
Habitat - post Tsunami issues

Thousands of houses have been built in the last 24 months for those affected by The Tsunami of 2004. Estimates vary, but it is clear that there is still a huge task ahead to build houses for all those displaced in December that year.

When that is done, will it be enough?



Disaster Rehabilitation, giving direction to Sustainable Development

A Talk by *Sandeep Virmani*, Recorded in April 2006, Paris.

http://59.92.116.99/website/RDC/RDC-interviews/SandeepVirmani_Transcript.doc

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Challenges and risks in post-tsunami housing reconstruction in Tamil Nadu, Jennifer Duyne Barenstein, Humanitarian Practice

Network. <http://www.odihpn.org/report.asp?id=2798>

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The Daily Apocalypse, *Satya Sagar* January 01, 2007, Vol.6,
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http://combatlaw.org/information.php?article_id=851&issue_id=32
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Tsunami Recovery: Sustainability, Poverty, and the Politics of Aid, *Dr. Vandana Shiva* Keynote Speech by Dr. Vandana Shiva at the 10th Anniversary of HRH The Prince of Wales's Business and Environment Programme, Developed by the University of Cambridge Programme for Industry
[C.ELDOC1.0705/politics-of-aid.html]

People, **all** people, women and men, poor and rich, children, youth and adults, have the right to a place, - not only to sleep and cook, but also to work and play, study and have fun;

a right to spaces, - access to public spaces
like the bus stand, the market, the boat yard,
the temple, mosque or church,
the community hall, the school and college, the...;
the right to water, power and fuel;

the right to health and sanitation.

Or is this available only for the residents of Amby Valley?
Is an ecologically and livelihood sensitive habitat too expensive for the poor?
Is psychosocial equilibrium and equity available for ALL peoples, all communities?

These are some of the questions that come to mind as issues relating to Habitat – issues beyond merely providing living quarters, come to the fore.

From the experience of relief, rehabilitation and reconstruction come many insights and learning. These have an implication and impact far beyond the confines of disaster zones - lessons for habitat issues in urban and rural settings, in slum rehabilitation and mass rural construction, in infrastructure development, and adaptation and mitigation of the impact of climate change.

With this 16th edition of development digest, we bring to you a short series of what participants in the development process associated with relief, rehabilitation and reconstruction have learnt and shared among themselves and the communities they have worked with.



HABITAT

Disaster Rehabilitation, giving direction to Sustainable Development

A Talk by Sandeep Virmani

What are alternate building methodologies and what are main stream? In India, over the last 50-60 years, the diversity of building methodologies has narrowed to mainly concrete, steel and glass. Most of our engineers are trained only in this technology. So when a disaster happens, they do not understand any other material or ways of working.

Every year the largest construction that happens in the country is still in mud and earth, and it is the artisans' structures in the villages. There is a lot of traditional knowledge or traditional systems that are available, but these have not been given recognition by our formal systems and we are not using them. We in the cities are working with concrete. But, the total concrete construction that happens is still a relatively small as compared to the entire construction happening in the country. So the construction happening in the villages and the building methodologies being used are still main stream.

It is true that the concrete boxes are being used increasingly and the artisanal structures are reducing. And this is the debate on sustainability that we would like to change.

Sustainability to us means something that's replicable by society that reduces needs at some point. There is a difference between a conservationist and an environmentalist. An environmentalist wants to maintain the existing standards of comfort and energy use, but wants a technical solution. But what we have to do is to try using technology in ways that reduces needs.

Decentralization has to be a very key component of anything that has to be sustainable right down to communities. You cannot achieve sustainability if you have inequitable growth.

The second question is in terms of people's likeness for concrete boxes as opposed to more sustainable materials. After the Disasters & Sustainable Development Gujarat earthquake in 2001 we had two policies. One was "take the money and build your own house". The second was "you can partner an NGO and the NGO will build a house for you". About 65% people chose to build their own house and about 35% chose to partner an NGO to build. Almost every NGO said that people asked for concrete boxes and that is how the villages came up.

We did a survey about three years after the disaster to study what people did with the money they had received for building their houses. We found that 95% of them had used artisanal

methods. They used tiled roofs and not flat roofs. So the satisfaction equation was 'If you are going to give me money or spend it on me, yes, I would like to have a concrete box. But if I have the money in my own hands, I have other higher priorities than a fancy idea of a concrete roof.'

