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# *Indian Ocean Tsunami, 2004*

## Community resettlement

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<b>Implementing agencies</b>	FoG
<b>Donors</b>	Aviva Village: AVIVA-UK; WNS Customer Solutions, Sri Lanka Perth Village: Perth City Council, Australia KPMG-LOLC Village: KPMG-UK; LOLC-Sri Lanka Victoria Gardens: State Government of Victoria, Australia
<b>Context</b>	Indian Ocean Tsunami, 2004
<b>Location</b>	Seenigama village, Hikkaduwa Division, Galle District, Sri Lanka
<b>Number of houses built</b>	153 new houses
<b>Cost</b>	US\$80 per square metre
<b>Type of post-disaster project</b>	Resettlement and housing reconstruction
<b>Date completed</b>	December 2007

*'My wife and two children were washed away by the tsunami. I survived, but couldn't save them; the water was moving too fast.'*

*– Shanta Siriwardena Arachchige, Seenigama, Sri Lanka*

The village of Seenigama in the southern district of Galle, near the town of Hikkaduwa, is the base of a local NGO called the Foundation of Goodness (FoG). Following the devastation wrought by the tsunami, FoG received support from national and international donors to rebuild the community, and ran multiple projects that constructed 625 houses and repaired 401 houses in Seenigama and nearby villages. This case study focuses on the largest project in Seenigama – Victoria Gardens.

*(Fig. A: Map of Sri Lanka showing location of Seenigama.)*

*(Fig. B: On the Indian Ocean: A view from Seenigama showing its coastal environment.)*

### **Why this project case study?**

This project is unique in that the implementing agency, FoG, is a local NGO, established by Sri Lankan leadership and situated within the beneficiary community. In most post-disaster housing reconstruction projects, it is common for implementing agencies to be external to the country or based away from the project site.

### **Agency roles**

FoG was founded in 1999 by Kushil Gunasekara, a local of Seenigama. Before the 2004 Indian Ocean Tsunami, FoG provided community services such as classes in English and computers, sports opportunities, a maternity clinic and organised supply of water and electricity from national service providers to village houses. After the tsunami, in addition to

relief and response activities, FoG raised funds to rebuild the devastated communities in Seenigama.

The four ‘villages’ funded by separate donors were built by different contractors. Victoria Gardens, the largest village, was built by Global Modular Housing Pty Ltd (GMH), a Melbourne-based housing supplier contracted by the Victorian State Government of Australia to design, develop and deliver the project. Initially, GMH was commissioned to engage architects and engineers to plan the new village, and subsequently it was engaged as the managing contractor to deliver the project. The site plan for Victoria Gardens was developed by DPM Consultants, Sri Lanka, led by their Principal Architect Jayantha Bandara. Various Sri Lankan-based architects, engineers and sub-contractors were appointed throughout the project.

<p><b>Kushil Gunasekara</b> <i>Founder and Executive Director, FoG</i></p>	<p><b>Paskuwalhandi Sampath</b> <i>Manager of Operations, FoG</i></p>	<p><b>Bob Bairstow</b> <i>Project Manager, GMH, Melbourne</i></p>
<p>‘Seenigama is my village and I have donated my ancestral home, which is now the FoG centre. After the tsunami, seeing that people were being relocated away from their birthplace, I bought land in the village so that housing could later be built for affected villagers here.</p> <p>‘We were very careful in beneficiary selection so that people who were seriously affected were selected, and we also checked if they had received a house from some other agency.</p> <p>‘All the houses have a garden in addition to the public green areas. I wanted people to have greenery around them and the children to grow up in a natural environment.’</p> <p style="text-align: right;">– 12 October 2012</p>	<p>‘I started working at FoG as cleaning and maintenance staff in 2005 after the tsunami. It helped me to learn many new skills, including using the computer and learning English, and to eventually rise to this managerial position.</p> <p>‘The house designs here are based on what beneficiaries would prefer. There was a lot of consultation with them. Together with home-based income, FoG has helped people through larger livelihood support – safe coral mining, a brush factory, grocery shops, tuk-tuks, etc.</p> <p>‘In the future we will need to focus more on local capacity building instead of giving so much stuff for free.’</p> <p style="text-align: right;">– 12 October 2012</p>	<p>‘I have nearly 40 years of experience in the construction industry including in roles such project manager, engineering and construction superintendent and principal engineer. During the Victoria Gardens project, I was the CEO of GMH.</p> <p>‘GMH was approached by the Victorian Government to build Victoria Gardens – a planned tsunami reconstruction project. The concept was to recreate a sense of community for the residents located on a single site provided by FoG.</p> <p>‘This involved including a community centre, playground, community open space and shops in addition to the 86 houses.’</p> <p style="text-align: right;">– 17 December 2012</p>

