

Shelter from the Storm

A decade after the Indian Ocean tsunami of 2004, there are several lessons to be learnt from interventions in shelter in the south Indian state of Tamil Nadu

India was one of the countries most affected by the Indian Ocean tsunami of 26 December 2004. The three Indian states of Tamil Nadu, Kerala and Andhra Pradesh and the two Union Territories of Andaman and Nicobar Islands and Puducherry were affected. Though the Andaman Islands were closer to the epicentre of the undersea earthquake, it was Tamil Nadu that suffered the highest fatalities and an enormous loss of property and infrastructure along the coast. With a 1000-km coastline and home to India's largest marine fishing community, the story of Tamil Nadu's recovery from the tsunami has great significance from many points of view. In particular, it is of great interest to all those concerned with disaster preparedness and management and with coastal and fisheries development and management.

With fishing hamlets located mostly within 500 m of the shoreline, the houses of fishermen in Tamil Nadu were damaged / destroyed by the tsunami, on an unprecedented scale. The damaged houses were assessed at over 53,000, with around 45,000 of them fully damaged and the remaining partially damaged. Teams from the Indian Institute of Technology (IIT) Roorkee's Department of Earthquake Engineering, which visited the coastal regions of Tamil Nadu, Puducherry and Kerala in the first week of January 2005, found little evidence of damages due to direct shaking while the damage due to the tsunami was extensive. Both masonry and concrete structures were damaged, though the level of damage varied and a direct correlation was found between run-up height and extent of damage.

With more than one million people affected, and considering the fear factor, the number of people who had to be immediately transferred to relief camps crossed 1,400,000 in the first couple of weeks. Although there were cyclone shelters in some of the affected villages, these were not sufficient and the people were moved to marriage halls, schools, colleges, hostels and premises of temples, mosques and churches. As this happened during the Christmas vacation, schools and colleges were available for the setting up of relief camps. However, they had to reopen

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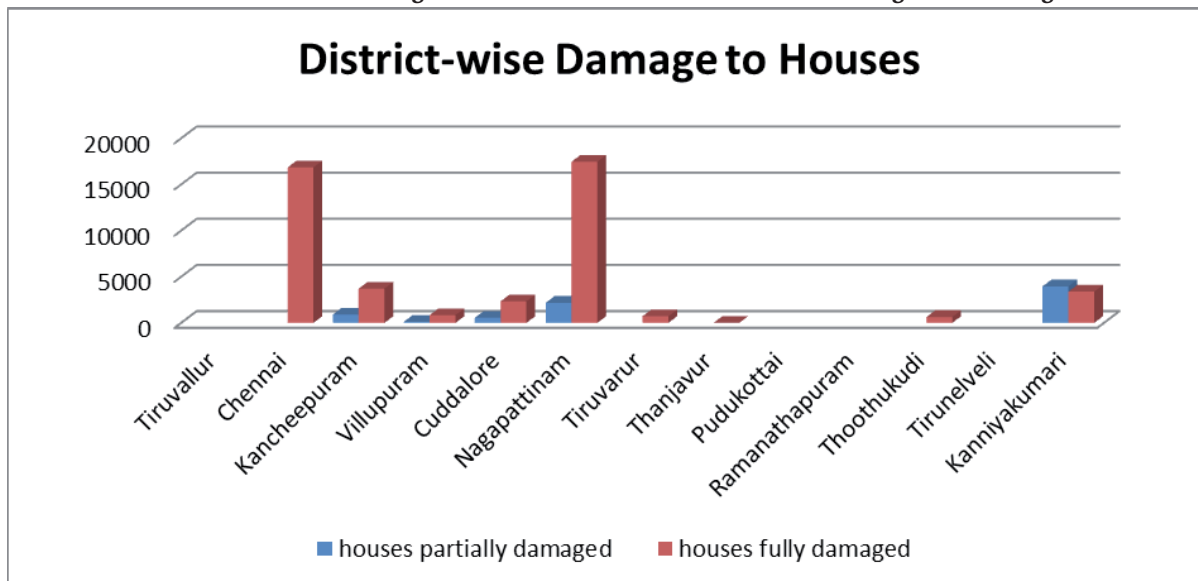
and life had to move on. Pongal, which is an important festival in Tamil Nadu, was during the second week of January and the state government felt that the best gift it could offer was a feeling of normalcy to the affected people through shifting them from their relief camps to temporary shelters.

