

# POST DISASTER RECONSTRUCTION EXPERIENCES IN ANDHRA PRADESH, IN INDIA

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## Abstract

Post Disaster reconstruction work may be executed with a paternalistic, philanthropic approach as a project with an end in itself or with an approach, which is based on communities and as a means towards sustainable long-term development. The choice between these two depends on the intentions, motivation, commitment, concepts, perceptions, capacities and character of the concerned NGO. ATMA consultancy services, rendering services to NGOs in South India for about 20 years wishes to share its experiences in this regard. It is hoped that these experiences provide an insight for the people who are genuinely interested in addressing the issues relating to post disaster reconstruction activities with special reference to housing.

*Community development; gender issues; non-governmental organizations; strategic planning; sustainable development*

## THE VULNERABILITY OF DISASTERS IN INDIA

According to the Centre for Research on the Epidemiology of Disasters (CRED), Brussels, Belgium, India is the worst disaster-affected country in South Asia. CRED studies show that between 1987 and 1996, on an annual average, disasters killed 5,063 people and affected 56,563,631 people in India. 2540 people died and 392,690 people were affected by disasters in 1997 alone. Estimation of the economic impact of natural disasters (Average 1985-1995) is 1,645,507 million US dollars. CRED cautions that data on the financial cost of disasters is extremely difficult to gather and verify. Lack of standards, accepted definitions, documentation mechanisms make disaster data collection and collation a researcher's nightmare in India.

The National Center for Disaster Management, New Delhi reports that the number of disasters in India has increased 5 to 6 times in three decades and that the relief provided after disasters was Rs.61.5 millions in the second finance commission and rose up to Rs.14, 000 millions during the 10<sup>th</sup> finance commission.

Due to globalization and consequent structural adjustment programmes, poverty, urbanization, environmental degradation, social disintegration, terrorism,

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communalism, deforestation, global warming, pollution, industrial disasters, etc., the human made disasters are also expected to increase in the near future.

### **Andhra Pradesh: The most Disaster Prone State in India**

Andhra Pradesh is the most Disaster prone area in terms of drought, floods, cyclones and fire. It is the fifth largest state in India, in terms of both population and area. Spread over 2.75 lakh sq km, it comprises 8.4 per cent of the country's total geographic area. It has a long coastline stretching approximately 1,030 km, and an equally long history of cyclones. It is battered by at least one cyclone per year. The coastline districts are normally affected by cyclones and floods, whereas the western and northern parts of Andhra Pradesh often experience severe drought conditions

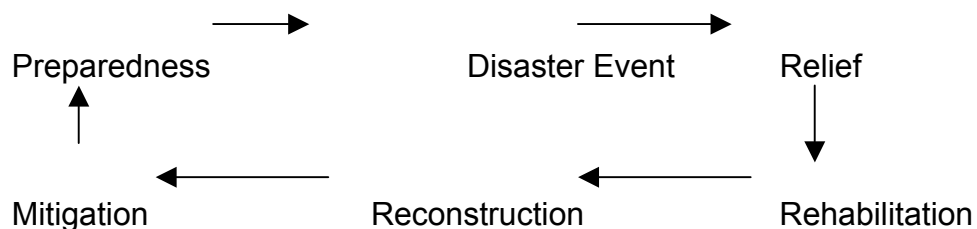
### **Disaster Management**

Disasters are both natural and human made – a battery of floods, droughts, cyclones, land slides, earthquakes, communal riots, armed conflicts, fires, volcanic eruptions and epidemics and industrial disasters (Bhopal Gas Tragedy). The magnitude of disasters is documented by reference to the degree of vulnerability of the affected population.

Disaster Management should not be seen in isolation but various phases of management in addressing this particular issue i.e. in the form of preparedness, relief, rehabilitation mitigation and reconstruction.

Many organizations are involved in relief and rehabilitation. Most often the focus on preparedness, mitigation and reconstruction remain neglected. It is necessary for organizations, which are concerned about disaster to address various stages of disaster management.

