
UNIT 27 RECONSTRUCTION AND REHABILITATION AS MEANS OF DEVELOPMENT

Structure

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27.0 OBJECTIVES

After studying this unit, you should be able to :

- understand and explain the interconnection between disaster management activity and development activity
- discuss how rehabilitation can be incorporated as part of development planning
- describe the different elements of reconstruction and rehabilitation as a means of development.

27.1 INTRODUCTION

In areas where in spite of best mitigation efforts, disasters do take place and cause serious damages should also be viewed as opportunities to reconstruct and rebuild the entire socio-economic as well as physical structures to match new requirements. Post-disaster reconstruction and rehabilitation need not be viewed merely as a disaster management activity, but also as a development activity. This approach is also applicable to pre-disaster situations, where the preparatory disaster mitigation activities may be incorporated as a part of the overall development plan for the area. The prime objective of such an approach is to integrate the rehabilitation process with the overall development process and to seek out opportunities even in threat situations.

The action that follows an occurrence of a disaster is usually two-pronged. As an immediate succour to the affected community, relief operations may be commenced providing for food, healthcare and temporary shelter. If, however, the damage is very high and the disaster is likely to recur, a long-term rehabilitation strategy may be launched as a part of the overall development of the area.

27.2 DISASTERS AND DEVELOPMENT

The housing especially in rural and semi-urban regions in India varies considerably according to **varying** climatic factors and environmental constraints of disasters such as earthquakes, cyclones and floods. This diversity also reflects the cultural identities of local communities.

During rehabilitation and reconstruction, it is important to stress upon the building standards, materials, technologies and planning apart from architectural guidelines that permit local artisans and households to build functionally efficient housing in response to their own needs, affordability and creativity combined with adequate resistance to withstand destabilizing forces during disasters.

Specialised building codes and planning guidelines should be prepared for housing in areas that are disaster prone. Since in most cases, the damage to houses occurs in remote rural areas where settlements are small consisting of poor population; and the houses are built with traditional locally available biomass based materials. The strategy should be to maintain a continuing system of developing appropriate technology, imparting education and training, creating awareness for inducting improved technologies and upgrading the skills of local artisans and building infrastructure. While devising structural as well as non-structural mitigation strategies, it is necessary to recognise and integrate the positive elements of indigenous technology/locally available materials and the cost-effective traditional coping mechanisms of the people residing in risk prone areas. During reconstruction and rehabilitation, the first issue that comes into picture is to provide housing for all the survivors of a natural disaster.

a) Housing

Location : The first and the most important issue is the location on which the houses will be built up. The relocation on non-agricultural piece of land will be preferred. But if such a location is far off, it will not be practical, since the people would like to be relocated nearby. In such a case, if use of agricultural land is necessary, this would further affect them economically.

While selecting a house site, the following points should be considered depending upon the vulnerability of the area to the particular disaster(s).

i) Earthquakes:

- a) The nature of the soil should be taken into consideration while designing the foundation of the building.
- b) Avoid narrow ridges, steep slopes, narrow valleys and sites near cliffs or large gullies.
- c) Prefer sites with hard bedrock at or near the surface.
- d) Prefer sites where landslides are unknown in the surrounding area.
- e) Prefer sites where there is no sign of active "faulting" and avoid areas near ponds or swamps or deep or long cracks in the ground.

ii) Cyclones:

Cyclones are characterized by heavy rains, very strong winds and storm surges. Therefore, prefer a site away from seacoast, flood plains and lakesides to avoid flooding risks. Hence the following types of lands are to be avoided:

- a) land at a low elevation relative to lagoon, river or surrounding lands.
- b) land which lacks natural outlet to discharge the very large volume of water; and
- c) land at the foot of slopes, which will receive direct surface run-off.

iii) Landslides:

- a) Avoid a site near an unstable slope, at the foothill of the slope or in an area with known history of landslides.
- b) Local geographical conditions will indicate severity of risk
- c) Avoid an area near a place where quarrying is being done or has been done.
- d) Avoid a deforested area in the mountains

iv) Flash Floods:

- a) Avoid low lying areas, wetlands and lagoon mouths.
- b) Avoid edges of inland lakes.
- c) Avoid flood plains and particularly the flood ways.
- d) Avoid housing in narrow defile or gorge.
- e) Avoid downstream banks and flow ways below dams; and
- f) Provide protective measures such as channelisation, ponding areas and flood walls, wherever feasible.

v) Snow Avalanches:

- a) Avoid areas of heavy snow or rain in hilly areas. Heavy snowfall can be associated with heavy rain.
- b) Prefer sites where avalanches are unknown in surrounding area.
- c) Avoid formation of snow pockets on roof and on site.
- d) Design roofs with slopes greater than 50 degree to dislodge the Snow load.
- e) Snow load may be assumed to be 2.5 kg/sqm./cm. in depth.

After deciding the location, the housing component is broken up into the following sub-components:

1) Acquisition of **Land for** Relocation Sites along **with** the Compensation

After the location is finally decided, if it falls up in the Government land, the process of acquisition becomes easy as the Government is itself the owner of the land. But if that piece of land is owned by somebody else, then the Government will have to pay due compensation to the owners. Often it becomes very difficult to acquire land but as a charitable cause the owners often agree to it. Still, the compensation has to be given by the Government. Often due to lack of funds and coordination, and delays in receiving the funds, the process is slowed down. This leads to imbalance and confusion among the people. Therefore, immediate funds must be raised in order to help people and no beneficiaries should be included during this process.

