages were divided into three groups, owing to social tension and distrust that had arisen from a perceived inequality in the distribution of aid. These divided groups had their own formal or informal leaders, who did not collaborate well with each other. In the two other villages, there were Karen and Burmese villagers. Although the relations between these two ethnic groups were good and no explicit social tension was reported, it was hard for the formal leader from one group to have an influence on the other group.



Section 04

Recommendations and Reflections

Much as was the post-Nargis aid effort, the monitoring of social impacts in Myanmar was undertaken at a unique time in the country's history. As such, it provided insights into village life at a time when research about state-society relations at the local level was otherwise restricted. These insights proved valuable when political developments allowed deeper engagement with and support to the local population, for instance, through the multi-donor Livelihood and Food Security Trust Fund and the National Community Driven Development Project.

To some degree, the unique political circumstances determined the particular usefulness of SIM. Rarely would a major disaster and relief effort happen in a country with so little understanding among the international community. Consequently, some lessons from SIM are specific to the place and time in which it was undertaken. Then again, the social impacts of natural disasters have rarely been studied as thoroughly as after Nargis, and therein lie many

lessons that are applicable in other contexts as well. This recognition led to the development of the social impacts analysis methodology by the Global Facility for Disaster Reduction and Recovery,²⁵ and the use of this methodology in several post-disaster assessments since, such as in the Philippines, Thailand, Pakistan, and Bolivia.

The report's final section has three parts. It first provides some recommendations on what the aid effort could have done differently, as seen by SIM. It then continues with some insights regarding the relevance of qualitative post-disaster social monitoring. It ends with reflections on broader lessons learned from SIM's longitudinal effort. The discussion recognizes the political and logistical complexities of operating in a country that was facing international sanctions. Nevertheless, SIM assessed the aid effort and path to post-disaster recovery over time through the eyes of affected villagers. It thus offers important lessons for future post-disaster assessments and aid efforts.

Recommendations for Post-Disaster Aid

Aid was critically important in the aftermath of the cyclone. It not only helped save lives when there were severe concerns about the outbreak of diseases among the survivors.²⁶ It also provided the affected people with a sense that they did not have to face the enormous challenges of recovering from the disaster all on their own. Much of the initial aid was local and civil society driven and was highly beneficial to the affected villages. Although the government at the time initially restricted outside aid to the affected region, it quite quickly opened up the Delta to the international aid effort. Post-disaster aid may have ended by 2010, but its direct and indirect impacts continued for a long time thereafter.

Three broad themes can be discerned from SIM regarding the aid effort: what aid was provided, how it was provided, and how it linked to the broader policy context— all of which could inform the design of future post-disaster assessments and aid efforts. These recommendations, while largely drawn from of SIM 4 research, confirm the salient findings of previous rounds of SIM.

What aid was provided, and how much?

It may seem obvious, but it is worth stating that aid should to be targeted according to the needs of disaster-affected populations. SIM showed that the aid provided was highly valued by the villagers. However, it was not always what the villagers needed most, and it did not adjust to changing needs during the recovery period.²⁷

In addition, in many instances aid providers used preconceived criteria for targeting (for instance,

those who had been the poorest in a village prior to the cyclone), even if these were not consistent with village social norms or the post-disaster reality. Aid during the post-Nargis period from 2008–2010 was provided in a very constrained political context, and the State Peace and Development Council (SPDC) paid close attention to the involvement of both external and internal donors. This in itself did not, however, explain why the goods that donors provided were not always among the villagers' own priorities.

Even in the unique context of Myanmar at the time, opportunities existed to solicit the views of the population for targeting the relief and recovery effort and to anticipate changing needs, as SIM itself demonstrated. Indeed, in some ways, the special context of Myanmar should have made this easier: although the government lifted restrictions on travel and aid to the Delta, some of its regulations in other areas (such as with visas) meant that it was mostly nongovernmental organizations with long-standing operations in Myanmar that delivered assistance. This implied that the overall aid effort was more coordinated than in many other post-disaster settings and conducted by organizations with a deeper contextual knowledge than most.

Recovery aid also needs to consider cumulative impacts that may evolve over time, including those that result from aid interventions. A particular case in point was the focus on providing fishing boats and gear to villagers, even in villages where fishing had not been an important livelihood. Moreover, the nets

were often not suitable to catch the local fish. This aid, therefore, contributed to overfishing in several areas and to the eventual decline of fishing as a viable livelihood option in many villages. Similarly, a fuller understanding of the direct and indirect effects of Nargis in highly affected farming villages could have guided aid providers to invest more in rebuilding embankments and desilting streams to make communities more resilient to the impacts of subsequent natural events. Equally important would have been a concerted effort to recover yield levels as the cornerstone of sustainable farming livelihoods in the Delta. Consequently, the relevance of aid interventions ought to be monitored and interventions adapted when they no longer address people's needs.

Aid that focuses solely on the poor may miss other occupations in the value chain that are critical to long-term recovery. Large and medium farmers are among the most important providers of work and credit in the Ayeyarwady Delta. Small fishermen depend significantly on fish collectors to provide loans and purchase the catch. Prior to Nargis, large and medium farmers as well as fish collectors had clearly been better off than small farmers and fishermen. But, although they were equally affected by the cyclone, they received little assistance from aid providers. Not having been able to recover on their own, many were increasingly unable to provide work and loans.