### ***Different phases of Disaster Management***



## **Disaster Mitigation**

Mitigation means, “actions taken to reduce risks”. It means a pro-active and a preventive measure. It is cost effective, long-term result oriented. It contributes to protecting lives, property and the development process. The mitigation measures taken in advance can reduce the impact of disaster on people and the environment. Strengthening of unsafe building may be considered as physical mitigation. Legislation, training, educational measures for public awareness, soil conservation, reforestation, etc., are some of the ways to reduce the disasters by anticipatory actions and this may be termed as non-structural mitigation. Introducing appropriate crops and breeds of livestock's, drought resistance practices, etc., which are aimed to withstand the impact of disaster may be measured as agricultural mitigation measures.

It is necessary to mention here that after the cyclone of November 1996 in Andhra Pradesh. The technical expert team made the on-the-spot assessment and made eight recommendations to mitigate the extent of damage caused to the buildings in the cyclone prone areas and they are available on request.

## **Disaster Preparedness**

Disaster preparedness means predicting, responding to and coping with the effects of a disaster through planning and preparation, such as training in evacuation and setting up systems to operate in emergencies. There is a close relation between mitigation and preparedness. However, the broad distinction between the two relates to the essential difference between short and long term factors. Preparedness planning deals more with the short term and is concerned with the development of an orderly and systematic approach to deal with disaster in such a way as to minimize casualties and further damage. This covers a number of specific tasks, such as establishing an emergency operations center, stockpiling of emergency supplies, making an evacuation plan for a community living near a possible source of flooding, etc.

## **Rehabilitation**

The rehabilitation phase follows next and involves actions taken in the weeks and months following a disaster to restore basic services to enable the affected population to return to pre disaster conditions.

## **Relief in Disaster Management**

As many NGOs, institutions, etc., are involved in relief operation, it is felt necessary to deal with this subject appropriately, based on the past experiences.

The role of relief though is short term, and is one of the most important humanitarian acts during disasters. But it requires trained, dedicated team with lot of discipline, dedication, determination and duty-bound in directing the relief operations and if it is not managed effectively, this itself ends up in disaster. Usually there is tremendous response to a disaster within the community, neighborhood, philanthropic organizations, NGOs, their networks and also at the national and international levels depending on the nature and magnitude of the disaster. If the relief that comes out of such a response is not properly handled to ensure that it reaches the deserving and needy, it results in embezzlement, disappointment, frustration, distress, etc. Division of work, time management and teamwork are very crucial during rescue and relief operations. It is necessary to see that the following unhealthy practices are not performed during relief:

- More than needed relief reaches the easily accessible areas, those areas which receive good press /TV coverage and the far-flung villages across bodies of water get little or no relief material.
- Political leaders with vested interest divert the material to their areas and misuse them.
- Local leaders - those who are concerned about their communities - mismanage the work.
- More remote inaccessible and marginalized areas which don't have any resources, and who cannot articulate their feelings, are often worst affected but they are neglected, uncared for and taken for granted.
- During immediate relief, when medical care and the enumeration process occur, it is the economically better off and assertive sections that benefit most.
- Initially, most of the organizations involved follow a populist approach and make most emotional promises without a matching performance
- Government resources are usually meager to meet the needs and they do not follow equity principles but distribute relief equally. The staff is most often untrained, unprofessional, not sensitive to issue, gives importance to press coverage and succumbs to political pressures.

Some of the tips that deserve to be followed during relief operations are out lined below:

- Education of the public regarding the government relief available, through pamphlets giving information regarding the various relief measures announced by the government.
- Document complaints for presentation to the authorities. A volunteer team to register complaints that are represented in person, through post or by phone and follow it up.
- Organize volunteers' task force in important government offices like the RDO office, MRO office, Panchayat office, Government hospital, where people come with complaints and help them with guidance, assistance and organize protests to achieve results.

- Run a mobile cell, which visits the villages to enquire if people are getting the relief, medical care, basic needs etc.
- Motivate NGOs with information, material and expertise to be efficient and effective in their interventions.
- Ensure proper enumeration of families, who need relief and rehabilitation.
- Organize public hearings for addressing issues of that need public attention, support and solidarity actions.
- Organize and coordinate the relief operations.
- Prevent out break of epidemics etc.

## **Post Disaster Reconstruction**

Following on the rehabilitation phase is the reconstruction phase. This phase provides an opportunity to introduce new modes of organizing a community and reducing vulnerability to hazards.