Disaster can be used as an opportunity to enable people to express and envisage their own re-development, as they would like it. Creativity flows tremendously during disasters, finances are available and a lot of international experience is focused on a small area. It is important to have a good coordination mechanism to address an issue at the earliest. If you start a debate at the appropriate time, you'll get solutions from all around. And then these can be adopted into policy frameworks and channelized. This is how we managed to achieve so much in three or four years otherwise it would have taken a decade to do the rehabilitation work. We will look at three examples at the village, city and regional level.

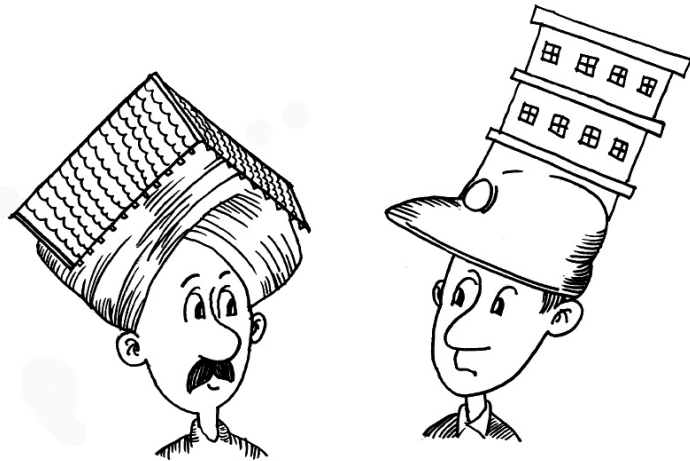
Rehabilitation in Tangdhar, Kashmir

Along with 10 NGOs we worked in the Tangdhar Valley situated at 10,000 feet. Terrorism is a major problem in this region. The earthquake happened in October and the first snowfall happens in the first week of December. So we had only two months to get people into some kind of shelters so that they could face the winters.

The typical response of most engineers, architects and people was things must happen fast and pre-fabricated structures should be used. The State Government invited us to suggest a fast construction method. We told them, after a disaster the only thing that people are left with is their piece of land, their rubble and their surviving community. The best therapy for them is to actually go and start constructing some form of temporary shelters again themselves.

They said we could try this in one village and if it worked out they would think in terms of making a policy.

We had discussions with the Tangdhar people. We asked the local artisans about the structures that did not collapse during the earthquake and what was unique about them. They explained that these structures were those in which the building was not anchored into the ground. They were floored on top of a plinth that was made in stone. So when the earth moved these houses did not take the entire impact. This was something that the engineers could not understand. How can a building not be anchored in the ground?



We started in one village. The government was to provide the money after the shelter was completed by the individual family. They built the entire structure in two days and two nights. And the entire village made its own shelters in five days. Also, because people knew that they would get a fixed amount of money for rebuilding their shelters, they were keen on recycling as much material as possible, so they could get some cash in their hands at the end of the process. Almost all the material was recycled.

Later the Jammu & Kashmir Government developed a policy based on this experience. It also announced an incentive scheme wherein if people completed their houses before the first snowfall, they would get an additional Rs.5, 000. In a period of just 25 days about 7000 interim shelters came up. And by the

time the first snowfall actually happened, about 20,000 shelters were completed. Material banks were created and it was ensured that people didn't have to go to the forests to cut wood.

However that's as far as temporary shelters is concerned. How do we actually do this entire process for permanent shelters with the involvement of people?

Rehabilitation in Kutch and Bhuj in Gujarat

We learnt this in the 2001 earthquake in Kutch, Gujarat. About 600 villages and six towns were affected and this made up a large area.

Two policies were declared. One in which people could build their own houses and they are given money in installments, through bank accounts. The second one in which they could partner an NGO. However the decision of "how I want to get my own house built" remained with the village community. It was not forced upon them.

Here what we basically did was provide \$178 worth of material. These were made available in three stages for people to build through material banks. However, they had to make their own arrangements as far as the labor was concerned and make their own temporary shelters. Basically our work was only to organize.