## **The reconstruction process**

Following the tsunami, FoG purchased land in Seenigama with the intention of providing housing as a way of keeping people from leaving the community. The state of Victoria in Australia funded the Victoria Gardens project, appointing GMH to plan and construct the Victoria Gardens project, while other donors funded the other 'villages'. Beneficiary selection was undertaken by the Government, in conjunction with FoG. FoG led the community consultation process to help develop the designs for the housing and for community infrastructure such as the community centre. FoG also provided additional support in the form of extra funding for training and livelihoods, and continues to pay for maintenance of open areas. The organisation remains in the community as an active agency committed to community development beyond the reconstruction initiative.

## **Key project features and design aspects**

### ***Choice of house design***

There were four post-tsunami housing resettlement and reconstruction projects, or villages, implemented by FoG in Seenigama, and house size and design varied across projects.

Victoria Gardens was a planned settlement of 84 two-storey duplexes laid out around a central community area. It includes a community centre, water purification plant, sewage treatment plant and playground. Victoria Gardens is FoG's largest resettlement project and is located on newly acquired land. Beneficiaries had lost coastal property and the government's post-tsunami 'buffer zone' policy prevented their resettlement near the coast.

Victoria Gardens beneficiaries were offered several house designs and after significant discussion they selected a two-storey, two-bedroom house design in duplex arrangement. The design provides safety through structurally strong concrete slab and wall construction and an upper floor level above the height of the recent tsunami.

### **Providing space and opportunity**

Shantha Siriwardena Arachchige, a resident of Victoria Gardens, lived in a house near the sea before the tsunami washed it away, killing his wife and two children. He was badly hurt, but somehow managed to survive. After the tsunami, FoG conducted a fact-finding mission and selected Shantha and other people who had lived in the 100-metre buffer zone and who were restricted by the government from rebuilding there. FoG showed people models of the different houses; most people liked the two-storey house because they were afraid of another tsunami, and the upper floor provided a place to which they could escape. The houses were distributed by lottery. Shantha moved into his new house in 2007 and remarried. 'Because I had my own home, I could start a new family,' he says.

He was always interested in electronics and communications. He received electrical wiring training from FoG that helped him set up a small shop on the ground floor of his new house

where, in an area partitioned off from the living room, he runs his business renting videos, providing computer and photocopying services and recharging mobile phones. With the income from the shop he bought a small communications shop on the main road in Seenigama. He has built an extension to the house, which he rents to pilgrims for further income. 'Without FoG's help, I couldn't have done all this,' he acknowledges.

'This is a good place for living. I am glad that I have some space for gardening and there is a lot of open space all around, which is good for the children as they grow up. When you walk out of the house it's spacious, not cramped,' he says. 'Even if there is another tsunami, we can run upstairs and be safe.'

– 13 April 2012

*(Fig. H: Shantha, his house and its floor plan.)*

### **Success factors**

FoG's great strength in this project was its capacity to empower people, and to continue to do so over a long time frame.

#### ***Variety in layout***

All four villages have their unique character, each with a clustering of similar houses. In Victoria Gardens, the duplexes have different orientations, external colour schemes and roof shapes, which produce variety within the layout and appearance of the settlement.

#### ***Community infrastructure***

Paved roads, reticulated power and street lighting, reticulated treated water supply from deep wells, and sewerage are all fundamental community infrastructure built as part of this housing project.

*(Fig. K: Well-planned: A view from Victoria Gardens showing community facilities.)*

#### ***Structural integrity of houses***

Housing was built with a permanent formwork reinforced concrete wall construction system that uses concrete as the formwork within which filler materials are introduced and bonded with the form, so that there is no need to remove the form. Integral floors were built with steel reinforcements run into the wall instead of having the floor structure separate as is commonly done. Such structures are designed for better resistance against lateral stresses that result from wind, seismic and wave loads, and are significantly superior to the traditional concrete block and concrete frame houses destroyed in the tsunami. Certified Australian-made building materials were used in the wall construction system and for the timber roof trusses.