Cash transfers can empower the survivors of a natural disaster. A few donors provided cash assistance in the aftermath of the cyclone. However, the political situation at the time precluded the provision of cash on a larger scale. On all accounts, villagers appreciated this type of aid the most, since they could use it to cover the needs that were most important to them.²⁸ According to villagers throughout the four rounds of SIM, those who had no, or who had lost their, informal safety net (for instance, those who lost the breadwinner or elderly survivors without a family) found themselves in

the direst predicament. The risk of dependency notwithstanding, targeted cash transfers, whether conditional or unconditional, could have helped ease their severe livelihood concerns.

In most post-disaster situations, the aid provided is insufficient to meet everyone's needs, and Myanmar proved to be no exception. The largest portion of post-Nargis aid was provided within the first year of the cyclone, even though the Tripartite Core Group remained in place for another year. Four years would pass after Nargis before political developments allowed for a deeper engagement of the international community. The Ayeyarwady Region and the Delta area have never been among the poorest areas of Myanmar, and development assistance after the political opening in 2012 focused on other parts of the country. Aid to the Delta was no longer seen in a post-disaster context, even though the socioeconomic situation in highly affected areas in the Delta would still justify targeted recovery assistance.

How was aid provided?

The disconnect between needs and aid indicated that communities were not much involved in making decisions about their own aid. SIM 1–3 noted that aid decisions—which type of aid to provide and who should receive it—were mostly made by aid providers. For the most part, villagers were only involved in identifying the beneficiaries in the community. SIM has documented that this approach created tensions between villagers and between villagers and their leaders from early on. It noted instances where villagers refused to become involved unless the targeting mechanism changed or where they decided to redistribute aid according to their own priority. Some nongovernmental organizations demonstrated that post-disaster response speed and community participation were not mutually exclusive; rather, they could reinforce each other and enhance aid

effectiveness. By and large, however, communities were treated as passive recipients of aid.

Traditional aid providers (external donors and nongovernmental organizations) frequently set up local committees to assist with the distribution of aid. They expressly included women and young villagers in these committees in deviation from customary rules. They also provided training to committee members so that they could properly undertake their responsibilities. This investment in human resources transcended the post-Nargis recovery period, as many former committee members continued to use their skills for the benefit of their communities, a fact much appreciated by the generality of villagers. For women, this involvement in local decision-making was also an important driver toward greater gender equality, even if traditional norms were frequently reasserted once the aid effort had ceased.

SIM research indicated that aid was delivered most effectively when local formal leaders were part of the decision-making process.²⁹

Given the specific political context at the time of the disaster, however—Village and Village Tract Peace and Development Committees were an extension of the State at the lowest level—external aid providers found it difficult to involve local formal leaders. Many attempted to bypass the leaders by setting up single-purpose committees to distribute their aid, oftentimes regardless of other committees that other aid providers may have established. In setting up parallel structures, they created tensions between villagers and their leaders in many villages, exacerbated by the lack of solid communication and grievance redress functions. These tensions weakened social cohesion and in many instances continued long after the aid itself had ended. In addition, local committees established by aid providers ended when the aid ended, while formal local institutions continued to exist. In the specific case of Myanmar, these institutions also

underwent an enormous transformation toward a more representative form of governance. By altering the relationship between villagers and their formal leaders, the aid effort contributed to a certain institutional disorientation that did not always serve the communities' longer-term cohesion.

Post-disaster aid and sector policies

The post-Nargis recovery effort was hampered by a set of policies governing rural development in Myanmar. Policies of particular importance included those regarding land tenure (all land belonged to the State even though informal transactions were frequent); agricultural production (rice quotas were set and instructions were given for which crops to grow); fishing licenses and formal credit (vastly insufficient funding from formal sources), among others. Adjustments to these policies would have facilitated recovery tremendously but were impossible for external donors to pursue with the State Peace and Development Council.

Depending on the stage of recovery, sector policy reforms had different impacts. The government that came to office in 2011 introduced many policy reforms, for instance, the Land Law, which introduced individual title to land. Many villagers viewed it as a blessing that would help them mobilize more resources to increase agricultural production. But there may be unforeseen negative consequences. SIM 4 indicated that the number of land transactions was likely to increase once titles are issued. Especially in those villages that still found themselves in dire economic straits, small and even medium farmers may be forced to sell under duress in order to settle their outstanding debt. Such distress sales would do little to increase agricultural production, since the proceeds of the sale would not be invested. Rather, they may lead to ever increasing land concentration, landlessness, and migration.

Affirming the Relevance of Post-Disaster Social Analysis

The social impact monitoring studies in Myanmar are some of the most prominent examples of qualitative, field-based social analysis being systematically incorporated into not only a post-disaster assessment but also into the official ongoing post-disaster monitoring system set up by a government and international community in the aftermath of a major disaster. The experience of conducting these studies contains several lessons for assessing post-disaster assistance.

Qualitative social impact assessment can easily be integrated into the post-disaster assessment and form the basis for ongoing social impact monitoring, which enables the findings of such assessment to be incorporated into formal appeals for assistance. In Myanmar, this took the form of three social scientists joining the Post-Nargis Joint Assessment and using the visits to the disaster areas to form both an initial assessment of the social impact of the disaster and a set of hypotheses about future social impacts. This social assessment was incorporated into the formal Post-Nargis Joint Assessment report and, together with the hypotheses, served as a baseline for subsequent social monitoring. This subsequent monitoring was conducted by a local research organization. It was incorporated into the formal post-disaster monitoring framework set up by the Tripartite Core Group, which on a periodic basis issued a

“Periodic Review” of recovery based on quantitative methods and the social impact monitoring reports based on qualitative methods. Incorporating social analysis into a post-disaster assessment and results framework enables any resource needs that have been identified to be incorporated into coordinated fundraising appeals.