About 22,000 structures came up in 6 months. We asked about 10-15 villages to send all their masons to us. We had a three day discussion with them on what went wrong and why so many houses got destroyed. They had a lot to share and soon a whole knowledge base on safe construction got created. This was supported with scientific information. 80 Masons went to about 450 villages and held meetings with others. In just four months, the seismic standards shot up from 30% to 86%.

Once people knew that they could build their own structures they started making their own kinds of buildings. They agreed that mud is a material that they understood well because they had farms and it is also easily available. They also wanted a light structure instead of concrete, without thatch, with tiles. The women were very clear; they did not want the walls to be maintained all the time.

So we introduced 'soil-cement earth blocks' which are structurally strong and energy efficient. However these were not allowed in our building bylaws, the ISI codes. Dr. Arya, National Seismic Advisor, Government of India, analyzed the structural strength of these blocks following which the Gujarat government introduced a guideline on stabilized earth technologies including use of light roofs, tiles and sand filled foundation.

This was a huge cost savings for people in the villages. They were also keen on employment so that they could keep a part of the rehabilitation money rather than spending it on buying all the

material from outside. So they were very happy to make their own earth blocks.

Another problem was that masons were becoming scarce. The cost of masons shot up to double because of the demand and supply change. So we started working with the rammed earth technique. This technique allowed very fast and safe construction, without masons. To discourage the use of wood we promoted fabricated steel. We later on went on to use 'wattle and daub' because it has much better thermal properties and its something the villagers knew very well. Little hooks were designed to be put on each tile attached with loose wires so that during a cyclone, when the air fills into the room, it works like a spring. It opens up, releases the pressure and comes down again. So it was a very simple innovation done in collaboration with BGS Germany.

The villagers then celebrated the bhunga in a more elaborate way. Because there were many people coming from outside to these villages, they hosted people in these traditional structures made with thatched roofs instead of tiles. Women used lime to decorate their homes. Artisans from this area have started taking walling contracts to see how they can bring these technologies into urban areas.

Similarly small towns in India have very narrow lanes. They have the cul-de-sac systems. The Environment Planning Collaborative, Ahmedabad, worked in Bhuj after the earthquake. It was

impossible to get into the city. The inner city was completely destroyed and because of the narrowness of lanes it was difficult to have rescue systems in place. There were about 588 plots whereas there was place only for 390 plots.

So if a well laid out inner town was to be developed again, 30% people would have to move out. We held several public meetings and put the problem before the people. They themselves made a decision. Based on this everybody was asked to apply stating clearly whether they wanted to move out to a new laid out larger plot or continue staying within the old city with deduction on their original plot size. About 38% opted to move out. The people who had commercial interests within the city, they did not mind having some deductions.

So the entire inner city was actually taken away from the owners for a period of three months and replanning was done. There were a lot of problems at the individual level, which the various committees set-up had to solve on one-on-one basis.

Another initiative in the city of Bhuj that we worked on is the ***Urban Watershed Management***. The city of Bhuj is about 450 years old. The kings at that time had developed a very interesting water management system. There are nine interconnected lakes. Also there is an aquifer which is sandstone.

So water was brought into these lakes, the water percolated into the ground and was taken out through what they called 'thousand wells'. These wells were managed by the communities. Once these lakes dried up, the gates were opened to put water into these lakes, which would again percolate into the ground. These were interconnected through canals, tunnels, gateways, barrages; through really intricate systems of channeling water into these lakes

The 2001 earthquake actually gave us an opportunity to revive this entire process. One long canal had got de-linked. The tunnels had also broken down. So we connected these. About 30 wells have been revived so far. They have sweet water again. There is a huge sewerage system that has been put into place, and we are trying to recycle and re-use the water in the city.

Then we also took up a small *social housing project* for the people who were earlier living in the inner walled city of Bhuj and were not given land in the city. These were basically those people, who were living as tenants and in slums. The government also provided services for these people. We helped them with part finance and part bank loans, for them to be able to build their own houses. The artisans who built the rural areas also built this township. So the entire township is done in earth construction.

Professor Aditya Prakash, (member of the team responsible for developing Chandigarh) has suggested some very interesting

concepts. He believed that that the Indian city is not bereft of villages. So you need to have concepts which are sustainable, where villages are incorporated within the city. He suggested that along any highway between cities, a town or towns develop. It is the rural areas around the city that actually cater to all the basic needs of the town. So we need to give them space within the city.

