REPUBLIC OF MALDIVES

TSUNAMI IMPACT ASSESSMENT 2005

A socio-economic countrywide assessment at household level, six months after the tsunami
In 1997, the Government, recognizing the need for island-specific information on a wide variety of socio-economic characteristics at household level, undertook the first Vulnerability and Poverty Assessment (VPA-1). Seven years later, in 2004 this was followed by a second survey (VPA-2) to assess the progress in poverty reduction on all 200 inhabited islands over time. The results indicated a large reduction in poverty. And then, a few months later, on 26 December 2004, came the tsunami that affected the lives and livelihoods of a significant part of the population and destroyed houses, health posts, schools, harbours, jetties, and personal belongings across the country.

To gauge the island-specific impact of the tsunami at household level, under the directive of His Excellency President Maumoon Abdul Gayoom the Ministry of Planning and National Development (MPND) took the initiative to carry out a detailed investigation – the Tsunami Impact Assessment (TIA). The TIA has a similar coverage and methodology as VPA-2. It was conducted on all inhabited islands, tsunami-affected or not, and asked, where practicable, the same questions as VPA-2, which in turn were broadly the same as for VPA-1. In addition, in order to capture tsunami-specific information, it included for the most-affected islands extra modules on psychosocial and reproductive health, losses due to the tsunami, and tsunami aid received.

The TIA continues the principle of following a ‘panel’ of the same households over time: the sample covered most of the same households as in VPA-2, which in turn included about half of those covered in VPA-1. Thanks to the excellent registration system of the National Disaster Management Center, almost all displaced households could be traced in their new temporary locations. Thus, as well as being able to compare socio-economic conditions six months before the tsunami and six months afterwards, the surveys also maintained a unique panel that can be used to track household changes over a longer period.

Practically the same project team that carried out VPA-1 and VPA-2 also brought the TIA to a successful completion under the able guidance of Hans de Kruijk and Willem van den Andel who guided all three studies. For the TIA they were assisted by Juliette Leusink and Dorieke Looije and by the MPND counterpart staff consisting of Mariyam Saba, Mohamed Firshan, Aishath Aniya, Fathmath Hashiya, Aishath Anees, Aishath Suzy and Aishath Shifaza. Huzaifa Zoomkawala prepared the data entry programme; Annemieke van der Steeg supervised data cleaning, Peter Stalker edited the final document and Najfa Shaheem Razee made the layout of the report.

The coordination of the TIA was ably undertaken by the then Strategic Planning Section of MPND headed by Asim Ahmed, Director Strategic Planning, and assisted by Aishath Saadh, Inaz Ahmed, Aminath
Umaima, Aminath Shuha, Aminath Mushfiga Ibrahim and Ahmed Naeem. The Statistics Section of MPND prepared the questionnaires, enumerator manuals, conducted the training and supervised fieldwork and data processing. Fuwad Thowfeek, Assistant Director General, and Aishath Shahuda, Director Economic Statistics, coordinated the activities. Mariyam Niyaz, Aishath Laila and Hana Mansoor were in charge of overall survey preparation and management. Hussain Nijaaz, Ibrahim Naseem, Ahmed Nihad, Maharath Ahmed, Aminath Shirmeen and Fathmath Shifaza gave full support to the preparatory work. Jeehan Hassan Didi, Ibrahim Athif, Yasir Waseem and Mohamed Jawad worked as counterparts in data processing. They were assisted by Aishath Sajny and Gasim Abdul Sattar.

The fieldwork was carried out in June and July 2005 by 65 enumerators. The staff of the Administration and Finance Section of MPND organized the logistics of this large operation in close co-operation with all 20 Atoll Offices and 200 Island Offices. Thereafter, 25 data entry operators edited, coded and transferred the written information from the questionnaires in electronic format.

Financial and technical assistance was provided by UNDP in partnership with UNFPA. Throughout the study, the staff of the UNDP Office in Male' especially Abdul Bari Abdulla, Saeeda Umar and Ibrahim Nasir provided valuable assistance and logistical support. The staff of UNFPA, especially Dunya Maumoon, guided Ahmed Afaal and Sheena Moosa to include the psychosocial and reproductive health modules in the study.

The support and valuable contributions of all persons mentioned above are gratefully acknowledged. Finally, we are extremely grateful to the thousands of respondents who have answered (practically without any non-response) sometimes very personal questions under difficult circumstances.

In addition to gauging the socio-economic impact of the tsunami, the TIA will be a valuable tool in informing development planning as the country recovers from the effects of the tsunami.

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Map of Maldives (South) (with tsunami impact markings)
Immediately after the tsunami, the Maldivian population faced a grim situation. Worst off were many people on the islands: some had lost family members and many others had suffered psychosocial stress and faced serious health threats from damaged water supplies. There were also losses of property as well as threats to livelihoods, since on many inhabited islands, as well as on a number of resorts, the tsunami destroyed physical infrastructure and damaged agricultural land.

Thousands of people had to leave their homes – and many have yet to return. Six months after the tsunami, about 11,000 persons, 4 percent of the total population, were still living in temporary accommodation. Of these, more than 10,000 were on the 14 most-affected islands and another 1,000 on other islands. Since reconstruction takes time, the situation had changed only marginally even by the second quarter of 2006.

There are also persistent psychosocial problems. On the 14 most-affected islands about two-thirds of women, and more than half of men, continued to have difficulties with sleeping or eating or having less hope for the future or feeling less satisfied with the safety of their family after the tsunami. For both men and women, the main worries were housing and the future of their children. But not everything was negative. Around 30 percent of married people, men and women, felt that after the tsunami the relationship with their partners had improved, though about five percent considered it had worsened. Similarly, around 40 percent of women and half of men felt that their relationships with their families had improved while less than five percent indicated that they had deteriorated.

People returned fairly quickly to employment. Six months after the tsunami the majority of people of the most-affected populations had started work again. The extent of employment did not, however, seem to be linked to levels of stress. Indeed there appears to be no clear relationship between levels of psychosocial distress and the characteristics of the labour force.

Much of the lost property has now been restored or replaced. By the end of 2006 or the beginning of 2007, as a result of ongoing housing projects, most displaced people should have new permanent residences. People have also replaced most of their lost consumer durables: by July 2005, households had, for example, replaced 80 percent of gas cookers and washing machines and about 60 percent of TV sets.

Socio-economic situation at the household level

The tsunami badly affected the mainstay of the Maldivian economy, the tourist resorts. By June 2005, bed capacity was still more than 20 percent below that in the two previous years and tourism bed-nights were only running at half the rate of 2004. This had serious knock-on effects particularly
for the workforce. Although the resorts generally did not lay off their local staff, many workers lost out because they normally rely for a substantial proportion of their income on service charges and tips.