The qualitative methods used in the SIM were essential in focusing attention on the ‘why’ and ‘how’ of the aid effort, in understanding the processes and pathways of aid, and in identifying issues that would have been missed by quantitative methods alone. For example, in Myanmar, the SIM quickly identified that farmers and casual laborers faced the issue of spiraling debt and high interest rates. This finding led to a US\$50 million budget allocation for credit in the post-Nargis recovery plan. Using qualitative methods can help institutions involved in a post-disaster recovery effort understand (i) cross-cutting issues, such as governance and social accountability, which transcend the boundaries of sectors such as agriculture and education; (ii) community perceptions, including on aid effectiveness, vulnerability, and social exclusion, which are critical for the success of the aid effort; and (iii) process tracing, such as on the social dynamics within communities or on how aid plays out at the village level. It can also help serve as early warning for



issues that emerge as the aid effort evolves, such as on conflict or elite capture.

Social analysis enables the aid effort to be more responsive to local realities and helps to ensure that the aid effort does not contribute to social fracture. The SIM studies in Myanmar enabled the aid community to identify social issues with the delivery of aid, in particular over the risk that inequities with delivery of aid. In particular, there is the risk that inequalities with aid delivery and its mechanisms could lead to social tension. Another important risk is that the use of predetermined vulnerability categories in aid targeting might be at odds with social norms. Understanding how post-disaster aid affects social structures, leadership, and institutions is vital in ensuring that the aid effort fits with local realities and does not cause social tension that, in the long run, undermines the aid effort.

There are, however, challenges to doing good social analysis in post-disaster settings. The primary challenge is time. Post-disaster assessments are conducted under enormous time pressures; SIM in Myanmar was no exception. A secondary challenge is finding the right research partner. In some settings, particularly in countries with weak capacities, it may be hard to find a local research partner with a local network and local sensitivity who furthermore has good data-analysis skills and skills in community fieldwork. Research access or political constraints can also be a problem: this is why it is important to conduct the analysis as part of the formal post-disaster assessment framework. Still, the experience of SIM shows the value of doing this kind of social analysis. The precise format of that analysis may vary according to context, but experience from the later assessment suggests that the methods can be adapted easily and quickly.

Reflections

The post-Nargis social impacts monitoring has provided a human face to survival and recovery after a major natural disaster. It has exposed the damage such disasters can do to the immune systems of affected villages, and it has shown how both damages and immune systems evolve over time. Reflecting on the salient features of recovery after this devastating cyclone can facilitate the planning and execution of aid in future post-disaster situations.

Multiple factors determine recovery in the long run

Recovery takes a long time, and it generally continues well after dedicated aid ends. SIM demonstrated that the amount of aid was an important factor shaping recovery, even though the resources eventually provided were far below estimated losses and damages.³⁰ But post-disaster aid is time-bound and therefore rarely sufficient for recovery. Other factors critical to recovery include the degree of affectedness (measured by the damage suffered rather than the death toll); the quality of formal and informal leadership; the frequency and severity of subsequent external events; and the way in which aid is delivered.

Another factor important to recovery is location. Natural events may be highly location-specific and thus have a different influence on recovery depending on where they take place. In the Ayeyarwady Delta, villages in close proximity to each other have experienced subsequent external events differently. As a result, the trajectory of recovery cannot be predicted across a wide area without an understanding of such variation at the local level.

Different groups and communities recover differently

If the social and socioeconomic fabric of villages in the Ayeyarwady Delta was fairly homogenous prior to Nargis, the cyclone, subsequent events, and other factors have now created a different tapestry of village life. SIM demonstrated that there was increasing inequality within and between villages, with some villages and groups not recovering at all. It also pointed out that the capacity of the survivors to recover from a major disaster depended more on how many assets they had lost to the disaster than on any other factor.

The more affected a community, the lower its capacity, both economically and socially, to withstand other natural events. Without sufficient aid, as was the case after Nargis, highly affected communities seemingly lost their capacity to self-recover. Even if social capital was strong and contributed to recovery in the short-term, it was not immune to the effects of continuing economic deprivation.

Recovery takes place in a broader context and is never linear

A major natural disaster affecting a given area is rarely the only event that affects livelihoods. External events that negatively affect recovery continue to happen. Livelihoods that depend on the use of natural resources are particularly prone to subsequent natural events, as SIM has amply demonstrated. But disaster-affected communities are also exposed to national and international events far beyond their control. SIM showed how the international rice price depressed the local price