We are trying to implement these concepts in Bhuj. This is an experiment to see how sustainable growth of social housing can be managed.

Rehabilitation in Aceh, Sumatra

At the regional level, in Aceh, what we have tried to get people to make their own regional plan of 25 villages. There are about 12 NGOs helping them to build. It is the people's plan that the NGOs are implementing.

Finally, these are some of the indicators that we look upon while evaluating artisans on any work that is done:

- Is it upgrading local skills?
- Are local materials being used?
- Is there cultural/environmental affinity-are the parameters related to these aspects taken into consideration?
- What is people's contribution? Are they participating or just involved as laborers?

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- Is it cost effective? (A lot of artificial money comes in after disasters and if you leave behind things which people cannot actually build later on, on their own, it doesn't have any value)
 - Are the problems being solved? (It is not necessary that anything traditional is fine. There are problems that need to be solved, because the communities are changing and there are new aspirations. So you have to be able to constantly address these issues) ▶

Disasters & Sustainable Development

Recorded in April 2006/ Paris at the "Sustainable Built Environment: an Indian Experience - Approaches and Practices Overview".

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Challenges and risks in post-tsunami housing reconstruction in Tamil Nadu

Jennifer Duyne Barenstein

The Indian Ocean tsunami of December 2004 was one of the most powerful in recorded history. With an official human toll of 10,881 and material losses of over \$1bn, India was one of the most severely affected countries. Over three-quarters of India's disaster-affected people belong to Tamil Nadu's coastal fishing communities. Of the 154,000 houses damaged or destroyed by the tsunami, 80% belonged to fishers.

Whether these disaster-affected communities will be able to restore their livelihoods and recover materially and psychologically from their traumatic experience depends, among other factors, on whether external aid is culturally sensitive, and can build on local capacities and skills. This requires a better understanding of housing culture and practices within tsunami-affected communities.

Housing culture in Tamil Nadu

House-building in India is a culturally sensitive and highly ritualised process. It is a social event. Tamil Nadu's fishing families generally construct new houses on the marriage of a son. They consult an astrologer, who decides in whose name the

house should be built, draws the plans, showing the orientation of the main entrance, walls, and the number of doors and windows; establishes an auspicious date and time to begin the construction, and performs a ritual on the construction site as well as before occupation of the new house.

Women have a central role in the construction process. As their husbands spend most of their time at sea, women are often responsible for mobilising labourers, buying materials and supervising the works. Although the main construction work is done by specialised castes from neighbouring villages, adult family members contribute with their labour.

The size of the house and the construction materials used depend on the owners' socio-economic status, age and personal preferences. Many fishers' houses consist of only two or three rooms, with a large semi-open veranda at the front. The veranda is the most important room in the house: it is where people spend their leisure time and entertain guests during the day, and where they sleep at night. Inner rooms are used mainly for storage. In most cases the kitchen is separate from the main house, and is invariably located in the south-east corner of the homestead plot. Fishers' houses are typically painted with beautiful geometric patterns, or images of flowers or animals. Homes are surrounded by thick vegetation, which provides shade.

Post-tsunami housing reconstruction in Tamil Nadu



Soon after the tsunami, the government of Tamil Nadu, with assistance from the World Bank, the Asian Development Bank (ADB) and the UN Development Programme (UNDP), developed a comprehensive Emergency Tsunami Reconstruction Project (ETRP). Under the ETRP, the government planned to provide assistance to repair, rebuild or construct 140,000 damaged houses in Tamil Nadu and Pondicherry. NGOs, voluntary organisations and public and private sector enterprises were invited to 'adopt' villages for reconstruction, and were granted the freedom to choose their own architects and reconstruction approaches. The response was unprecedented: almost every coastal village in Tamil Nadu has been adopted for reconstruction by NGOs.

The majority of NGOs opted for full reconstruction by means of construction companies. The aim has been to replace all self-built traditional houses with 'modern' settlements of flat-roofed reinforced concrete buildings. The number of houses to be built is defined by the number of married couples, regardless of whether they live in a joint family or constitute an independent household. The promise that each couple would be entitled to a new house has led over the last year to a dramatic increase in marriages. The assumption that fishers live in independent nuclear families is also reflected in the design of the proposed houses. In general, houses have no veranda, or only a very small one. The new houses are constructed in rows on plots that are too small to allow for future additions. Considering the small size of the houses, this would be an important requirement.