The tsunami also damaged equipment for traditional fish processing – a major activity on the islands – resulting in reduced output. This was evident in 2005, a year when fish catches were very high and industrial processing capacity, mainly in MIFCO, was stretched to the limit. As a result, not all the fish could be processed and some was wasted.

The economic effects on the inhabited islands varied between different population groups. People on the ten major host islands to which people were displaced benefited from substantial increases in economic activity – incomes for the original population went up by about one-third. Those who had moved to these islands, on the other hand, suffered economic losses, though by the middle of 2005 their incomes were back to about 80 percent of pre-tsunami levels.

There were also knock-on effects in Male'. As a result of reduced trade as well as disturbances in the property markets, incomes fell by about 10 percent. However, in the rest of the country, covering most of the atoll population, incomes actually went up. These are of course broad averages and the experiences of households or individuals in each of these groups will vary greatly.

Some of the benefits arose from repair and reconstruction which created additional job opportunities in construction and transport. These partially compensated for the losses in other sectors. Communities also benefited from various types of support – as the international community, local donors, and the government helped affected households re-establish themselves. There was also an additional cushion for government employees; a few months before the tsunami they had received major salary increases – which provided further support for a substantial part of the population. Overall, the net income effect of this complex mix of positive and negative economic factors seems to have been positive: in June 2005, household incomes were about seven percent higher than in September of the previous year.

It is also important to consider impacts from both a short- and long-term perspective. For instance, people on the host islands who benefited in the short term from the arrival of displaced people could see these gains reversed in the long term when the visitors are resettled in their permanent locations. Other benefits will be longer lasting, especially the post-tsunami rebuilding of infrastructure.

The tsunami had a limited impact on other social indicators such as those for poverty, health and education that are included within the Millennium Development Goals. This is first because although people’s incomes initially fell they subsequently recovered very quickly. As a result, there was a significant reduction in poverty. Between June 2004 and June 2005, the proportion of the island population with an income less than Rf. 15 per day fell from over 30 to around 20 percent. The second reason is that other MDG indicators, such as life expectancy and literacy, reflect long-term investment in health and education, and are thus more resilient and less likely to be affected by a short period of crisis. Indeed after the tsunami the people from the most-affected islands perceived that education
and health facilities had actually improved. For the displaced population this was because they had moved to islands with facilities were already better, or that were upgraded to meet the needs of the expanded population.

It is also possible to use the panel studies within the VPAs and the TIA to track the experience of individual households of the island population. Over the past eight years these show considerable overall improvements, though they also signal continuing vulnerability. Using a poverty line of Rf. 15, the studies indicate that, between 2004 and 2005, more than half of those classified as ‘poor’ had managed to escape poverty but during the same period 10 percent of the ‘non-poor’ fell back into poverty.

This vulnerability is confirmed by considering the longer-term picture. From the 1997 VPA-1 onwards there was a fall in the proportion of poor people. However, only about two-thirds of those classified as ‘non-poor’ in 1997 remained non-poor throughout. Similarly, out of the 44 percent of the population classified as poor in 1997, only 7 percent remained so throughout; the other 13 percent classified as poor in 2005 were people who had fallen into poverty since 1997.

Macro-economic developments

The current status of the economy can be gauged by considering the major economic activities – tourism, fisheries and construction.

At the beginning of the new millennium, after a few difficult years the economy had been returning to its growth path of the previous decade. In 2003, growth had again reached more than eight percent and at the end of 2004 it was even higher. Furthermore, a number of new resorts were under construction, enhancing both current growth, through the construction sector, and prospective future growth through greater tourism capacity. The trade and transport sectors had also been expanding, especially after the August 2004 increase in government wages had boosted consumption.

Then came the shock of the tsunami. This brought many economic activities to a sudden halt. Even so the slowdown was briefer than might have been expected. Tourism recovered quite quickly. The tsunami hit during the peak period and largely wiped out the rest of the season. Nevertheless, by the middle of 2005 many resorts that had closed were back in business and tourist flows also started to revert to more normal levels: during the first four months of 2006 tourist arrivals were nearly double those of the first four months of 2005 and bed-nights were only about 8 percent below the record levels of 2004.

This recovery reflected a reassertion of underlying economic factors. From 2003, much of the growth in tourism had been due to the strengthening of the euro against the rufiyaa, making Maldives cheaper for Europeans. The tsunami did reduce tourism but once initial fears of a repeat tsunami had subsided, these fundamentals reasserted themselves allowing tourism to rebound sharply.

Fishing too has done well. In fact, in 2005 fishing communities enjoyed the highest catch on record. Although between 2004 and 2005 the number of trips fell by 10 percent, the catch per trip increased substantially so that the total catch was about 30 percent above the average of the preceding five years. Subsequently it dropped back: during
the first four months of 2006, the catch declined by about 15%, but was still at the levels of 2003 and 2004.

The construction sector too continues to boom. The extra activity generated in the aftermath of the floods, including relocating people and providing accommodation, and refurbishing damaged resorts and infrastructure on many islands, stimulated additional opportunities. This is evident from data on the value of imported building materials and the number of foreign construction workers both of which in the past few years have shown sharp increases. Up to 2003, using constant 2002 prices, annual construction material imports were about Rf. 800 million. Then, due to the development of additional resorts, they started rising rapidly – to Rf. 1.6 billion in 2004 and Rf. 1.9 billion in 2005, an increase of about 15 percent. And they continued at the 2005 rate in the first three months of 2006.

The tsunami put pressure on government finances and on the external current account as government and export revenues shrank due to the reduction in tourism activity. At the same time emergency and reconstruction efforts increased government expenditures along with imports. These two developments resulted in sharp increases in deficits of both the government budget and the current account, even though the major part of tsunami relief aid was received in the form of grants. Nonetheless, thanks to continuing strong economic growth, the government and foreign debts remain in relative terms well below those in the early 1990s and as percentage of export earnings foreign debt is projected to remain well below ten percent.

It should also be emphasized that the tsunami’s worst effects were experienced by a relatively small group of people. A number of households lost family members, went through traumatic experiences and saw both personal and business property destroyed. But these terrible events affected only a small percentage of the total population. And even they, in most cases, ultimately picked up the threads of their lives.

Challenges ahead

The speed of recovery from the tsunami has been impressive. But a number of problems remain, including the reconstruction of housing, water and sanitation systems, and tackling the reduced accessibility of islands due to difficulties with the reef, the loss of jetties, and shallower lagoons.