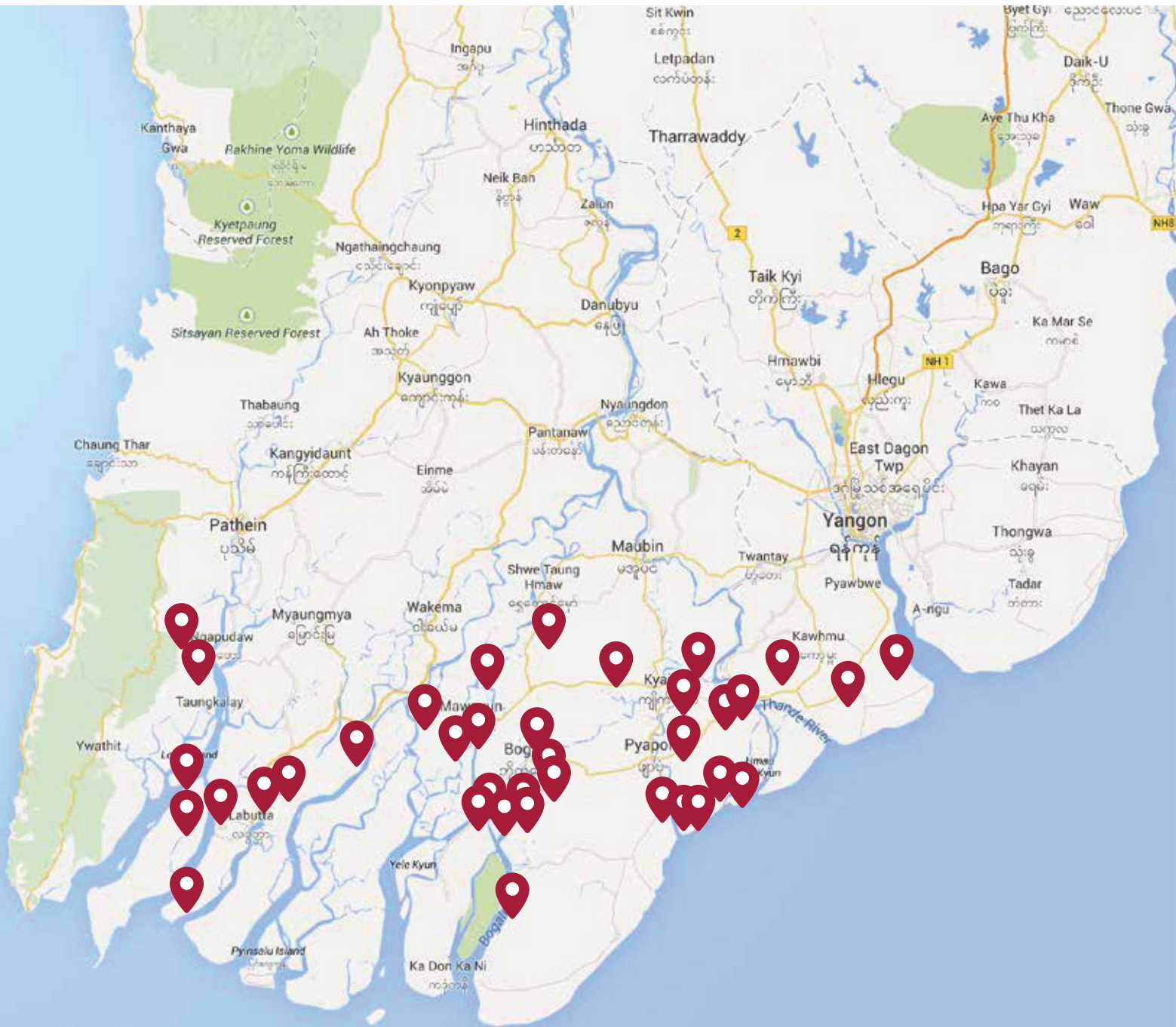
in the Delta, even though local supply was severely curtailed after the cyclone. It also helped reveal how political changes at the national level played out at the village level and how they sometimes supported and sometimes complicated recovery.

Longitudinal monitoring can capture this complexity

Post-disaster recovery is complex: people's lives may improve for a period and then get worse again before recovering. This lack of linearity in the 'curve' of recovery makes it even more important to conduct periodic monitoring over a long period of time. Although it is harder, as time goes on, to separate out the effects of a disaster from those of

other events, only conducting monitoring in the short period of time after the disaster and then extrapolating out over time with the assumption of a linear recovery may lead to conclusions that are in fact quite different from reality. Monitoring realities at periodic intervals long after a disaster has unfolded enables preventative and corrective action to be taken.

Annex 1: Locations of the Sample Villages



Annex 2: Social Impacts Monitoring Methodology

Enlightened Myanmar Research conducted the fieldwork and analysis for SIM 4, with technical support from the World Bank. The researchers were all from Myanmar civil society with extensive experience of working in remote villages and conducting social assessment work. The social impacts monitoring team represented a mix of Myanmar's ethnic and religious groups. Women formed over half the team. Research was conducted in local languages.

While findings from SIM are representative only of the villages where fieldwork was conducted, triangulation with other data sources suggests that many findings may apply more broadly across Nargis-affected areas. The particular value added of SIM 4, however, is the longitudinal comparison of local contexts in a panel of 40 villages over a period of five years, offering a unique window into the daily lives of villagers in an area severely devastated by a major natural disaster.

Focus Areas

SIM 1–3 provided assessments of: (a) how 40 villages affected by the cyclone were recovering 6, 12 and 24 months after the storm; (b) how the aid effort was playing out at the local level; and (c) changes in the social and socioeconomic structures of villages. SIM was the first time that the social impacts of a natural disaster had been assessed periodically as a core

part of a post-disaster needs assessment and formal monitoring system.

SIM 4 focused on two of the three areas identified through the initial social impacts assessment conducted as part of the Post-Nargis Joint Assessment, released in July 2008: socioeconomic impacts as well as social relations and institutions. Since the aid effort had largely ceased by 2010, an analysis of aid effectiveness as undertaken by SIM 1–3 was no longer practical. Instead, SIM 4 collected limited information on the status of village infrastructure, much of which was rebuilt after Nargis (Annex 3). In addition, SIM 4 aimed at identifying other external events that have shaped village life since SIM 3. The two focus areas were:

- *Socioeconomic impacts:* This examined the compound effects of Nargis and subsequent natural events (such as climatic irregularities and infestations) on key occupational groups, such as farmers, fishermen, and casual laborers. It looked at issues of livelihoods, debt and credit, and coping mechanisms.
- *Social relations and institutions:* This explored how Nargis, the subsequent aid effort, and the evolving economic conditions have affected social capital, the capacity for collective action, intra- and inter-village relations, and relations between villagers and their leaders. It also reviewed how local-level institutions have changed in the context of broader political change in the country.