The reconstruction is a rebuilding measure and that is applicable after certain disasters. The reconstruction involves building the confidence, self-respect, self-esteem, self-dependency, mutual support, and mutual trust and rebuilding of communities. This is a long-term process and it focuses more on human and material resource development, coordinated effort towards independence, sustainability and empowerment. In this “Reconstruction” the most vulnerable and marginalized sections like women, children, poorest section of society, etc., are the primary stakeholders and partners in the empowering process.

Based on the experiences of ATMA Consultancy Services in the reconstruction work, several principles and best practices in Post Disaster Reconstruction Work have been identified and they are listed below.

- The reconstruction work should be community managed, controlled and owned, socially and culturally acceptable. It should promote mutual support of the communities, enlist self-help and ensure voluntary labor.
- The locally existing ecologically friendly, low cost materials should be made use of. All the available local resources, local talents, subsidies and various schemes of the governments should be made use of.
- Simple, latest, cost effective, research based technology and indigenous technology that is easily adaptable and maintainable must be preferred.
- Efforts should be made to make use of the old and useful building materials and thereby avoiding wastage and minimize the cost of construction.
- The labor intensive technology should be encouraged and mechanization of construction and labor displacing technology should be opposed and discourage.
- The programme should facilitate skill development, up-gradation of traditional skills and encourage learning by doing. It should encourage and make use of the materials produced by village industries and rural artisans.

The reconstruction should foster feelings of solidarity and bargaining capacities, and address the issues related to rights and entitlements and strive for collective growth. The partners of this reconstruction process, irrespective of their position and status, must work for transparency accountability, democratization, capacitation and collective growth, and steer the community to manage a controlled, self-owned and sustained development process through effective organizational and project management systems and procedures.

Many NGOs, government machineries, and representatives of the communities, who belong to higher strata or middle class, are clueless and don't have sufficient motivation and commitment in addressing the problem of the most marginalized communities. During any disaster, it is mostly women and children, elderly and disabled, who become the most vulnerable victims and therefore any reconstruction work, should address the issues related to women and children.

It is our experience that if the issues related to women are properly addressed, issues related to children are taken care of. As the women sector belong to a majority of potential partners, as a matter of principle and in practice the gender concerns and women issues must be addressed effectively in the Reconstruction work.

### **Addressing the post disaster reconstruction work with gender perspective**

Prior to addressing the issues of women, it is necessary to distinguish the difference between the often confused and misinterpreted concepts of sex and gender. It should be noted that sex is biological, whereas gender is a social construct. It is with the gender perspective that the issues affecting women should be addressed. However, from experience, it is observed that this is more easily said than done. There is also a tendency to overburden women in the name of women development, women empowerment and gender concerns. Though, there are limited experiences in addressing the issues, it is of paramount importance to share them with a hope that many more initiatives will be undertaken based on our experience and on the reality.

Usually at the time of cyclones and floods, the people living in low-lying areas, on the banks of rivers or other encroached lands are affected and it is they who lose life and property. During rehabilitation, such people are shifted to safer places and permanent houses provided in such new and safe areas. In such circumstances, it is necessary to see that the new allotment of house sites is registered in the name of women.

Sometimes though, the people are living in safer places but in non-permanent houses like thatched houses; when their houses are lost in a cyclone, rehabilitation takes the form of providing permanent houses at the same place. In such cases, it is necessary to insist that the land rights in the name of men are converted into joint ownership of men and women before the permanent houses are constructed.

Single women (like widows, unmarried majors, divorcees, deserted women etc.,) should be treated as separate and independent units for the purpose of developmental interventions and all rehabilitation measures.

In issues related to evolving policies, constituting committees, electing bodies, selection of staff, decision making structures, as a rule not less than 50% of women representation must be ensured.

The perspectives and real needs of women should form part of all plans and project proposals.

Prior to supporting the projects for reconstruction and on long term developmental interventions, the Community Based Organizations (CBOs), the intermediary NGOs and the sponsors of the programmes should ensure that more specific guidelines are applied with specific gender focus in planning and implementation of the programme. As a concrete measure, it is strongly recommended that all benefiting communities are asked to sign an MOU with Do's and Don'ts as a code of conduct in addressing the concerns of women and girls. For example, these can cover issues such as sharing of domestic work, preventing child marriages, sending the girls to school, promotion of women as community leaders, strengthening the economic independence of women, measures to check dowry, wife battering, sexual abuse, forced marriages etc.