In addition to tsunami-related issues, Maldives faces a number of persistent ongoing challenges. These include

- **Disparities** – Large income and non-income disparities between Male’ and the atolls.
- **Youth unemployment** – In both Male’ and in the atolls there is clearly a mismatch between the aspirations of young people and the realities of the labour market.
- **Vulnerability** – Although far fewer people are poor, the panel analysis shows that many people can still rapidly slip into poverty.
- **Education** – For the island population one of the highest priorities is the quality of education – a concern expressed in both VPA surveys and the TIA.
- **Health services** – On some islands, many people...
still do not have adequate medical services, due to the non-availability of doctors or medicines.

- **Water supplies** – A large part of the atoll population still lack secure supplies of drinking water.

- **Social problems in Male’** – Continuing migration from the islands is creating high population densities and crowded living conditions that can lead to stress. This, combined with large numbers of unemployed youth, could provide a fertile breeding ground for social unrest, drug abuse and violence.
Over the past quarter of a century, Maldives has witnessed nothing short of an economic revolution. The expansion of tourism has fuelled rapid economic growth. The tsunami caused a temporary pause but growth has now resumed.

Over the past 20 years the economy of Maldives has grown rapidly, with an annual rate of growth of more than 8 percent. Per capita GDP increased on average by about 5.5 percent annually – from less than $800 in 1984 to around $2,500 today. The economic structure and its development over time are summarized in Table 1.

Much of this growth corresponds to an expansion in health, education and other social

### Table 1 – Gross domestic product by activity, percentage, 1984-2006

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Notes: 1. For 1984 to 1999, electricity was included in manufacturing
2. For 1984 to 1999, this was included in business services
* 2006 figures are forecasts
Source: Calculated from Statistical Yearbooks, various years, MPND
services. This has mostly been financed through taxes and other revenues, while a smaller part has come through loans, both domestic and foreign, which has resulted in significant levels of government debt. Between 1994 and 2004, debt had been falling as a proportion of GDP from 90 to around 45 percent, but following the tsunami, however, this proportion rose to around 55 percent and by the end of 2006 should be around 70 percent – which is still below the levels in the early 1990s. The progress of the debt is shown in Figure 1.

In addition to government foreign borrowing, there is also significant private borrowing from overseas, mostly for the development of resorts and other tourism-related facilities. In 1994 this accounted for half of foreign borrowing, though by 2005 this proportion had dropped to around 25 percent.

As a result of the tsunami, government debt increased sharply between 2004 and 2006 – by around Rf. 3 billion, around two-thirds of which was domestic debt. As a result the share of overall government debt accounted for by foreign debt fell from 70 to 60 percent.

Economic expansion in Maldives has also been accompanied by a change in the structure of the labour force. With the national labour force growing more slowly than the demand for workers, many more foreigners had to be recruited. Between 1985 and 2005 the proportion of foreigners in the workforce increased from under 2 percent to

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**Figure 1 – End-of-year debt, 1994-2006**

Source: Calculated from Statistical Yearbooks, various years, MPND
almost one-third (Figure 2). As in other countries, the immigrant workforce is employed at both the top and bottom ends of the labour market, doing work that local people are unable or unwilling to do. At the top there are expatriates in professions such as medicine and education for which there are too few trained Maldivians. At the lower end there are many foreign unskilled workers and craftsmen such as construction labourers, sales staff, domestic servants, waiters and room attendants doing work that many local people reject.

For local workers there is a clear mismatch between supply and demand. Many young Maldivians are leaving school but remain idle because they cannot find work for which they have the necessary skills – or because the work available does not match their aspirations, in terms of either career or remuneration.

**Sources of economic development**

The driver for rapid economic development has been tourism. Over the past 20 years, as narrowly defined to include only hotel and restaurant services, tourism accounts for about one-third of GDP. However, including other activities that in practice are devoted exclusively to tourism, such as parts of manufacturing, construction, trade, transport and other services, tourism would represent well over half of the economy.

The other activity of importance outside tourism, especially in terms of employment and
income on the islands, is fisheries and its related processing. However, even though output of fisheries has been increasing over time, the rate of increase was lower than that of tourism-related activities and its relative share therefore declined from about twelve percent in the 1980s to only half that in the recent past. These developments are shown in Figure 3. Including all supporting activities in tourism and fish processing in fisheries would give an even sharper dichotomy. In this scenario, between 50 and 60 percent of GDP would be accounted for by tourism while the share of fisheries would decline from about one quarter of the economy twenty five years ago to about twelve percent today.

Most tourists to Maldives come from Europe. And though the total number of tourists has been rising, the proportion of Europeans also continues to increase. Since the early 1980s, the share of Europeans among short-term arrivals of foreigners has risen from about 70 to close to 80 percent. International statistics count all non-resident foreigners as ‘tourists’. However this will include substantial numbers of business visitors. Excluding visitors from Japan, The Republic of Korea and Malaysia, most of whom are probably business visitors, Europeans accounted for nearly 80 percent of tourist arrivals in the early years, and for nine out of ten in the past five years (Figure 4).

*Figure 3 – Tourism and fisheries share in GDP, constant 1995 prices*

Source: Calculated from Statistical Yearbooks, various years, MPND
Nevertheless even for Europeans Maldives is a marginal destination. The half million visitors to Maldives represent less than one in a thousand European holidays. And the main niche that Maldives occupies is highly competitive. Although some people come for diving or other specific purposes, the majority of Europeans are seeking the ‘3 Ss’ – sun, sand and sea – for which there is a wide choice of competing destinations, in the Caribbean, the Mediterranean, Africa and the Indian Ocean. Each of these destinations has its own attractions and disadvantages and in many cases, the tourist’s choice is determined by price.

It comes as no surprise therefore that the changes in European tourist arrivals in Maldives closely match changes in exchange rates – and particularly changes in the rates between the euro and the dollar since, with only occasional adjustments, the rufiyaa is pegged to the dollar. This is illustrated in Figure 5 which shows that, over the past fifteen years, tourist arrivals and exchange rate movements have been closely linked, implying that the choice of visiting Maldives seems to be very price-sensitive.
Figure 5 – Relationship between the annual increase in European tourist arrivals and the annual dollar/euro exchange rate, 1979-2004.

Source: Calculated from Statistical Yearbooks, various years, MPND
Effects of the tsunami

The steady growth of the economy was suddenly interrupted by the tsunami – which brought most tourism to a halt and badly damaged the country’s physical and social infrastructure. The extent of the damage was evident from a Joint Needs Assessment carried out early in 2005 by the World Bank, the Asian Development Bank, and the United Nations. The total costs, estimated at $304 million, about 35 percent of GDP, are summarized in Table 2.