Sampling of Villages

The 40 villages studied in SIM 4 were the same as in SIM 1-3 in order to allow changing conditions to be tracked over time. Villages were located in the eight most disaster-affected townships and selected to ensure: (a) wide geographic coverage to take account of the level of remoteness; (b) variation in predominant village livelihood types (in rough proportion to the importance of those livelihoods in the Delta economy); and (c) variation in the degree of initial affectedness by Nargis.³¹

These criteria were hypothesized to affect recovery. Using qualitative panel data over a five-year period from this purposefully selected sample of villages provided unprecedented insights into how villages recover from a major natural disaster.

Initially, the degree of affectedness by Nargis was measured by the number of people who died during the cyclone.³² Assessing village life five years on, SIM researchers found that the level of damage explained a village's socioeconomic condition better than the number of deaths. In other words, the capacity of the survivors to recover from a major disaster depended more on how many assets they had lost to the disaster. Consequently, SIM 4 used the following definitions, as assessed by villagers and researchers:

- Ten lightly/not affected villages: level of damage to housing and infrastructure very low or no damage
- Eighteen moderately affected villages: almost every house slightly damaged but only a few washed away; schools, roads, bridges damaged but to a milder degree
- Twelve highly affected villages: almost every house and the assets they contained washed away and important community infrastructure destroyed.

Using SIM 1 methodology, 25 villages were lightly or not affected, six were moderately affected, and nine were highly affected. Comparing the two methodologies yielded the following results. All villages with a low level of damage had no or few deaths. Correspondingly, all of the villages with a high death toll also experienced a high level of damage. The main difference was that 14 villages with no or few deaths nonetheless had moderate levels of damage, which constrained recovery.

Overview of Research Topics and Questions

By and large, SIM 4 focused on the same topic areas as SIM 1-3. Villagers, however, were asked to reflect on the five years since Nargis and on how life had changed since before the cyclone, rather than only comparing findings with those of the previous round. These adjustments to SIM 3 aimed at teasing out long-term effects and cumulative impacts of natural disasters, to learn lessons that could be applied in future such contexts.

Key questions for the two topic areas examined were:

Socioeconomic impacts

- Have there been any changes in livelihoods?
- Did these changes differ by degree of cyclone affectedness?
- What were the main factors influencing village livelihoods?
- Have the situation for debt and land changed over time?
- What coping strategies were villagers pursuing?

Social relations and institutions



- How have social relations within and between villages, and between social groups, changed over time?
- Has the institutional landscape of the villages changed?
- What were the important village institutions and how were their roles changing?
- Has the village leadership changed?

Informants

Within villages, sampling protocols were the same as for SIM 1-3. The research team sought to interview a wide cross-section of the community. This included: the village head and other official village leaders; village elders and religious leaders; others who were involved in aid decisions in the village; farmers, fishermen, laborers, and those in other occupations;

(potentially) vulnerable groups, including female-headed households, the handicapped or injured, and the elderly; and young men and women. An estimated one-quarter of key informants from previous rounds of SIM were re-interviewed.

To the extent possible, the researchers tried to get the perspectives on the same topics from each group in order to triangulate the information received. Where differences existed in the answers, this could also be important for assessing social impacts and local dynamics.

Fieldwork for SIM 4

A pretest was conducted in two villages in March 2013 after a week of intensive training. This initial fieldwork allowed the instruments and approach to be validated. The entire field team of 12 researchers was involved in the pretest, which was followed by a

three day debrief, where approaches to data analysis were developed and the research instruments were refined. Two rounds of fieldwork were then conducted from April to May 2013. Four teams of two researchers and one team leader each covered the sample villages in two phases. The two-week period between the phases was used for the team to regroup and complete documentation before embarking on the second phase. Each research team spent approximately two days in each village, with additional time allocated for travel.

Research Instruments

Three research instruments were used:

First, in-depth interviews were conducted with a wide range of elite and non-elite villagers. Interviews were semi-structured or unstructured, meaning that the researchers had the flexibility to focus on particular issues that the informant had information on and to follow interesting lines of inquiry. Guiding questions were provided to the researchers to help focus interviews, but the researchers were free to amend and adapt these as necessary, in particular, to make sure that they fitted with the local context. A total of 191 key informants interviews were conducted during SIM 4.

Second, focus group discussions (FGDs) were held with different livelihood groups within the villages studied: farmers, fishermen, laborers, and small business owners. In each, around four to eight informants were interviewed together. This helped ensure the openness of the discussions. Overall, 160 FGDs were conducted, involving a total of 704 participants.

Third, the researchers also conducted informal interviews and participant observation. This included many late-night discussions with those with whom they stayed and discussions with individuals and groups over meals. Directly observing dynamics and impacts also provided much information on the way villages were functioning,

the cumulative effects of Nargis and other natural disasters, and how broader changes in the country were felt at the village level.

Use of Data

Three types of data were utilized in the SIM 4 report.

First, the research team collected standardized data on various dimensions of village life. These data were used to generate tables that allow for a mapping of broad patterns and consideration of sources of variation. Many of the indicators collected were based on those used in previous rounds of SIM.

Second, qualitative village summary sheets were written for each village, and qualitative data were entered into spreadsheets to enable rapid analysis of trends.

Finally, case studies on the experiences of particular families and groups in Nargis-affected villages were created. These allowed for in-depth investigations of how Nargis and subsequent events have affected the lives of different people. Case studies focused first on people and families whose experiences were representative of (large subsections of) the general population. This allowed for an extrapolation from the experiences of particular individuals or households.