In other words, there need to be special initiatives for addressing the practical and strategic needs of women. Specific measures should be undertaken to initiate, promote, support and sustain women leadership in social, economic and political fronts.

Of late, various developmental programmes have been initiated with specific focus on women, which makes women more responsible, burdened with more work and less control over the benefits. Hence, the reconstruction and long term developmental measures should ensure that appropriate activities, strategies and indicators are evolved to monitor the advancement of women in various sectors and men should become collaborators in this process.

### **A Few Experiences in Post Disaster Reconstruction in Andhra Pradesh**

*NASA's Post Reconstruction Housing Programme for Empowering Untouchable Dalits and marginalized Women:*

NASA's chief bureaucrat has immense experience in relief and rehabilitation and for NASA, relief and rehabilitation work provides an opportunity to organize the communities towards the goal of dalit empowerment. Floods, cyclones, fire accidents and atrocities on dalits – all provide the entry point and as a means to consolidate people organizations towards sustainable development and empowerment. NASA demonstrated this in its relief and rehabilitation work after



Locally available resources

1990, 1995 and 1996 cyclones. In the reconstruction work after these cyclones, NASA utilized the emotional situations to foster unity among dalits and inspire them to build their own future. Housing provides the best opportunity for such a committed community organization work. The people's organizations are motivated to complete the project by introducing locally feasible cost effective technology, participative, transparent and accountable systems. NASA made use locally available resources for housing such as bricks, rough stones, sand, deadwood etc., to the optimum level. NASA has so far constructed more than 8,000 permanent houses. So far 18,000 acres of land was acquired and developed with special focus on watershed management and by introducing appropriate land development practices. This has immensely contributed to the socio-economic advancement of the dalits. NASA's documents showed that it has promoted 5,000 self-help groups ranging from 10 to 15 members per group and there are 60,000 women involved. They are federated at the macro level as cooperative societies. They are involved in savings, credit, skill development, and income generation and as active participants in socio-economic and political empowerment processes.

The concept of housing does not end with the completion of houses. The unity and 'we' feeling developed during the housing programme motivated people to acquire land and develop it, mobilize programmes for basic and minimum needs, schools, income generating programmes and strengthens unity to fight for self respect and dignity.



Land Development



The housing colonies are provided with good internal roads, community halls, drainage, smokeless chullahs, compost pits, electrification, drinking water, schools, kitchen gardens, flower gardens, etc. The kitchen gardens with coconut plants yield income. The permanent houses with hygienic atmosphere has brought new status and dignity to the dalits, the so called untouchables, who live in segregated areas. It is not an exaggeration to say that the newly built dalit colonies give a better look than the housing colonies of the dominant castes.

### ***Pre Reconstruction Scenario of Dibbulapalem***

Dibbulapalem is slum on the banks of Thandava River in a low-lying area. There are about 70 families. This colony was branded as a sex workers colony and all governmental agencies and the public neglected it. The majority of them was illiterate and their children were sent to cashew factories as labourers.



Brick Making

The cyclone of 1995 was devastating and it washed away all the thatched houses of Dibbalapalem. The residents lost all their belongings and were left bare. At this juncture NASA stepped into the Dibbalapalem colony and started an awareness campaign and conducted health camps. All women were organized as Women Sangham and they were successfully persuaded to abandon prostitution. NASA helped the women's Sangham to mobilize and solicit a grant from the government for housing and the grant from the Emergency Desk of Diakonisches Werk was also requested. NASA facilitated the construction of 74 houses with the active participation of the women's organization, which organized its own brick making unit, mobilized voluntary labour, monitored the construction, introduced cost control measures. The title deeds of the houses were obtained in the name of the women. Housing brought a tremendous change in the lives of the women. They were counseled and motivated to save regularly and helped to mobilize matching grants from the government to take up alternative forms of living like micro-businesses. The children were guided to get admission into Government schools and in NASA's child labour schools. After completion of the houses, the Sangham mobilized government support for internal roads, community hall, electricity and developed kitchen gardens in next the houses. With permanent houses and beautiful roads, the hitherto slum now gives a posh look. The bad name for the locality also got

erased over years. Some of the women converted part of their houses, facing the main road, into shops.