The IMF in its assessment described the effects of the tsunami as follows:

“The tsunami of December 26, 2004 had a devastating effect on Maldives. Although loss of life was limited, there was extensive damage to housing and infrastructure, with virtually complete destruction on 14 out of about 200 inhabited islands, leading to the abandonment of some of them. Some 5 percent of the population have lost their homes, one-quarter of tourist resorts are closed, and 8 percent of fishing boats were damaged. Tourism and fisheries account for 40 percent of GDP, one-third of employment, and generate most of Maldives’ foreign exchange earnings.”

The same report also expected that the economy would be affected by the loss of income from tourism and fisheries, and that the Government would incur large reconstruction costs. At the time it was estimated, though with much uncertainty, that GDP growth in 2005 would be 5 percentage points lower than expected. Net losses to the balance of payments were estimated at about 19 percent of GDP, or $160 million. Of the $300-million cost of replacing damaged infrastructure, about one-third of this would be incurred in 2005 and the remainder

Table 2 – Cost of reconstruction ($ millions).

<table>
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<th>Sector</th>
<th>Needs for next six months</th>
<th>Medium-term needs</th>
<th>Total costs</th>
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<td>12.7</td>
<td>21.1</td>
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<tr>
<td>Health</td>
<td>4.9</td>
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<tr>
<td>Housing</td>
<td>22.2</td>
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<tr>
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<td>6.3</td>
<td>11.1</td>
</tr>
<tr>
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<td>2.0</td>
<td>22.9</td>
<td>24.9</td>
</tr>
<tr>
<td>Power</td>
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<td>17.4</td>
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<td>9.8</td>
</tr>
<tr>
<td>Disaster Risk Management</td>
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<td>3.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Administration etc.</td>
<td>15.0</td>
<td>35.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Total</td>
<td>110.2</td>
<td>194.1</td>
<td>304.3</td>
</tr>
</tbody>
</table>

Note: Costs of reconstruction of tourist resorts (estimated at around $100 million) and some transport costs are excluded, as most of them will be covered by insurance payments.

mostly in 2006. Lower tourism taxes and reduced imports were expected to result in revenue losses equivalent to about 5 percent of GDP.

The tsunami struck in the high season which is when most of the losses were incurred as, in the immediate aftermath, tourists feared a repeat of the disaster and stayed away. The reduction in capacity had less impact in the subsequent low season. By the start of the new 2005/06 season, most resorts were back in operation again, fears of a repeat tsunami had subsided, and bookings had picked up.

The rest of the economic infrastructure did not suffer greatly. The most-affected islands lost tools and equipment but elsewhere the infrastructure was largely intact and most of the disruptions, such as the partial closure of Male’ airport, were brief.

The effects on the national labour force were also limited because of the buffer provided by foreign labour. Enterprises were able to terminate the contracts of expatriate employees, or send them on early leave or not replace them, allowing businesses to meet their needs without laying off local staff. However, some local employees in the tourist industry did suffer losses of service charges and tips.

Fishing communities too remained largely intact. They lost relatively little of their fishing boats and gear. And in fact in 2005 fish catches were higher than ever before which partially compensated for other tsunami-related losses.

The tsunami did however put extra pressure on government finances. The Government lost income from tourism taxes and related charges while incurring the extra costs of helping the disaster victims and of repair and reconstruction. It was compensated for some of these by grants from various sources, but some of the financial support came also in the form of loans, resulting in substantial extra debt (Figure 1). Even so, the debt is sustainable, with projected service payments well below ten percent of exports.

Overall therefore it seems that the tsunami’s macro-economic effects were quite small and mostly short term. This is largely because it did little damage to the economic infrastructure, and even this was offset by favourable circumstances, such as large fishing catches and the strength of the euro. As a result, although the GDP declined in 2005, it staged a remarkable recovery in 2006, so that average annual growth for the two years was between 7 and 8 percent, thus continuing the trend evident since 2002.

This is not to underestimate the suffering of those directly affected by the tsunami, but the population was also able to benefit from many opportunities provided by the economy’s excellent performance.
The Tsunami Impact Assessment uses much of the same methodology as the earlier Vulnerability and Poverty Assessments and also collects information from some of the same households, allowing for the analysis of results from a ‘panel’ of respondents. In addition, it gathers more detailed information from the most-affected islands on the impact of the tsunami.

In 1998, the Government, recognizing the need for island-specific information, undertook the first Vulnerability and Poverty Assessment (VPA-1). This survey covered all 200 inhabited islands but within each island also selected a limited sample of households for more detailed study. In mid-2004, the Government followed this with a second survey, VPA-2 which used, broadly speaking, the same questionnaires and definitions.

One year later, in June and July 2005, to gauge the effects of the tsunami, the Government then carried out a further investigation – the Tsunami Impact Assessment (TIA). The TIA had a similar coverage as VPA-2. It was conducted on all 200 inhabited islands, and used, where practicable, the same questions. It also continued the principle of following a ‘panel’ of households: the sample covered most of the same households as in VPA-2, which in turn included about half of those covered in VPA-1.

One major difference with the earlier surveys, however, concerned the assessment of living conditions of the most affected population groups. They were provided with food by relief agencies and lived in temporary shelters where they also had access to free common services. This made it difficult to collect household expenditure information, which would not have been comparable with that used in the VPA studies. The TIA did therefore not use expenditures as a proxy for household incomes but switched to actual income data.

The information collected in the TIA survey was edited, coded and entered onto computerized databases during the third quarter of 2005. It was then analysed for completeness and accuracy, and its summary results were compared with external information to check for inconsistencies. It was supplemented with information from the administrative records of government ministries and data from the National Disaster Management Center (NDMC). This work was complete by the end of 2005.

Sample design and methodology

Since the sample of households of both VPAs and the TIA include all islands they allow for the collection of aggregates for any group of islands, and the results are representative for the various groups. Thus it is possible to follow the experience of the tsunami-related groups. However, for some of the tsunami-related groups, the two VPAs had covered only a small number of households so the accuracy of the conclusions is sometimes less than optimal.
The VPA surveys both covered a minimum of ten households on each inhabited islands, though used larger samples on the more heavily populated islands. In total in the atolls they enumerated about 2,400 households, covering a wide range of socio-economic characteristics. The TIA had a somewhat different focus. Rather than considering the country’s general vulnerability and poverty status it focused instead on the effects of the tsunami on households. For this purpose, and to ensure an adequate number of responses for all groups used in the analysis, it increased the sample size on the most-affected islands and reduced it on the islands not directly affected.

The TIA also presents its findings in a different way. The VPAs had analysed the information by atoll and region. The TIA, however, presents its findings for two special island groupings that cut across atolls and regions: the ‘tsunami impact classification’ and the ‘tsunami displacement classification’.