Case studies also outlined the experiences of 'exceptional' cases, those who have had particularly positive or negative experiences. In these, researchers made efforts to determine why the individual or household had done worse or better than others. Again, this helped determine sources of variation in outcomes and experiences, between and within villages. A selection of the case studies is presented throughout the report.

Annex 3:

Village Infrastructure

SIM 1-3 contained analyses of the aid effort: the amounts and types of aid as well as the effectiveness of their delivery mechanisms. Since the aid effort largely ceased in 2010, SIM 4 did not assess the effectiveness of the little aid that had been provided since SIM 3. Instead, it collected limited information on the state of village infrastructure, which is described in this annex.

Patterns of Aid

By and large, the post-Nargis aid effort followed the path of the cyclone's destruction. SIM 4 analyzed the level of aid received within the first two years after Nargis,

taking into account the revised definition of disaster affectedness. Highly affected villages received a higher level of aid and most moderately affected villages received medium amounts of aid (Figure 14).^{34,35}

The patterns of aid during the first two years after Nargis had a noticeable longer-term impact on village infrastructure. The types and amounts of aid varied significantly over time.³⁶ The most prominent infrastructure support was for housing, education, and water and sanitation: these were implemented in the largest number of villages. Five years after Nargis, the state of houses, schools, and water and sanitation facilities was good or fair in about 80 percent of the villages (Table 16). There were no schools in five villages and no water and sanitation facilities in two. In contrast, over two-

Figure 14 Level of aid by degree of affectedness

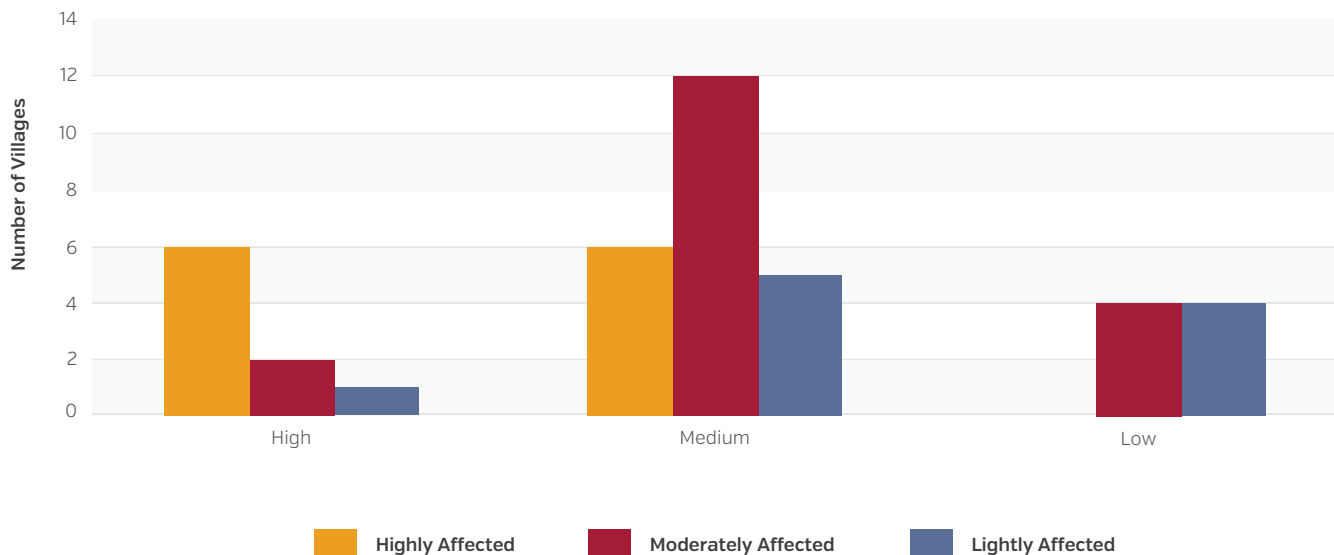


Table 16 State of key infrastructure in the sample villages

TYPE	GOOD	FAIR	POOR	NONE	TOTAL
Houses	13	19	8	n/a	40
Schools	23	10	2	5	40
Water/Sanitation	11	19	8	2	40
Health	10	3	0	27	40

Table 17 'Good' state of key village infrastructure by degree of affectedness

AFFECTEDNESS	HOUSES	SCHOOLS	WAT/SAN	HEALTH
Highly [12]	2	6	0	1
Moderately [18]	7	11	8	8
Lightly [10]	4	6	3	1
<i>Total [40]</i>	<i>13</i>	<i>23</i>	<i>11</i>	<i>10</i>

thirds of villages had no health facilities, consistent with the fact that little aid had been provided to this sector. On the whole, the village infrastructure in the SIM sample villages was of a better quality than prior to the cyclone. This suggests that villagers and aid providers 'built back better'.

Of the key village infrastructure, schools were in the best condition. Around 60 percent of schools were in a 'good' condition regardless of the degree of cyclone affectedness (Table 17). At the same time, only one-fifth of houses in highly affected villages were in a good condition compared to over one-third in moderately affected villages. Furthermore, the state of water/sanitation and health facilities was good in almost half of the moderately affected villages but in none of the highly affected ones (with the exception of one health facility).

Housing

Even in the majority of the highly affected villages, the housing situation five years after Nargis was considered good or fair. Conditions were considered poor in only one-quarter of these villages. Though aid was an important determinant of housing conditions, it was not the only factor. In fact, the majority of villagers received aid for rebuilding or rehabilitating their houses only in seven of the highly affected villages. Eleven villages received little to no aid for housing. Another important factor is the prior quality of housing. Better built houses were better able to withstand the cyclone regardless of the level of affectedness of the village, and housing conditions for these villagers were relatively better even in villages that were not doing well economically.