The spirit and motivation that propelled hitherto sex workers to transform themselves into dignified citizens was possible through an effective organizational network. This brought assertiveness among them and a desire to lead in the democratic process. The women participated in local municipal elections and got one candidate elected as councilor for their area and also cornered the chairperson's post to their candidate.

### ***Reconstruction of Houses: The Experience with TWACHARDO***

The worst cyclonic disaster in the recent memory in the country occurred in 1977 in Guntur and Krishna districts, Andhra Pradesh, due to tidal waves. More than 10,000 people perished overnight, making it the biggest national calamity. The government was strongly criticized for its failure in relief and rescue operations and disaster preparedness. Innumerable human and material resources were mobilized by various bodies for relief and reconstruction. The present experience relates to one such village, called Pallipalem, inhabited by 70 fishermen families, which is just 2km from the Bay of Bengal, where a private company came forward to reconstruct the houses and the State administration constructed a cyclone shelter.

In 1990 there was another cyclone of even larger magnitude and the majority of those houses were damaged. TWACHARDO requested Diakonisches Werk, Germany, for financial support to take up post-disaster reconstruction work. On-the-spot assessment proved that the pre-fabricated concrete roofs were of poor quality and they were already unfit for living. People built up temporary shelters with coconut leaves and were living there. The cyclone shelter of a comparatively big size with two floors was not maintained and was in a dilapidated condition. As no one was responsible for the building, people were using it for gambling, a portion of it was used for storage and at nights it was used for immoral acts. There were about six toilets meant for the community in a row out of which four were locked and the two were used for storing some household items. In the same premises, there was a school and the children had to go for open-air defecation. It was also found out that the government has given two acres of land, which were under the threat of occupation by non-local affluent section. The village was exposed to sea without anything to prevent cyclonic storms or winds. The fishing boats and nets of the people were in a damaged condition.

In view of the above scenario a comprehensive plan to address all the issues was planned with the active participation of the people, NGO, the State Housing corporation and district administration. Their financial commitments were obtained in writing. The NGO and the community were facilitated to enter into a written MOU on their roles and responsibilities. With the support of the Emergency Desk of Diakonisches Werk, the Andhra Pradesh State Housing Board, the district administration, the local government and Andhra Bank, coupled with the people's

contribution in the form of labor, by using the salvaged doors and windows from the buildings and by using resources to the optimum, they could execute all the programmes that were planned. In the process, the people had to face some difficulties. The main difficulty was the traditional NGO attitude of the Chief Bureaucrat, who was not really promoting people's participation, which had to be overcome. Another difficulty was that of the government officials, who expected to receive certain percentages from the benefits extended by the government. Both these difficulties could be overcome by the intervention of the consultant of Diakonisches Werk, who took precautions to actively involve people and make things transparent, democratic and participatory.

Ultimately, the planned goals could be achieved and people successfully completed the housing, repaired the cyclone shelter and the community took responsibility for its proper use and maintenance. The community organization became spirited and motivated and they proceeded to acquire the lands allotted to them for cultivation. As the NGO did not have the capacity to organize the people to struggle for rights and facilitate further development, it could not make full progress soon after the withdrawal of services by consultants.

### ***BREDS and the SHGs as well as MACS grow stronger in partnership towards sustainable development***

BREDS provides an inspiring illustration where people's initiative and participation was at its optimum. BREDS, which works among the rural poor of Kottur Mandal, Srikakulam district of Andhra Pradesh, is composed of young, enthusiastic and innovative board members and staff. This young group inspired by ideals of voluntarism in its true spirit introduced totally transparent, accountable, democratic, participative systems into the people's organizations, which in turn motivated the people to actively shape their own destinies. The staff and people addressed the issues of fire mishaps in the housing colonies, floods and drought that followed successively one after another in 1996. They have decided to go for permanent housing and constructed about 200 houses with people's participation at its peak. The people contributed voluntary labor as a community to complete the entire housing within record time in a most cost effective way by mobilizing all local resources like sand, wood and manufacturing bricks. Cement was purchased directly from the manufacturers, thereby saving a lot. The CBO model with high level of people participation has reached such a level that BREDS gave away its office to the CBO and the process of withdrawal of NGO and takeover by CBO is in its full swing. Shortly, it is hoped that the CBO will take over the staff of BREDS. The model work of CBO has attracted the attention of the District Administration, which has come forward to sanction not only all possible schemes to the people but, all government works in the area also are given to the community, which works for the larger benefit of the community. The people have successfully implemented and benefited through various programmes like tree plantation and afforestation of hill slopes, land development, weaving schemes, women development schemes, road and tank works, fish cultivation, etc., and all these measures resulted in controlling