Where land can be found at an acceptable price, new villages are built on sites adjacent to the existing settlement. In most cases, however, no additional land can be found, and the new village is built on the same site as the old one. Villagers are often forced to demolish their old houses and to surrender their land to make space for the construction of the new village. The social tensions emerging out of these processes are already tangible, as families whose houses were not damaged by the tsunami try to resist demolition. Many companies require completely clear ground before starting construction, necessitating removing all trees. In a climate where temperatures typically reach 40 degrees centigrade, it is hard to imagine how people

will manage to live in their tiny flat-roofed cement houses without any shade.

Conclusions

The employment of construction companies in post-disaster housing reconstruction is not necessarily the most effective and sustainable option. Where people have the capacity to build their own houses, it may be better to limit the role of external agencies to the provision of financial and technical assistance.

Construction companies tend to build standard houses that do not meet the specific requirements of the families for whom they are intended. When construction materials and expertise are imported from outside, communities may find it difficult to repair or maintain their new homes. Villages reconstructed by professional companies generally pay little attention to communities' social organisation and settlement patterns. Occupancy rates for houses constructed by external agencies often remain low, as people refuse to move in. Whenever possible, people may in fact prefer to repair their old and damaged houses at their own expense, leading to impoverishment and wasted resources.

Post-tsunami housing reconstruction in Tamil Nadu is in its early stages, and it is too early to judge its ecological and socio-cultural consequences. It appears, however, that most NGOs

involved in housing reconstruction have insufficient knowledge and experience in this field, and do not appear to be aware of the social risks associated with their reconstruction approach. There is an urgent need for NGOs to reconsider what they are doing, and to realise that there is more to post-disaster housing reconstruction than building disaster-resistant homes. Construction companies may not be best placed to come forward with ecologically sustainable, socially equitable and culturally sensitive solutions. 🗑️

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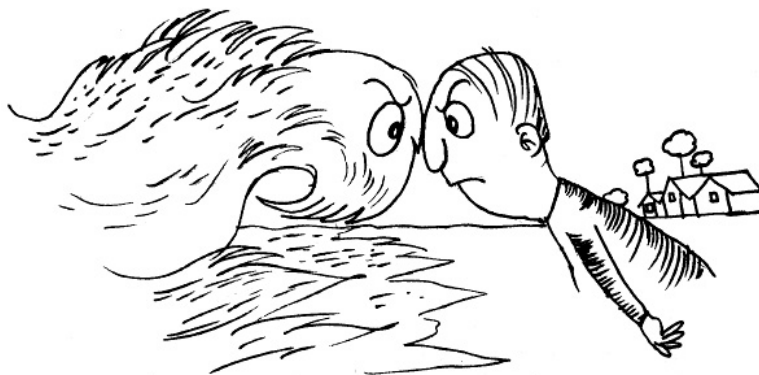
The Daily Apocalypse

Satya Sagar

At the second anniversary of the Asian earthquake and tsunami of December 26, 2004, it is worthwhile pondering what it was all really about. Going by the numbers (over 225,000 dead, a million more displaced and impoverished) or by the area affected (12 countries across two continents) the event of December 26, 2004 was indeed a big one.

The tsunami challenged many assumptions that people had about many things. It overturned the idea of the sea as the very source of all life for many traumatized fishermen who have for centuries lived off its bounty.

For all its heartrending, graphic images of death, destruction and sorrow, I am still confused about what constitutes a disaster. Is it about the numbers involved? Is it about the way people died or suffered? Is it about the identity of the people involved?



To give an example of how the mathematics of mass disasters works or does not work, some three months after the tsunami, the Indonesian authorities made a quiet announcement that few noticed. Apparently over 56,000 people who had gone missing since the tsunami and had been feared dead were in fact found to be alive and living in the temporary camps set up for the displaced people. It occurred to me then that if I had mourned for those 56,000 people prematurely, what a waste of 'high quality, high profile mourning' it would have been!

This is how ridiculous the situation gets when one starts measuring disasters in terms of the numbers involved. The simple truth is that every individual is an entire, unique universe on his or her own and with the passing of every individual an entire universe collapses.

The lack of focus on individuals caught up in disasters is just one of the problems with the general response of the world,

governments and even NGOs to the Asian tsunami over the past two years. There are many other problems too.