Temporary shelters

Due to the scale of support that was pouring in, there was great confidence that the temporary shelters would be required for less than a year. It was estimated that about 100,000 families would have to be provided temporary shelters while awaiting repairs or reconstruction. As the design and the structure, including the maximum permissible

*This article has been written by **Annie George** (annie@bedroc.in) of Building and Enabling Disaster Resilience in Coastal Communities (Bedroc) and **Ahana Lakshmi** (ahana@trinet.in) of The Resource and Information Network for the Coast (TRINet). This is a summary of a larger report that included status of recovery of the fisheries sector a decade after the 2004 Indian Ocean Tsunami*

The district-wise damage to the houses due to the 2004 tsunami is given in the figure



Source: Tiding over Tsunami-I (GoTN 2005)

cost, was already stipulated by the state administration, the setting up of these temporary shelters did not take much time and the people were transferred to these new facilities well within the two weeks allotted. Common sanitation and water supply facilities were set up in the shelters provided and UNICEF trained youth volunteers to oversee the effective and hygienic utilization of these facilities.

However, these temporary shelters proved to be more of transit shelters as the time estimated to identify suitable sites and finish construction of permanent houses took much longer than estimated, resulting in cases where people had to stay in these shelters for two to four years. The bitumen sheets used as roofing proved hot and uncomfortable, and additional thatched roofing had to be provided. Heavy rains in 2005 also led to waterlogging of a number of sites requiring investments in redoing the flooring and roofs. All this raised the overall investment, which could have been reduced by better planning in the initial stages. However, the learnings from these have resulted in the formulation of guidelines for temporary shelters.

While the temporary shelters were being constructed, discussions were going on in parallel regarding

permanent housing. Considering that the old houses were mostly of the thatched '*kutch*' (rudimentary) type, new housing, rather than repairs, dominated the thinking. The policy for permanent shelters was clearly shaped by a number of influences. The first Government Order (GO), dated 13 January 2005, indicated the move towards a public-private partnership. The finalized policy was brought out in the GO No. 172 issued in April 2005. This allowed non-governmental organizations (NGOs) and corporate houses to build the housing units based on government specifications; the government would provide land and other infrastructure free of cost. The houses would be insured from multiple hazards for ten years and all houses would be given in joint ownership to husband and wife, ensuring that women have an equal right to a tsunami house.

Private assets

It is useful to look back at the events that led up to GO 172 to understand the influences that shaped it as they were largely over the location of the houses of fishermen. The World Bank had come forward to fund creation of private assets with one stipulation that the Coastal Regulation Zone (CRZ) norms be followed in construction of

habitations. According to the CRZ, new constructions would be permissible only beyond 500 m from the high-tide line (HTL). All districts affected had their own issues and problems when dealing with reconstruction of habitations. While Nagapattinam had to identify appropriate sites for 20,000 households in a terrain that was largely below mean sea level, Kanyakumari had to grapple with finding adequate spaces for relocation in a densely populated area, and all districts had to deal with the CRZ norms. Although life security was a major factor in deciding the sites for relocation, considering that more than 80 per cent of the people affected were working fisherfolk, their access to the sea and shore, for their livelihoods, was also a subject for heated debates during the first month after the tsunami. “To move or not to move” was taken up at all platforms right from the villages to the state level.

Though the first GO on permanent shelter would become obsolete soon, it served some important purposes. It sent out a clear signal to the affected community and the rest of the world that the Tamil Nadu government meant business. It also signalled its interest in exploring co-operation with NGOs and corporates. The fishing community, the main community affected by the tsunami, was re-assured by the GO. The uncertainties and deep vulnerabilities it might have felt were set at rest. This ensured good co-operation from the community for all relief and rehabilitation that followed, especially through the extensive time delays in some places. It also gave it the confidence to think beyond mere survival and start asserting its “rights” and expressing its “needs” more expansively.

Relocation of communities also had implications on the socioeconomic and cultural dynamics, which had to be respected. There were many NGOs willing to construct, but at different scales. Matching sites to communities as well as NGOs proved an exercise by itself and was handled in various

ways: either through a direct one-to-one dialoguing between the administration and the respective NGOs, through direct assignment or through participatory processes like the one in Nagapattinam facilitated by the NGO Co-ordination and Resource Centre (NCRC). However, the underlying principles followed were that the communities should be maintained intact wherever possible: a letter from NCRC to the District Collector, Nagapattinam emphasized that “a hamlet/village that has its own clear-cut identity and traditional system of internal governance like a caste *panchayat* should be considered indivisible”, and that every NGO, however big or small, should be given an opportunity for participating in the construction activities.

The implementation of the tsunami shelter programme was a huge affair that started in mid-2005 and ended around 2011—a period of over seven years and in two phases. In the first phase, 31,032 houses by NGOs and 22,257 by the government (largely in urban areas) in nine districts were taken up. Of these, by June 2008, 29,056 houses constructed by the NGOs and 7,204 houses constructed by the government had been handed over to beneficiaries. The houses completed by the government were only in the urban

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The building of the South Indian Federation of Fishermen Societies (SIFFS) at Nagapattinam, where some exceptional sites are being projected as models for others to emulate

areas (Chennai and Tiruvallur districts). They included 'NGO backed-out houses'. Later, with leftover funds, other vulnerable areas were identified and houses reconstructed for those inhabitants even if they had not been directly affected by the tsunami.