The tsunami impact classification, which was devised by the NDMC, is based on five levels, from nil to very high. The tsunami displacement classification, consists of four groups: first, those who have been relocated to other islands, ‘people displaced externally’ (PDEs); second, those on ten islands who were accommodated in temporary housing on their own islands, ‘people displaced internally’ (PDIs); third, the original population of islands that hosted the majority of the PDEs; and fourth the inhabitants of all other islands.
The tsunami had a serious impact on many inhabited islands – affecting households in different ways – destroying houses, reducing food supplies and even affecting family size. It also damaged infrastructure, including water supplies and sanitation, and inundated agricultural land with salt water, as well as reducing access to the islands.

The Tsunami Impact Assessment shows that Maldives suffered serious loss of property and income as a result of the tsunami but also documents substantial recovery. This success was due to a combination of many factors – including the contributions provided by the Government, international donors and aid agencies, philanthropists and the Maldivian population at large. However, the key factor was the resilience of the island population.

### Household size

One of the effects of the tsunami was an increase of household size. The tsunami destroyed...
or badly damaged many houses and, even though the Government built a large number of temporary shelters, average household size, which previously had been falling, rose again, from 6.1 to 6.6 in the atolls and from 8.0 to 8.2 in Male’. This is illustrated in Figure which shows that after the tsunami average household size increased in all the impact classifications, but the most dramatic increase, from 5.9 to 6.9, was for the people displaced externally (PDEs) those who had left their own islands and were living in temporary shelters or with host families on other islands.

In most countries, poor households are typically larger than richer ones. However, following the tsunami people were relocated according to need, irrespective of income level. This is evident from Figure which shows that although for both Male’ and the atolls as a whole poorer households were larger this was not the case for PDIs or PDEs.

**Food supplies**

One of the most pressing needs immediately after the tsunami was food. Many institutions responded with food aid though its distribution was sometimes less than optimal – not always arriving in sufficient quantities at the right time to the right places. It should be noted however, that some of the islands are so remote that they are difficult to reach even at the best of times and can experience local food shortages.

![Figure 7 – Average household size 2005, poorest and richest 50 percent](image-url)
The VPA-2 and the TIA collected information on the number of people experiencing a food crisis in the year prior to the tsunami or in the six months following the disaster. A food crisis is defined as a period when a household does not have access to the three most basic food products: rice, flour or sugar. The information presented below relates specifically to the three high-impact groups of the island population.

Overall, just over one-quarter of this target population reported food crises, averaging 1.8 crises per household. However, the character of these crises varied depending on whether or not they had been caused by the tsunami. Households reporting tsunami-related crises on average had 1.7 crises which lasted a week or more, while those with other food crises reported more than two crises lasting on average for ten days. In total over the seven-month reference period, the affected households were without essential food for nearly four weeks; more than four weeks for tsunami-induced shortages and three weeks for the other households.

As might be expected, the proportion of the various tsunami-affected groups suffering food crises rose substantially between 2004 and 2005. Less than ten percent of the island population reported any food crises in 2004 while following the tsunami about one-quarter of the PDEs and PDIs had problems.
In fact, 80 percent of the people covered in this part of the survey that faced food shortages in 2005 cited the tsunami as the reason. The main causes were the loss of agricultural crops and fish processing capacity, and inadequate stocks of food available on the islands at the time of the disaster even after taking into account the provision of food aid. This is illustrated, by displacement group, in Figure 8.

Figure 9 examines the situation by impact level. This shows that food shortages were reported in 2005 for less than one-quarter of the population of the two most-severely affected groups. But the third level of impact – islands that had been flooded during the tsunami and suffered damages to more than one-quarter of houses – around one-third had food supply problems. This is probably because this group received substantially less food aid.

As might also be expected, the number of people experiencing food shortages peaked in December 2004. The three main causes of shortages were: the non-availability of the staple foods in island shops, transport difficulties and the lack of money to purchase food.

*Figure 9 – Food crises by impact level, 2004-05*
Housing

The damage caused on four inhabited islands has been so extensive that these may be considered as completely destroyed. The former inhabitants of these islands, more than five thousand (2.5 percent of the atoll population) have been relocated to various host islands.

On another ten islands the damage was very extensive, with most houses and infrastructure destroyed or seriously damaged. However, after the initial evacuation of their population, the people have moved back. About two-thirds of the population of these islands remains internally displaced and lives in temporary shelters. With a total population of about 7,500 persons on those islands, this means that another 2.5 percent of the atoll population is affected in this way.

Furthermore, about 1,000 persons are still internally displaced on various other islands. In total, therefore, about 11,000 people were still displaced in the middle of 2005. This represents about 5.5 percent of the Atoll population, or nearly 4 percent of the total population of the Maldives. This also means, of course, that 96 percent of the population is now living in the same house as before the tsunami.

For many different reasons, both logistical and administrative, the construction or reconstruction of houses had been slower than anticipated. One of the most extensive new communities is in Raa Atoll. Here the Government is now developing a hitherto uninhabited island, Dhuvaafaru, to permanently house about 3,500 of the presently displaced persons from Kadholhudhoo island.
Consumer durables and education

As well as losing their houses many people also lost consumer durables. Ownership of such items had increased substantially in the years before the tsunami. The total replacement value of such items had increased to five-fold between 1997/98 and 2004. The TIA survey, asked households which goods had been lost or severely damaged. The most severe losses, as expected, were suffered by the PDEs, among whom more than 80 percent reported losses of the most basic items. Since then, many of these goods have been replaced (Figure 10). Households received some of the new durable goods from various donors as gifts in kind, and purchased the rest, often using financial support received from the government and others.

As might be expected, the damage to, or loss of, schoolbooks and uniforms was closely related to the severity of the tsunami impact. On the 14 most-affected islands, four out of five school children lost either their books or uniforms, or both. Losses were less, around 50 percent, for people on islands in the second impact level and 40 percent for those on islands in the third impact level.

However since the tsunami the overall educational situation has improved. Previously 65 percent of the population was living on islands with schooling up to grade ten or higher, but by 2005 this proportion had increased to 70 percent. Over the same period for primary schools in the atolls the ratio of students to trained teachers fell from around 40 to 35 – a major change over such a short period of time.
Figure 11 – Books and uniforms lost or damaged, by impact level

- Very high impact level:
  - Books lost or damaged: 76%
  - Uniforms lost or damaged: 77%
  - Not damaged: 11%

- High impact level:
  - Books lost or damaged: 55%
  - Uniforms lost or damaged: 53%
  - Not damaged: 30%

- Substantial impact level:
  - Books lost or damaged: 37%
  - Uniforms lost or damaged: 35%
  - Not damaged: 47%
Infrastructure

The tsunami also caused severe damage to infrastructure including electricity supplies and systems of coastal protection. It also affected access to the islands, by making lagoons shallower, as well as through beach erosion and damaged jetties – and damaged 15 percent of all vessels. The tsunami also had an impact on agriculture on nearly one-quarter of islands, since salination made the land unsuitable for immediate replanting.