#### ***Maintenance***

Unlike most agencies that had implemented post-tsunami housing reconstruction projects and then left the beneficiary community, FoG continued to support the maintenance of its housing projects, consolidating the resilience of the community and housing system.

### **Maintenance encourages acceptance**

Sureka Priyanthi lives with her husband and one small child in Victoria Gardens. Before the tsunami she lived with her extended family in a house near the sea. The house was damaged by the tsunami and part of it was then repaired; her parents lived there now. She heard that FoG was going to build houses and so she and her husband approached FoG because there was hardly any space for them in the damaged house. 'I'm happy to receive a house. I'll always be thankful to FoG because they have given us a place to live – a shelter,' she says.

She expresses her satisfaction with the house design: the upper floor has a ceiling, which keeps the heat out; the bathroom is tiled and can easily be kept clean; the drains outside the house keep her compound free of water-logging. She also likes the open area outside her house, which has a playground, community centre and shop.

For Sureka, the most successful aspect of the project is its maintenance. 'FoG employs somebody who maintains the area, cutting the bushes and grass, cleaning the drains and collecting litter from public areas,' she points out. She is also happy about the range of community services offered by FoG: 'Everybody here goes to the FoG centre.'

– 13 October 2012

*(Fig. L: Sureka and her house.)*

### **Drums for making a living**

Gamini Chitna is a traditional dancer and lives in a house in the KPMG/LOLC village with his six-member extended family. The grocery shop he used to have and with which he supported his family was near the seaside and was lost in the tsunami. He has converted part of the living room of his new house to run a small shop, which can be accessed through a window from the front veranda. 'I would like to build a bigger shop outside, because this one takes up space inside the house. I should be able to do that soon, with FoG's help,' he says.

He received livelihood support from FoG in the form of drums and dancing equipment. With that support he's been able to train children, using both the nearby dance academy and his house. 'I'm thankful to FoG. I'm happy to live here with the well-maintained houses, roads and playgrounds,' he says.

– 12 October 2012

*(Fig. O: Gamini and his house.)*

### Community infrastructure important

Himali Mendis lives with her two children in a house in Aviva Village. Her husband works in Italy to support the family. Her previous house by the sea was totally destroyed by the tsunami, killing her mother. Because her family had been weakened economically, it was very helpful to receive a new house, even if it was smaller than the house she used to have. 'We have a good roof; it protects us from the weather. I like to live in a community like this,' she says.

Himali is particularly happy about the community infrastructure provided by FoG: 'The community centre, library, training centre, playfield – they are all good and successful. My children can read books in the library, play in the playground and attend computer classes.'

The household was given a bicycle as livelihood support. With it, they can move about, buying and selling fish and vegetables. 'My husband used to ride the bicycle, but after he left we still use it, though not as much as he did,' she says.

– 12 October 2012.

(Fig. P: Himali and her house.)

### The challenges

While there were many achievements in FoG's project, it was difficult matching high design and construction standards to the reality of a country suffering from many years of armed conflict combined with a massive natural disaster. Key challenges included:

- Seenigama is a low-lying coastal area with a high water table. Domestic septic tanks in the AVIVA, Perth and KPMG/LOLC villages often overflow, especially during the rainy season. Victorian Government-funded experts decided to build a sewage treatment plant at Victoria Gardens to replace the use of septic tanks, but due to difficulties managing the system it became necessary to change over to conventional septic tanks and water supply, incurring extra costs. The high water table also meant a water purification plant had to be built.
- Beneficiaries preferred two-storey houses because they were afraid of a future tsunami, but they also preferred detached houses with their increased privacy and space around the house, rather than the more cost-effective duplex housing model.

### Lessons learnt

FoG was a unique organisation and its work offers many lessons:

- A 'systems approach', where housing is linked to infrastructure, facilities, services and livelihoods, can help cater to the diverse needs of the affected community.
- Reconstruction projects can also rebuild livelihoods. Livelihood support and training, and development of new job opportunities, were intrinsic to the FoG project, contributing to the overall uplifting of the beneficiary community.

- Strong leadership can achieve positive results. Without Kushil Gunasekara's leadership, this project would not been possible.

### **In conclusion**

What made FoG unique was its long-term commitment to the development of the community it salvaged after the 2004 Indian Ocean Tsunami. The multi-faceted nature of its work saw housing reconstruction sensitively integrated with a wide range of community infrastructure and facilities, livelihood development and local capacity building.