An analysis of the reconstruction efforts in Nagapattinam shows that 75 per cent of the construction was in relocated sites, with quite a large number of fishermen families (3,124) and all agricultural families, opting for or eligible (as in the case of agriculture-based families) for in-situ construction. The special care taken in assigning relocation sites ensured that 5,908 houses of the fishermen families were in safe sites identified within 500 m and an equal number well within a 1-km range. For the 1,073 families that had to be relocated beyond the 1-km range, it was with the explicit approval of the communities. The majority of the families who have been allotted sites beyond the 1-km range are from other communities, who have no imperative

20,000 houses were constructed in the district, this is a serious issue. The large scale of construction over a 190-km coastline, without a sound technical support system, has meant that the construction quality was not uniform. The low-lying nature of the Nagai coastal terrain, the poor soil quality that required strong foundations, and the lack of local construction expertise have all made achieving good quality of construction difficult in Nagapattinam. On the positive side, Nagapattinam also has some exceptional sites that are being projected as models for others to emulate, such as those by the South Indian Federation of Fishermen Societies (SIFFS) in Chinnangudi and Tarangambadi.

There is considerable variation in building upkeep and maintenance across the coast. The range is from houses that have been completely transformed through owner modifications to houses that are in a dilapidated condition. Most of investments for improvement have been in the following areas: addition of compound wall/fencing, doors/windows, kitchen/cooking area, thatched roof over yard/roof, replacement of flooring, internal additions/alterations and even addition of rooms.

Drinking water remains a problem in most settlements. Drinking water supply programmes had been implemented in most areas, but the actual availability of water is inadequate and water supply is erratic. Toilet usage is predictably low, with the exception of Kanyakumari where a culture of toilet use precedes the tsunami and there was a genuine demand for them.

Non-use reasons

Reasons quoted for non-use include lack of water for flushing and the low capacity of the leach pits that require regular removal of waste. Solid-waste management is also not satisfactory. Barring a few examples, most communities still dump all the waste in some nearby open space or burn it. Waste-water management is also weak in most

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need for access to the seafront for their livelihoods.

A review of scattered reports and a whistlestop tour of affected areas revealed some answers regarding the current state of the tsunami houses. The occupancy rates are high, generally ranging from 80-100 per cent in settlements visited across the coast. The lower end of this spectrum is generally in sites that are a bit farther away from the sea.

Overall, the build quality as seen today, after five to eight years of construction, appears reasonably good. An important exception to this is the housing in Nagapattinam (Nagai), where there is considerable variation in quality. Given that over

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Community centre at Nagapattinam. The large scale of construction without a sound technical support system has meant that the construction quality was not uniform

places, with the drainage system getting clogged and waste water overflowing.

Good access roads are generally available in all settlements, though the quality and maintenance of the inner roads is variable. Common amenities like schools, public distribution system outlets (ration shops), general shops, fish-mending halls, auction platforms, community halls and playgrounds are all available in most settlements. However, the community halls in many places are not used and playgrounds are often badly sited and not useable. For the overall upkeep and maintenance of the new settlements, many new organizations—village development committees—had been constituted but most seem to have faded away after the initial enthusiasm. There is clearly a local gap in terms of management of the new facilities.

When looking at community satisfaction, it is important to say that most communities feel positive about the changes that have taken place and think that the tsunami rehabilitation has been helpful in improving their lot. However, a detailed study needs to be carried out to evaluate the present status of shelter, especially damages. A consultation process with technocrats, bureaucrats, field implementers, NGOs and communities is required

to understand the impacts on mass housing, especially in the coastal areas. Perhaps a major lacuna that requires to be addressed is the provision of clear guidelines and instructions to the beneficiary families on the periodic maintenance of housing as well as infrastructural facilities. Issues such as water, sanitation and solid waste disposal need special focus as do urban resettlement issues, especially when combined with the larger development process. ❧

For more



www.trinet.in/
TRINet: The Resource and Information Network for the Coast

www.tn.gov.in/tsunami/
Tsunami Rehabilitation Programme: Government of Tamil Nadu, Revenue Administration, Disaster Management and Mitigation Department

www.tn.gov.in/tsunami/Projects/GovernmentOrders.html
Government Orders – Tsunami

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Tamil Nadu: Ten Years after the Tsunami - Learning from intervention in shelter and fisheries livelihoods