There was also extensive damage to sanitary systems – as septic tanks cracked or overflowed – contaminating groundwater and heightening the risk of disease. On a number of islands the sanitary systems are not yet back to their pre-tsunami levels, and many islands still have a problem with accumulated garbage.

One of the most urgent issues was to ensure water supplies. The tsunami had a serious impact on water supplies, by damaging water tanks and systems for rainwater harvesting, as well as by contaminating the groundwater taken from wells, either through salination or leaking or overflowing septic tanks.

This was tackled initially by delivering drinking water supplies from Male’, either in tanks or bottles. Some islands were also supplied with desalination plants, though these are expensive to run and maintain and in the longer term may prove...
unsustainable. Following the tsunami, households on many islands also received water tanks, but an extensive trip to the northern part of the country in February 2006 discovered that many of these had yet to be installed – probably because of a shortage of funds to repair rainwater collection systems and connect them to these new tanks. The contamination of ground water will also take time to resolve.

The shortages of water do, however, also have to be set in context. On many islands even before the tsunami water supplies were already precarious. This is illustrated in Figure which shows that in 2004 around one-third of people on the 71 most-affected islands experienced water shortages, often up to 40 days or more. After the tsunami, in the first half of 2005, the situation was much worse. Despite efforts to bring water to affected communities less than one-third of the population of these islands reported having enough water throughout the period – half the proportion of the previous year – and around 40 percent suffered shortages of more than 40 days.
4. **Psychosocial & Reproductive Health**

Apart from causing physical damage the tsunami had a lasting psychosocial impact – raising levels of stress and affecting people’s outlook on life. Higher levels of stress can also undermine reproductive health.

The TIA included modules on psychosocial and reproductive health. These questionnaires were only applied, however, on islands in the two highest-impact groups. In addition, a special questionnaire was administered to a sample of women aged 15 to 49 years to assess the tsunami’s impact on reproductive health. These surveys were analysed by medical experts of the Ministry of Health, assisted by UNFPA.

The analysis uses the following classification of respondents.

*Moderately distressed* – Respondents who had one or more symptoms of a psychological or mental disorder following, or related to, the tsunami – and continued to have such symptoms at the time of the study: difficulties with sleeping or eating or having less hope for the future or feeling less satisfied with the safety of their family due to the tsunami

*Mildly distressed* – Those who had difficulties with sleeping or eating following the tsunami but no longer had them at the time of the survey.

*Not affected* – Those who did not have any symptom of a psychological or mental disorder.

The survey found that the majority of the population of the 14 most-affected islands were moderately distressed – about two-thirds of women and more than half of men (Figure 13). The patterns being similar between the persons displaced externally (PDEs) and the persons displaced internally (PDIs). The PDEs had slightly higher levels of moderate distress but overall levels were marginally higher among the PDIs.

Thus far, the levels of distress do not seem to be linked with employment. A preliminary analysis of the labour force characteristics of the people with different distress levels did not show a clear pattern. Those more distressed, women or men, had similar labour force participation rates to the other groups. Nor were there any obvious patterns related to unemployment levels or other linked characteristics.

Nearly two-thirds of women, and more than half of men, covered by this module reported that after the tsunami they had problems with sleeping. Six months later, the situation had improved substantially, nevertheless more than one in three women and a quarter of men continued to face difficulties. Perhaps information on relaxation methods, consultation with the group on how to manage worries, provision of information that will resolve their worry may be some of the ways of addressing these well-being concerns.
As might be expected from a population deprived of their own homes and living in temporary shelters, the main source of worry was housing. This is followed by worries about the children’s future and about the way family and friends have been affected. When worried and anxious, in about one-third of cases, people talked about this to another person. A further one-third said that they prayed, engaged in religious activities or trusted in God.

Married respondents were asked about the relationship with their partner. About 30 percent of married men and women said it was better than before, and only about 5 percent classified the relationship as worse. A question about relationships with the family produced a slightly different result. The same small percentage of respondents thought that these had worsened, but a substantially higher proportion considered that they had improved – nearly half of men and 40 percent of women. All respondents were also asked about violence. About 10 percent said that they had been tempted to hit someone and around 5 percent had thought about self injury.

**Reproductive health**

One in eleven married women between the ages of 15 and 45 was pregnant; seven percent in the PDEs and 11 percent in the PDIs. Overall, about half the pregnancies after the tsunami were unplanned – though this was most likely for the older age groups. This may, however, not be much different from the normal situation.

Prior to the tsunami, contraceptive use was already quite low – around 30 percent. The highest
use was amongst women in the age group 25-34, followed by the older women. After the tsunami, the rate was lower still. Two out of five women who had been using contraceptives prior to the tsunami subsequently stopped, while only four percent started – eight percent of those in the PDEs and one percent in the PDIs. As a result, after the tsunami nearly eight in ten women did not use any method of birth control – with the rate about 15 percentage points lower among the PDIs than the PDEs (Figure). Of those continuing to use contraceptives, 15 percent changed methods but the vast majority continued with the same method as before.

Reasons for stopping use were mostly linked to the tsunami. Around 40 percent of those who stopped said that this was because of the loss of contraceptives or contraceptive use records, while another 12 percent said it was due to relocation.

Figure 14 – Pre- and post-tsunami contraceptive use, by age group and displacement level
Surprisingly perhaps, the tsunami did not have a serious impact on incomes or poverty. Indeed for most people the progress of previous decades appears to have continued uninterrupted.

Before the tsunami, there had been impressive growth in household incomes – which between December 1997 and July 2004 increased by more than 35 percent. And despite the tsunami they continued to rise: between September 2004 and June 2005, average per capita household income increased by a further 7 percent.

To get a clearer picture of the tsunami impact, the reference point for comparisons of household incomes over time has been fixed at September 2004 rather than at June/July as for the VPA-2 survey. This is because in August 2004 government employees were given a general wage increase – on average 44 percent. As government employment accounts for nearly one-quarter of the total Maldivian labour force, and for four out of ten employees, this wage increase had a substantial effect on household incomes. This round of government salary increases was not, however, emulated by the private sector.
Although there was overall income growth this masks a different experience among the islands and for Male’. Between 2004 and 2005, most island groups enjoyed an increased in mean per capita household income. The average incomes of the original population on the host islands increased by 30 percent, but people living on the four islands that were completely devastated and had to leave, the PDEs, lost nearly all their property. As a result their incomes declined, though six months later they were back to about 80 percent of pre-tsunami levels. Over this period, incomes also declined in Male’, by about 10 percent. These developments are illustrated in Figure 15, where the percentages under the group names are their approximate share of the national population.