out-migration for paid labour. A few hundred SHGs of women's federations became the cooperative society, which takes care of the staff of BREDS as their employees and replaced the NGO and marching ahead as a mandal.



Community Based Organization-  
Meeting

### ***Post Reconstruction – Another Experience of Disaster***

There were flash floods in a traditionally drought prone area of Cuddapah district in Andhra Pradesh in October, 1996 due to poor maintenance of minor irrigation tanks, floodgates of a reservoir.

A few international donors promptly responded with relief and rehabilitation work. A network of 15 NGOs in the district that is associated with a joint forest management project, implemented the above project in cooperation with the government and local communities.

In one site, it was planned to rehabilitate about 1000 Dalit families from 15 villages. They were not only affected by floods but also their villages were located under the submerging area of Somaseela reservoir; they are to be relocated. For such displaced persons, there was altogether a different and better package than that of other rehabilitation programmes.

The work started off well. Two NGOs were entrusted with responsibilities for constructing 1000 houses. The support of one western donor was used to lay foundation work. Another western donor helped one of the NGOs with support for buying four cement brick making machines and implements for land development work, the government assigned about 1500 acres of land for the families to be relocated and to buy Cuddapah slab stones for roof terracing.

The issues were that the people would not leave from their existing villages because they feared that compensation would not be given, if they shifted their residences.

Secondly they have to depend on their daily labour to eke out a living and in the new settlement - unless and until the land development and joint forest management programmes were taken up - they would not be able to find employment. They have also found it difficult to travel 20 kms up and down by spending about one day's wage for a day's travel expenses so that it proved to be difficult to participate in the construction work.

One of the NGOs created employment for about 20 people to make cement bricks and to transport sand and other building materials. This however, could not be continued because the employees of Andhra Pradesh Housing Corporation and the Chief Bureacrats of the NGOs had their own agenda in the absence of people's participation. The government employees hired the brick making machines and produced poor quality of bricks and used inferior quality of building materials. The government employees, who were expected to monitor the progress, took up the job of construction much against the norms and rules laid by the Housing Corporation in collision with higher ups. In purchasing materials, in masonry work, in laying internal roads, in sinking bore wells, in making building materials and in every other field, wherever they were involved, they made their profit by bypassing the ethics, principles, etc. Three types of roofing were promoted by the Housing Corporation. One was pre-fabricated arch dome, the second one is R.C.C slab. The third one is known as Kurnool terrace roofing, which is very much local, common, cheaper and easily maintainable, because it is of simple technology, the materials required are available in plenty and they are cheaper. This model is to place the cement rafters at the roof level and Cuddapah slab stones and covered it with white soil of poor quality, which prevents any seepage. The people can use the terrace of two models for drying food grains or to sleep on at night, whereas the arch dome model, though cheaper to erect, is not appreciated by the people because they cannot use the terrace and it is also difficult to repair them, if they start deteriorating due to poor quality of pre-fabrication. Now the fact remains that the Chief Bureaucrats of NGOs and the government employees became the contractors.



**Kurnool Terrace  
Roofing**

The people did not bother about the poor quality of construction and unsystematic infrastructure development because they neither got involved nor contributed anything in cash or kind. Only 850 houses were constructed at a cost of Rs.20,000/- per house of 144 sq.ft. as per the government's prescribed sizes. The

doorframes, window frames and shutters were made of pre-fabricated cement blocks, which are of poor quality and are not liked, by the people. At present about 30 families are residing in this locality. Others will prefer to take possession of their houses if the following conditions are met:

- Compensation for their displacement from the existing villages, houses, lands etc.
- Receive rehabilitation package and facilities in the new place of residence.
- Employment opportunities with in new locality must be ensured and schemes for land development and JFM are grounded.
- Basic facilities like water, electricity etc. are provided in the newly constructed colony.