Lack of context: One of the obvious shortcomings of the international response to the tsunami disaster has been the complete lack of contextualization. While the specific problems generated by the tsunami are unique and need to be addressed, it is my contention that this can be best done only by taking into serious account the background in which the disaster occurred. The lack of understanding of history, culture and local level politics is evident in the way the international response by the moneybags to the tsunami in Sri Lanka has played a role in reviving a dormant conflict.

Local culpability: The primary responsibility for whatever happens to the people lies with the local elites, the societies in which the survivors live and in many ways with the survivors themselves. In that sense, one of the important long-term goals of any form of rehabilitation should aim to build traditions and institutions that can deal with disasters of all kinds on a regular basis.

Who are the “affected people”: Throughout the rehabilitation efforts of the past two years, the focus of the government and NGOs have been on dealing with the problems of ‘tsunami survivors’. All others living in the same context, however vulnerable, have been deemed ‘irrelevant’. For example, many poor communities in coastal Tamil Nadu, with low development

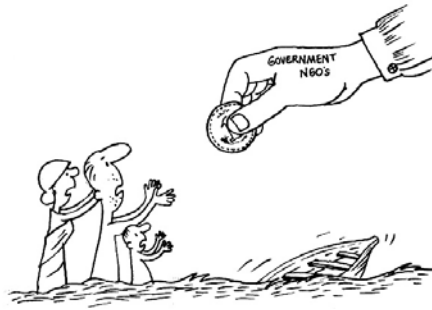
indicators prior to the tsunami, or the thousands of refugees of the civil war in Sri Lanka surviving without basic necessities for long, have been completely bypassed in the distribution of relief and material aid. A fantastic opportunity was lost in using the huge sums of money pouring in after the tsunami to launch long-term social justice programmes.

Lack of linkages with other disasters: Almost all the relief and rehabilitation efforts undertaken in the tsunami affected countries have been done with little reference to other natural disasters that have taken place in recent years. Whether it is the earthquakes in Turkey and Iran, or Hurricane Mitch, there is a huge bank of experience and knowledge of dos and don'ts that can benefit those dealing with the situation in India, Indonesia, Sri Lanka or Thailand.

No one in coastal India knows about what is happening in coastal Thailand or Indonesia or even Sri Lanka. Apart from the valuable lessons to be learnt from each other, if there had been greater efforts in this direction, this could also have been the beginning of a new South-South international solidarity movement.

The Gujarat earthquake of 2001, in which over 30,000 people lost their lives, offered ample lessons at least in what should not be done while rehabilitating survivors. Not one lesson was incorporated into the post-tsunami efforts leading to similar problems.

Learn from the survivors: Another disturbing aspect is the way governments and NGOs have approached the 'affected population'. The pattern has been to look at them as completely helpless people in need of relief, rehabilitation, and counseling. There has been little attention paid to the trained and inherited skills, inherent strengths and human resources of the affected communities.



As a result of such an attitude, there are no programmes to help the survivor community consolidate and develop their own traditional skills, and better still, use these talents creatively to make additional income or create new livelihood opportunities in an atmosphere of self dignity and collective pride.

Disaster as Godzilla: The fundamental problem with 'disaster management' and 'disaster response' efforts all over is the way they are fixated with the definition of the disaster as a sudden, one-off calamitous event for which we need special institutions, policies and even gadgets to cope with. The core perspective which guides this approach is one that looks at 'disasters' as

being some kind of hidden monster or enemy out there to combat whom we need large and sophisticated weaponry.

In all this, the use of the armed forces to cope with natural calamities is a deeply worrying trend and one with long-term negative implications for all democratic societies. This is particularly true in the developing world, where, unfortunately, most disasters occur, and where the role of the State in public welfare has been systematically demolished by a combination of neo-liberal economic policies pushed by the World Bank and IMF and the outright corruption of the national elites.

Disaster and democracy: Whether it is nationally elected bodies, the bureaucracy or other government agencies, the sad fact is that over the years they have become defunct and useless when it comes to dealing with crisis of any sort. This leaves the military and the police among the few State institutions that are still relatively intact and functional. But where does all this leave ordinary citizens? Are they to remain forever dependent on the arrival of 'heroic troops' from remote corners of the country (and globe) after every disaster? Is there nothing that can be done at more local levels where citizens themselves are empowered to solve their own problems?