It is also important, however, even within these island groups, to investigate the income experience of various subgroups and in particular to see what happened to the richer and poorer people. One way of doing this is to consider a different form of average, the median income, which is the income at which half the population has a higher income and the other half a lower one. As indicated in Figure 16, this produces a slightly different pattern. For both the PDEs and for Male’, median income increased. A fall in mean income, combined with a rise in median income implies that the income losses were concentrated in the richer half of the population. For the PDE population, these were often families with resort workers who had lost part of their income.
Though Male’ was only slightly damaged, incomes there in July 2005 were about 10 percent lower than before the tsunami. Some of this is due to a small decline in wage incomes, probably related to tourism, but the most-affected income stream was that derived from property, of which 90 percent comes from rent of buildings, as well as dividends, rental of machinery and equipment, and rent of land. A fairly large share of households reported incomes from renting out properties – 21 percent in 2004 and 26 percent in the following year – though the surveys did not ask for a breakdown of rental income between commercial and residential properties.

That the richer part of the population in Male’ lost more than the poorer part can also be seen from Figure 17 which presents the cumulative frequency distributions. Up to Rf. 100 per person per day, the purple line is completely below the grey line indicating that at those income levels households were better off in 2005 than in 2004. At the income of about Rf. 100 per person per day, however, the two lines cross, and beyond that the purple line stays above the grey one, indicating that after the tsunami the rich formed a smaller proportion of the population.

*Figure 17 – Cumulative population ranked from poor to rich, 1997–2005, Male’*
Both PDEs and PDIs lost their fields so their income from own-produced agricultural produce declined to zero. Workers among the PDEs were especially hard hit by the decline in tourism because their proportion of resort workers was relatively high. Although the resorts continued to pay basic salaries, and laid off scarcely any Maldivian workers, the latter still lost their incomes from service charges and tips. PDIs, on the other hand, were in a more fortunate position and managed to increase both wages and business profits.

As might be expected, the tsunami resulted in a substantial increase in business activity on the host islands. Their total population increased by about two-thirds – from about 16,000 to roughly 27,000 – which helped the original population to double their business profits (Figure 18).

![Figure 18 – Composition of household income, 1997-2005, host islands]
Income poverty

The reduction in income poverty is indicated in Table 3, which shows that between 2004 and 2005 income poverty was reduced for all possible poverty lines. One can look, for example, at the Rf. 4.34 per day line, which is equivalent to the line of one dollar-a-day in purchasing power parity used as the international MDG poverty line. In 2004, 9 percent of the population was below this while one year later the proportion had fallen to 6 percent. Over the same period, the proportion of the island population with an income higher than Rf. 15 per person per day increased from nearly 70 percent to over 80 percent.

Figure 19 gives, for 2004 and 2005, an overview of the main determinants of household income along with their relative importance. The determinants presented as green intervals have a positive impact on household incomes; those in pink have a negative impact. The larger the interval, the greater the contribution of that determinant.

In both years the strongest positive determinant of income level is the proportion of adults within the household who are employed. Income also tends to be higher if they are working as employees. They are also likely to earn more if they are working in fishing, government, or tourism – though this effect is only statistically significant for 2005. Those working in construction are also likely to do better, particularly after the tsunami.

In most parts of the world poor households tend to be larger than rich ones. Average household size is smaller in rich countries than in poor ones; and within both poor and rich countries, the poor live in larger households than the rich. Accordingly, Figure 19 shows that in 2004 household size was negatively correlated with household income.

However, one of the most remarkable findings of the TIA is that the relationship between household size and the level of income was different six months after the tsunami. Now larger households were likely to earn more, suggesting that, contrary to the usual assumptions, larger families do not necessarily have to be worse off. This contradictory result also applies to the proportion of young household members and the proportion of old household members, although these last two determinants are not significant.

A possible explanation for this remarkable finding could be that larger households are less vulnerable to disasters because their income sources are more diversified. In a society like Maldives where people share their incomes with all other household members, diversification matters. Some household members might have been working in sectors that

Table 3 – Percentage distribution of panel households, by income class, 2004-2005

<table>
<thead>
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<th></th>
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<td>&gt;15</td>
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<tr>
<td>total</td>
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</table>
were hit most by the tsunami like agriculture and manufacturing, while others might have been working as employees in the government sector or in tourism and thus retained their salaries.  

Finally, as expected from theories of human capital, households tend to be richer if their members have higher levels of education.

**Figure 19 – Major determinants of household income 2004 and 2005**
Vulnerability

One of the more disturbing findings of the sequence of surveys from 1997 onwards is that the population seems to be much more vulnerable than has been assumed. This has been depicted in Figure 20 which shows movements between the richer and poorer income groups. In 1997, using the Rf. 15 poverty line, 44 percent of the population was poor and the remaining 56 percent non-poor. This 44 percent then splits into two groups: 18 percent remained poor while 26 percent became non-poor in 2004. However, examining the poor in 2004 shows them to be comprised of two groups: the 18 percent who had also been poor in 1997, and the 16 percent who had been non-poor in 1997. Similarly, there was a substantial movement between 2004 and 2005.

Over the period of the three surveys, only 7 percent of the original 44 percent poor remained so throughout. In 2005, they made up about one-third of all the poor, with the others moving in and out of poverty, and sometimes back again. Only two out of three non-poor in 1997 remained so throughout. Taken together, this means that during this period more than half of the island population moved between poverty classes at least once.

The TIA also carried out an analysis to identify the characteristics of households less likely to fall into income poverty after the tsunami. These characteristics included (i) residing on host islands; (ii) receiving remittances from family members working in resorts or in Male’; (iii) having a high percentage of labour income earners in the
household; (iv) having a higher percentage of employers or employees. Households were also less likely to fall into poverty if their workers changed from agriculture to another activity or from being an own account worker to being an employee. Households were also less vulnerable if most of their workers were engaged in government, fisheries, trade & transport or construction.

Many of the same characteristics also helped poor households escape from poverty. These characteristics were (i) having a high percentage of labour income earners in the household; (ii) having a higher percentage of employers; (iii) changing from agriculture to another activity and (iv) changing from own account worker to employee. Households with the best prospects had most workers engaged in fisheries, trade and transport or construction, while households with low chance of escaping from poverty had a high proportion of their workers in manufacturing and agriculture.
Following the tsunami more people are now seeking work, though since many have been unable to find jobs there has been a rise in unemployment.