Economic conditions were another important explanatory factor for housing conditions.

Conditions were worse in villages that were struggling more economically: in almost one-third of these villages (5 out of 16), conditions were poor; villagers could not afford to rebuild or even maintain the houses properly, a predicament made worse by the harsh weather conditions that commonly require the routine replacement of different building materials. At the same time, no village that was doing well economically had a problem with housing, and housing was poor in only one-sixth of villages with fair economic conditions.

Education and Health

There has been a trend toward improved quality of school buildings in the sample villages. In over 80 percent of the villages, new school buildings were constructed or existing buildings were repaired. Overall, in these villages, educational infrastructure five years after Nargis was better than it used to be. The government and aid organizations were the main benefactors of construction or rehabilitation of schools. Five villages without a school also had no health facilities.

The majority of the sample villages lacked health facilities. Only ten out of forty sample villages had functioning rural health centers or clinics. The existence of health facilities was not related to the villages' economic condition, as an equal number of villages in fair and poor economic condition (12) lacked access. Even three villages in good economic standing did not have a health facility. Among the 30 villages without a functioning health facility, 14 had a resident health worker in the village and twelve had midwives who provided care to pregnant women.

Transportation

There had been considerable improvement in the condition of transportation. In the Delta, roads, bridges, and jetties are indispensable for access within and between villages. Overall, villagers in over 90 percent of villages had functioning transportation infrastructure. This did not imply that the infrastructure could be used year-round. In 22 villages, roads were regularly damaged by heavy rain. Furthermore, the quality of roads, jetties, and bridges could be improved. On the whole, however, villagers in the majority of villages were content with the overall condition and convenience of transportation infrastructure, which was built better than before Nargis. Aid from organizations, private donors, and the government helped improve the transportation infrastructure, but the villagers were the ones who contributed to this improvement the most. In 22 villages, villagers raised funds on their own and/or contributed their labor for repairing roads, bridges, or jetties.

Electricity

The overwhelming majority of villages did not have access to electricity. Only about one-quarter of the sample villages had access to electricity: six villages from the national grid and five from private providers through larger generators. Prices from private providers tended to be higher, and there were commonly voltage restrictions, often limiting the use of electricity to illumination alone. Villagers coped with the lack of access to electricity in many ways, such as by using batteries, paying a villager who owns a car battery to charge their rechargeable batteries, and, increasingly, solar-powered lights. There were also small generators serving a few households in some villages. The villages with access to the national grid were in fair economic conditions and had better quality of village infrastructure: all had good transportation infrastructure, and three had a school and a health facility.

Water and Sanitation

Three-quarters of sample villages had fairly convenient access to water and rarely experienced water shortages. Thirty villages had one or more functioning ponds. In ten villages, the villagers raised funds themselves to repair the village wells. Aid providers funded the construction of new ponds in three villages and rehabilitated existing ponds in the others. At the same time, one-quarter of the villages were facing periodic water shortages or lack of convenient access to water resources. These villages did not have functioning wells. As a result, villagers had to rely on streams or rivers, exposing themselves to waterborne diseases. In six villages, villagers had to go to great lengths to fetch water from the wells of neighboring villages.

Many villages did not have hygienic sanitation facilities. Twenty-two sample villages did not have adequate sanitation facilities, such as well-built or adequately equipped toilets and access to clean water for use. Eleven villages had received

training and/or some materials (such as latrines, pipes, and building materials) to build sanitation facilities, while 29 did not receive any help. In some instances, villagers sold sanitation materials they had received to people in the same village, because of economic difficulties.

Access to sanitation facilities was not related to the degree of affectedness. The quality of sanitation facilities was correlated with distance from the nearest urban center and the amount of sanitation aid received. The 18 villages with good sanitation facilities were located near towns or had received a substantial amount of material aid and training related to sanitation. Six villages each were highly, moderately and lightly affected. All these villages also had good or fair access to water. Ten villages had clean sanitation facilities because they had received latrines and other sanitation utilities (such as soap) from aid organizations. The remaining eight villages had not received any aid but they were relatively urbanized big villages, situated near towns.



Endnotes

1 Tripartite Core Group. 2008. Post-Nargis Joint Assessment. Yangon.

2 See Annex 2 for a comprehensive discussion of the methodology employed.

3 SIM 4 did not review the aid effort since aid had largely ceased by 2010. However, it assessed the state of village infrastructure; see Annex 3.

4 See Tripartite Core Group. 2008. Op. cit.; Tripartite Core Group (2009a). Post-Nargis Social Impacts Monitoring: November 2008; Tripartite Core Group (2009b). Post-Nargis Social Impacts Monitoring: June 2009; Tripartite Core Group (2010). Post-Nargis Social Impacts Monitoring: April 2010.

5 Enlightened Myanmar Research and World Bank. Qualitative Social and Economic Monitoring: Round One Report, October 2012; Round Two Report, June 2013, Round Three Report, December 2013.

6 See Annex 1 for the definition of degree of affectedness.

7 A village is considered in 'good' economic condition when livelihoods were functioning well and laborers had jobs (either locally or through migration). 'Fair' means that the main livelihood (farming) was functioning but not well enough to reduce the level of debt. At the same time, the secondary livelihood (fishing) had declined and many fishermen had to change livelihoods. A village is in 'poor' standing when both the main and the secondary livelihoods declined significantly.