It is concluded that dedicated, committed and result-oriented NGOs, community leaders and government officials must work together to address problems confronting the communities if those displaced communities have to live in a dignified way and improve their living conditions.

### ***Post Cyclone Reconstruction Housing – Experimentation by PARA***

PARA is supported by 'Bread for the World' to work in 2 mandals of East Godavari District. Its area of operation was affected by a cyclone in November 1996. It has been very effectively involved in relief and rescue operations and in facilitating means to address the grievances of the victims. It has made a promise to construct 300 houses for the victims of cyclone. The government advised the NGOs not to mobilise contributions from the people for constructing the houses. The government contribution was fixed at the rate of Rs.10,000 for a first type of house and Rs.15,000/- for a second type of house. Hence, most of the NGOs, which showed interest, had to withdraw because they could not afford to invest 20 to 30 thousand rupees per house. However, PARA went ahead with the participation of the communities and from the beginning the beneficiaries were actively involved. The criteria used for selecting the beneficiaries were three:

- a) The active involvement of beneficiaries in the on going programmes like participating in the struggle for implementing minimum wages, land reforms and protection of Dalit human rights.
- b) They should be members of an agricultural labor union and the self-help groups, who are involved in thrift and credit and other development programmes.
- c) The beneficiaries, who agree to the MOU and the important clauses in this MOU were to make the necessary contribution for laying foundation stones and to provide unskilled labor for their own housing.

The details of the constructions were: PARA to construct two rooms (8x9 ft each) and a toilet (3x4 ft.) on the foundations offered by the beneficiary. The walls were of 9 inches thickness to a height of 10ft. The roof made of RCC filler roof with 1 ft. projecting over the walls. Two RCC doorframes and 2 RCC windows fitted. One wooden door shutter was fixed, cement flooring and plastering of internal walls,

toilets with 7ft. high brick wall, RCC roof, porcelain pan connected to two leach pits 6ft. deep. Window shades were constructed.

PARA introduced a new technology promoted by Laurie Baker. Rat Trap construction for the walls and filler roofing for the slabs were used, which reduced the cost by 20%. PARA's office building was also constructed by using this technology. The local masons were also trained in acquiring skills in the newly introduced technology.



Rat Trap Technology

It was documented that for a house of the same specification, usually about 10,000 bricks are required, while using the Rat Trap technology, the house has been completed with over 7,000 bricks. Similarly, the slab in the ordinary construction would require over 100Kgs of steel, while in the filler roof the steel requirement is less than 75Kgs for a house. Similarly, there is also a saving on cement.

The majority of the families made use of the locally available materials i.e. coconut tree leaves and rafters made of coconut trees for extending their small houses. There are about 30% of the people who borrowed money to make additions like portico, additional rooms, etc., and who used up the materials given by PARA; as a result there was a delay in the completion of the project. Money was borrowed at an exorbitant rate of interest and many have become defaulters. The people did not show much interest in taking care of the sanitation component and it showed that women concerns and requirements were not given due importance.

Another important problem that is faced was that the people are accustomed to consult the local experts in locating the houses and according to VAASTU. Normally, people don't go against the advice of the VAASTU experts because they fear about misfortunes, if the advice is not followed. In this context, it is worth to mention here that in Andhra Pradesh, irrespective of faith they belong to, majority follows the VAASTU and this practice is also spreading to other states. This VAASTU either helps to get good price for the houses and if they are not according to VAASTU they fetch very much less and are often difficult to sell.

## **CONCLUSION**

As this paper is presented within the development perspective, based on the experiences gained in working with NGOs with limited experience with technology, I wish that the presentation were seen in the same perspective.

In any reconstruction process, the people with whom we work should become the subjects and masters of their own destiny. The well-intended NGOs and various stakeholders should demonstrate convincingly that they are committed to the cause through transparency, bottom-up planning, democratization, accountability, cost effective measures, ensuring proper utilization of resources, strengthening of peoples' organizations for self governance etc., for achieving sustainable development.