As can be seen from Figure 21, for Maldives as a whole around half the working age population are in the labour force. This participation rate increased somewhat in 2005 as following the tsunami more people, especially in the atolls, were willing to work, though since not all could find jobs the employment rate stayed much the same while unemployment rose – from 7 to 12 percent of the working-age population. The proportion of the labour force that was still out of work due to the tsunami was, however, small – about two percent in the atolls and one percent overall.

Between 2004 and 2005 there was also a change in the structure of the labour market. As is evident from Figure 22 for the atolls the proportion of the employed labour force working in hotels and restaurants declined. But a number of sectors showed increases, notably construction, trade

*Figure 21 – Employment and unemployment, 15 years and over, 2004 and 2005*
and transport, which benefited from intensive reconstruction activities. The result for fishing might seem surprising – a drop from 14 to 13 percent – given that 2005 was a good fishing year. However this good result was due to a 40 percent higher catch per trip. In fact there were 10 percent fewer trips, hence a reduction in employment.

In Male’, the development was somewhat different. The share of activities in the total remained more or less constant and only the transport and communications group witnessed a large increase (Figure 23).

There were similar patterns in the different displacement groups. However these were often more pronounced as activities were more narrowly spread and more severely affected by the events.

Figure 24 shows for 2004 and 2005 the proportion of the working age population that was employed. In Male’ this fell, for both men and women. In the atolls as a whole, it increased somewhat, for both sexes. But within the atolls, the PDEs and PDIs had different experiences. Among the PDEs, employment of women was more or less halved while for men it increased slightly. Among the PDIs, the employment rates were marginally lower for both men and women, a pattern similar to that in Male’.

**Figure 22 – Employment by type of activity, atolls, 2004 and 2005**
Figure 23 – Employment by type of activity, Male, 2004 and 2005

Figure 24 – Employed labour force, by sex and displacement level, 2004 and 2005
Unemployment

Essentially what happened between 2004 and 2005 was that, perhaps because households needed extra income, there was an increase in participation rates. Unfortunately, many people could not find the right kind of work and as a result while employment remained much the same there was an increase in the rate of unemployment. The situation was particularly difficult for young people. Even between 1997 and 2004 they were finding it increasingly hard to find work and the trend continued in 2005 when about a quarter of young people in the labour force, or about ten percent of all young people, were unemployed (Figure 25). Young women found it even harder to find work: their unemployment rates were about double those of young men. In the atolls, around half of young women willing to work could not find a job. In Male’, around one young person in four looking for work was unemployed.

Figure 25 – Unemployment rates, young men and women, 15 to 24, 2004 and 2005
7. Remaining Challenges

By July 2005, a number of the problems caused by the tsunami had yet to be resolved. Reasons for slow progress included funding shortages and difficulties with implementation which affected for instance the reconstruction of housing, water and sanitation systems. And even eighteen months after the disaster a substantial proportion of the people displaced remained in temporary shelters.

Some of the ways in which people can be helped to cope with these challenges would be to provide them with accurate and up-to-date information giving what is being done and being planned, realistic time-frames and status of progress/completion.

The tsunami also made islands less accessible – as a result of difficulties with the reefs, shallower lagoons or the loss of jetties. There was also more beach erosion and a number of islands had yet to be cleared of accumulated garbage. In addition, reconstruction and improvements to infrastructure had been slower than expected.

Some of the workers, mostly in manufacturing and agriculture, who stopped their work due to the tsunami, had neither resumed their former jobs nor moved to another activity. And many islands where agricultural fields had been damaged and groundwater contaminated had yet to be restored to their pre-tsunami status.

The financial cost of the tsunami recovery, both for the rebuilding of infrastructure and for extended care for the displaced persons, have been very high. Substantial support has come from the international community, but nonetheless a large burden had to be borne by the Government which has taken out loans for rebuilding infrastructure and incurred substantial budget deficits.

Long-standing challenges

Many of today’s challenges pre-date the tsunami. Over a long period, there had been increasing income and non-income disparities between Male’ and the atolls. The tsunami may have interrupted this trend by reducing the incomes of the richest part of the population in Male’. But unless the underlying causes are addressed this will probably only be a temporary slowing.

Another disturbing phenomenon, both in Male’ and the atolls, is the continuing increase in youth unemployment. In Male’, youth unemployment in 2004 was about one in six but in 2005 was one in four. The deterioration was not so severe in the atolls, but here the levels were already much higher: in 2005 nearly half of young women were unemployed.

The main problem is a mismatch between the aspirations of the local population and the realities of the labour market. Overall there is no lack of work, indeed there are labour shortages that can only be filled by bringing in large numbers of unskilled and low-skilled expatriate labourers; foreigners currently provide about one third of the labour force, mostly in low-skilled jobs. It will be important therefore to find various incentives for the locals, especially
the youth, to fill available vacancies. It is equally important, however, to ensure that they have access to the general education and vocational training that will give them the necessary skills.

The surveys have also highlighted vulnerability to poverty. Over the eight years since the first VPA the overall poverty situation has improved dramatically, but the panel analysis shows that over this period a significant number of people fell into poverty. A much larger part of the population turned out to be vulnerable than previously envisaged. Policy makers need to be concerned therefore not just about helping people to escape from poverty, but about preventing vulnerable population groups from falling into poverty.

**Atolls**

The island population has indicated that one of their highest priorities is improving education. In the VPAs as well as in the TIA, while acknowledging the improvements in infrastructure and facilities they expressed concerns about education quality.

They are also concerned about health. Due to the non-availability of doctors or specific services on their islands, they do not always have access to medical services. This also applies to medicines, because even when these are available on an island, there may be no-one to prescribe them.

A large part of the atoll population also lack secure access to drinking water. On many islands the tsunami contaminated groundwater sources, leaving the island population more dependent on erratic rainfall. And the pressure on limited water was exacerbated by increasing population size. The capacity lost in the tsunami can be replaced by rebuilding rainwater collection and storage systems. And on a number of islands further short-term relief can also be provided through desalination plants, though the high cost of operating and maintaining these units may in the long term make them unviable.

**Male’**

Continuing migration from the islands is resulting in very high population densities in Male’. According to the provisional results of the 2006 Census, more than one-third of the Maldivian population is now living in Male’, compared with only one-quarter ten years ago.

These crowded living conditions are an important source of stress. Taken together with a large number of unemployed and underemployed youth, this in turn provides a fertile feeding ground for social unrest and can lead to increased violence, drug abuse and other social evils.

**Short term versus long term**

Fortunately, the tsunami has not undermined the country’s long-term achievements. Major improvements in life expectancy, education, infant mortality and incomes, have not been compromised seriously, and in some cases not at all. Generous assistance from foreign and domestic sources – and good post-tsunami economic performance – have ensured that the economic impact has been overcome faster than might have been expected.