Maybe it is time we redefined what we mean by 'disasters' and instead of seeing them as one-off, unexpected phenomenon, consider them as part of a larger social and economic continuum. To understand this, we only need to look at the state

of the roads, access to drinking water and sanitation, public health systems or means of communication in most developing countries, which have become a day-to-day disaster anyway.

For those who are afraid of impending apocalypses anywhere I have a message – the apocalypse is already over, it is happening right now, there are a million little apocalypses happening all the time. So stop searching for the BIG one and look more carefully at the little one in your immediate line of sight. ▶

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Excerpts

Tsunami Recovery: Sustainability, Poverty, and the Politics of Aid

Vandana Shiva

Intelligence is first and foremost about the ability to receive feedback, and correct the course of one's action on its basis. The Tsunami disaster can be a major learning for humanity about sustainability and poverty alleviation. However, there are indications that even a disaster of such magnitude and such massive human impact is not enough to wake us up from our non-sustainability slumber. "More of the same, with vengeance" seems to be the recipe of official aid, without assessing the role of non-sustainable development in aggravating the vulnerability of coastal ecosystems and coastal communities and amplifying the tragic costs.

In a world of major human impact on the planet's vital processes, "natural" disasters are not purely natural. In indigenous world views, even the "natural" disaster of the Tsunami was man made. People in the Andaman and Nicobar islands view the Tsunami as the rage of the sea.

People died in larger numbers where "natural" protective barriers of mangroves, beaches, sand dunes had not been destroyed for hotels and industrial shrimp farms. They were protected where communities worked with nature to create and protect ecological barriers. Such villages can provide us lessons on sustainability

and poverty reduction, and also provide signposts for sustainable recovery.

International aid played a major role in the destruction of the coastal ecosystems. In 1992, the World Bank invested \$1685 billion in agriculture and fisheries. Of this, India received \$425 million for intensive shrimp farming. Shrimp was farmed traditionally in India as part of integrated systems. The most famous is “Chemmeen Kethi”, which is as perennial as natural ecosystems, and is based on a rotation of shrimp and rice cultivation. However, when production is not viewed in diversity, but through the monoculture of the mind, bio diverse outputs are ignored, and high productivity, high sustainability systems are declared low yielding.

This is how the World Bank introduced the intensive industrial shrimp farming to increase shrimp production. While the traditional system requires no external input and provides rice and shrimp for consumption and sale for a local producer, the industrial shrimp farms require USD 11000/ha of investments. Production thus moves out of the hands of local communities and becomes a corporate activity.

Industrial shrimp farms cause major salinisation of water and agriculture. Shrimp feed needs 10 times more fish caught at sea than is produced, leading to a factor ten reduction in availability of fish protein for the poor. 87% of the intensive feed becomes

pollution, which is dumped in the sea, on farms, in creeks; further destroying fish and fisheries livelihoods. Each acre of a shrimp farm has a footprint of 200 acres. Each dollar traded in export of Shrimp leaves ten dollars of destruction in the local ecology and economy. In contrast to ecological production, the intensive shrimp industry lasts only 5 years in a local. It has been called a “rape and run” industry.

While industrial shrimp farming was introduced as “development” for the fishing and farming community, the “beneficiaries” became victims of displacement and unemployment. Giant corporations and local politicians and bureaucrats become the beneficiaries of non-sustainable development.

Poverty and non-sustainability are two sides of the same mal development which robs people of economic security and ecological security. Non-sustainability is extracting natural resources faster than they can be renewed and adding pollution loads heavier than nature can recycle. This burden of ecological non-sustainable goes hand in hand with the burden of poverty, since the resources that are destroyed support the livelihoods of local communities. Without resources and livelihoods people become poor. Local communities are thus made poorer by “aid” which is supposed to alleviate their poverty.

The tsunami recovery and rehabilitation plans need to take into account the vulnerability arising from non-sustainable development as an intrinsic element of disaster preparedness for un-natural

disasters to which human actions have contributed. We need to be prepared to face droughts, floods cyclones of increasing frequency and intensity as a result of the climate change resulting from the atmospheric pollution caused by the fossil fuel economy.