8 Note that sometimes a shock could occur in one village but not in nearby villages.

9 Research for SIM 4 was carried out before the 2013 harvest season.

10 The price of seeds was 6,000 kyat per basket, and two baskets of seeds are normally broadcasted per acre.

11 Roughly 3 gallons of fuel are required per acre.

12 The cost was 6,000 kyat per season before Nargis and 10,000 kyat in 2012.

13 One lakh equals 100,000 kyat.

14 Bay Gyar is of higher quality and the commonly grown variety in most of the Delta. However, it takes about 150

days to mature, while Achon matures in 100–115 days. Bay Gyar is more commonly grown during the monsoon season, while Achon is grown more as summer paddy.

15 Depending on the type and location of fishing, the fishing season can last from 6–9 months, from June to February. However, there are only 3–4 months of good fishing.

16 Fish collectors have been an essential link in the fishing value chain. In contrast with small fishermen, however, since they were not considered as being among the poor, they did not receive assistance from aid providers after Nargis.

17 Eel collectors do not need to pay license fees, and the eel catch has not declined. Eel is fished mostly by small and subsistence fishermen.

18 Only half (8) fish mills in the village in Pyapon were able to resume production after Nargis, and it is estimated that over 600 laborers who had worked in the fish-paste industry in this village lost their jobs.

19 In most of the villages except those in Mawlamyinegyun township.

20 The level of land transactions is based on villagers' perceptions. Four to five cases of land pawning or selling in a village was considered a 'low' level. The level was considered 'medium' if there were up to 15 cases of land selling or pawning. The level was 'high' if over 15 farmers had to sell or pawn land.

21 Tripartite Core Group. 2010. Op. cit., Figures 1 and 3.

22 Wealthy leaders who could financially contribute to social, religious, or development affairs of the village tended to be perceived more positively and were more influential than those who could not do so.

23 SIM 4 took place about four months after the local elections, a period too short for some villagers to assess the performance of their elected leaders.

24 The formal village leader is still referred to by villagers as the "100 Household Leader", even though the position is not mentioned in the Ward or Village Tract Administration Law.

25 World Bank and Global Facility for Disaster Reduction and Recovery. 2011. *Analyzing the Social Impacts of Disasters*, Volume I: Methodology, Volume II: Tools.

26 Tripartite Core Group. 2008. *Post-Nargis Joint Assessment*, page 7f.

27 See in particular Tripartite Core Group. 2010. *Post-Nargis Social Impacts Monitoring*, April 2010. Figures 1 and 3.

28 There is ample evidence that cash transfers in emergency situations help the affected people the most, as they can be used for whatever they need. Concerns about misuse of funds are common among aid providers but not borne out by evidence. See, for example, Operations Policy and Country Services. 2008. *Cash Transfer Programs in Emergency Situations: A Good Practice and Guidance Note*. World Bank.

29 The Post-Nargis Joint Assessment had pointed to the need to work with formal and informal village leaders in order to deliver aid effectively. Tripartite Core Group. 2008. *Op. cit.*, Annex 15.

30 See for instance, Reliefweb. 2008. Myanmar: Cyclone Nargis OCHA Situation Report No. 54.

31 Full sampling procedures are outlined in the SIM 1 report; Tripartite Core Group. 2009. *Post-Nargis Social Impacts Monitoring*, November 2008; pages 43 ff. Four thought to be less-affected control villages were also included in the sample. These villages turned out to have been affected by Nargis, although to a lesser extent than most other villages. One of the farming villages (not a control village) turned out not to have been directly affected by the cyclone.

32 "Villages were categorised by level of damage and loss from Nargis. The criterion used for categorisation is the number of deaths as a percentage of the pre-Nargis village population. Almost every village had a very large proportion of houses damaged or destroyed, so it was hard to use this as a criterion. Villages with no deaths are categorised as 'slightly' affected; villages where less than one percent of the population died are 'low' affected; villages where one to five percent died are 'moderately' affected; villages where more than five percent died are 'highly' affected." Tripartite Core Group. 2009a. *Op. cit.*, page 7, footnote 7.

33 "For the purposes of the report, 'aid' refers to all types of aid received, both cash and in-kind and across multiple sectors. All types of aid providers from outside villages, such as government, local and international NGOs, UN

agencies, private sector aid providers and religious groups, are referred to in this report as 'aid providers', as villagers themselves did not tend to distinguish among different kinds of sources of assistance." Tripartite Core Group. 2009. *Post-Nargis Social Impacts Monitoring*; November 2008, page 5. Some of the infrastructure in the sample villages was built after the dissolution of the Tripartite Core group but was still referred to as aid by the villagers.

34 'Aid' refers to all types of assistance received in villages, both cash and in-kind and across multiple sectors. Combining SIM 1-3 data, a 'high' level of aid is defined as 21 or more types of aid received, 'medium' is 11-20 types of aid, and 'low' is 10 types of aid or fewer.

35 Available data do not allow a robust analysis of the relationship between the post-disaster aid effort and longer-term economic recovery. However, available information suggests that the economic standing of villages seems to be unrelated to the level of aid provided; an equal number of villages in fair and poor standing received medium and high levels of aid, respectively.

36 Tripartite Core Group. 2010. *Post-Nargis Social Impacts Monitoring*; April 2010, Figure 1, page 6.



The preparation of this report was supported by the Global Facility for Disaster Reduction and Recovery (GFDRR). The report provides a practical example of the importance of understanding and monitoring the social impacts of a natural disaster on affected communities and highlights critical issues that may otherwise remain hidden. Complementing the PDNA methodology, social-impacts analysis deepens post-disaster recovery frameworks and programs. It also guides aid providers in allocating resources to the evolving needs and priorities of affected communities and in choosing implementation modalities that take into account local realities.

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