For this, ecologically destructive policies need to be reversed, and destructive activities stopped. Ecological sustainability, and people's participation, and human rights must guide recovery plans.

However, official rehabilitation plans and policies are threatening to create further ecological destruction in coastal zones and further social and economic displacement of coastal communities. The World Bank is preparing to rehabilitate the prawn farms it had financed, which India's Supreme Court had ordered closed. While the illegal, destructive industrial aquaculture is being rehabilitated; there are attempts to further displace coastal communities to 1 km from the shoreline, as part of rehabilitation plans. It was after all, to protect the fragile coastal ecosystem that the Government of India had passed the Coastal Regulation Zone laws. This environmental law was violated by the prawn farms, since no development activity can be undertaken within 500 metres of the shore line.

The construction lobby is the other lobby which systemically works against environmental laws by mining sand from beaches,

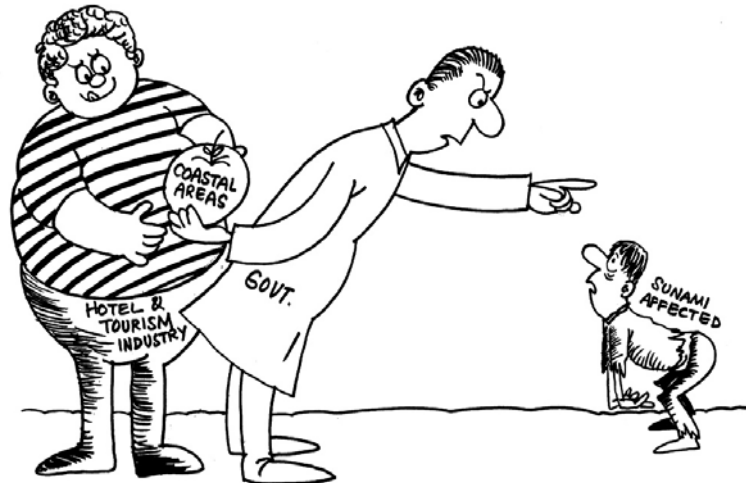
by constructing roads, hotels and resorts along the coast. In June - July, 2004 a coastal road was permitted on the beach in Besant Nagar in Chennai in violation of CRZ and in spite of local protests. While roads and bridges were washed away, there is a proposal to build a 1076 sea wall along the Tamil Nadu seacoast from Chennai to Kanyakumari.

Ecologically appropriate biodiversity reduced the vulnerability to the Tsunami yet the World Bank and other aid agencies continue to ignore the lessons. They want to build sea walls of concrete, and rebuild the industrial aquaculture farms, which caused the devastation of the ecological barriers nature and people, had built over centuries. They want to flush out the people without whose knowledge and skills the real coastal protection and coastal recovery cannot take place.

That this cancer of non-sustainability is not just an Indian disease but is global becomes evident from the fact that even in Sri Lanka, the Government is intent on maintaining a shoreline exclusion zone in which private residential buildings will not be permitted and in which tourist/holiday commercial property

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development is to be exclusively permitted.



Development and aid thus become new opportunities and more consumption for the rich, and displacement of the poor from their homes, their lands, and their resources, their livelihoods. Such “aid” creates poverty, it does not reduce it. This formula of displacement as development and non-sustainability as recovery is violative of all ecological principles and of human rights.

In my home Doon Valley, we have a large forest sanctuary, the Rajaji Park, home of tigers and elephants, boar and deer, birds and monkeys. A few years ago, people driving on the road through the sanctuary started to throw bananas and bread for the monkeys.

Today the monkeys wait on the road for food. Often they are crushed to death by passing traffic. The forest, which they have abandoned, has all they need and security too. Yet they have forgotten that their food comes from the forest, not from passing cars. Sometimes I feel aid that ignores sustainable living and livelihoods and human capacities and human dignity is like the piece of white bread thrown at monkeys of a forest from the window of a passing car. Let us together work to prevent reducing our coastal communities to the status of monkeys of Rajaji sanctuary. Let us join our energy and intelligence with theirs to rebuild their lives and homes, with beauty and dignity, sustainability and self-reliance. ▶

Keynote Speech by Dr. Vandana Shiva at the 10th Anniversary of HRH The Prince of Wales's Business and Environment Programme, Developed by the University of Cambridge Programme for Industry