2) **Landuse**

Developing a policy framework for landuse on the basis of an analytical study of potential hazard areas is very necessary. Many of the disasters can be avoided by proper planning and avoiding habitations in the areas prone to natural hazards.

3) Reconstruction of the Houses

This involves the reconstruction of the damaged houses, which is based upon the number of survivors or the disaster affected people. During reconstruction, the following aspects should be considered:

In-site Reconstruction: After the disaster is over, people are generally given relief funds, in order to reconstruct their houses. Most people, in the aftermath of a disaster or even after the disaster is over, opt to stick to that very land and try to rebuild on that piece of land. This happens mostly because the people are emotionally attached to that land.

Repair and Strengthening:

Many existing buildings do not meet the strength requirements against disasters, especially non-engineered residential buildings. This is partly so, because of original structural inadequacies, material degradations or unsafe alterations carried out over a period of time. The very purpose of strengthening of such structures is to upgrade their resistance to disasters or in case of structures damaged due to a disaster, to make them safer under future occurrences. Most of the time, the relative cost of reconstruction as against repair and strengthening becomes a deciding factor in the selection of the appropriate alternative.

Pilot Strengthening of Undamaged Houses:

This operation could be undertaken by the house-owners at their cost and at their own pace. A pilot programme should be organised in order to select the houses so that they could be strengthened. Qualified consultants could be employed to develop technical solutions and cost estimates for such pilot houses. Apart from this, publicity through the various media for strengthening their houses could also be made use of. Training the local skilled workers should also be carried out through the suitably located building centres. The Housing and Urban Development Corporation (HUDCO) has taken a praiseworthy initiative to establish numerous building centres in the country where local masons and other artisans are trained.

Construction of Model Houses

Model houses and buildings should be constructed to demonstrate cost-efficient building techniques, the use of local materials, and incorporation of disaster resistant construction features. The objective of this exercise would be to improve traditional building techniques, and generate confidence among residents about the use of appropriate construction material such as stone, and its by-products.

b) Infrastructure

The second important issue after housing is the provision of the infrastructure facilities. This component is further classified into the following components:

i) Upgradation of the Transit Shelters:

The activities undertaken are:

- a) Improving flooring
- b) Providing bathrooms

- c) Strengthening the sheds
- d) Improving ventilation
- e) Improving drainage and internal roads

ii) Infrastructure and Amenities in Relocated Areas:

This sub-component is tied to the housing construction programme in the relocated areas. Administrative approval for the sanction of funds should be provided for the construction of the access roads to the relocated areas.

iii) Roads and Bridges:

Often when the disaster occurs, roads and bridges are disrupted. So, it becomes very important to construct/repair the roads and bridges in order to have smooth and quick transport network. This will not only help the people in the post-disaster period to come back to their normal life and pace but will also help in forming connections with the entire region.

iv) Public Buildings:

Repair/Reconstruction of the public buildings eg. administrative buildings, health centres etc., should be done so that the people are benefited. I.T.I.'s (training centers) should be established in order to train the skilled, local artisans, who can then use the modern techniques along with the traditional ones to construct the houses and other buildings keeping in view, adequate safety measures.

v) Repair and Strengthening of Historic Monuments:

The required fund should be sanctioned by the Government so that the historic monuments of national importance are preserved. As such, the structures are normally old structures, and therefore vulnerable to be affected during disasters.

Check Your Progress 1

- Note:** i) Use the space given below for your answers.
ii) Check your answers with those given at the end of the unit.

- 1) While selecting a house site, what factors must be kept in mind?

- 2) What type of infrastructural facilities need to be provided in a disaster affected area?

27.3 RECONSTRUCTION AND REHABILITATION AS MEANS OF DEVELOPMENT

27.3.1 Social Development

The consequences of disasters are particularly adverse on certain vulnerable groups such as those below poverty levels with poor perception of risk and no institutional support. Records of past disasters suggest that the following groups of people are particularly at risk and require special attention:

- Single parent families;
- Women, particularly when pregnant or lactating;
- Mentally and physically handicapped people;
- Children; and
- the Elderly

People living or working in remote areas and seasonal migrant labour groups may also be at risk and pose special problems for both relief and mitigation. If people are aware of potential hazards, their nature and their likely impact, and understand what actions need to be taken to reduce risks, then they become less vulnerable. This is where illiteracy and lack of information create serious handicaps in disaster management. Risk perceptions of various groups need to be assessed and awareness programmes need to be initiated. Poverty levels are important because the poorer the people are, the more they suffer when exposed to severe disasters. They are, in fact, exposed to risks everyday. Risk perception also relates directly to the level of awareness and perception of risk. In sum, if there are groups whose livelihoods are at risk, living or working in densely populated areas, with low perception of risk, and without institutional support, the cumulative effect would be high social vulnerability. Apart from all this, the social development is also affected by the life styles, living habits, occupation and cultural patterns.

In rural areas, normally the housing pattern is according to the traditional patterns and beliefs of the people. In some cases, during the development stage, these create a set of obstructions as well. For example, in villages, it is seen that in the past, the whole village used to develop according to the caste system with some living inside the village, according to their domination and the others outside the village. For rehabilitation/reconstruction, it becomes very difficult for the Government to plan and provide for this kind of traditional social

structure as they normally design according to the number of houses required. However, the position has progressively changed and the social order has accepted restructuring. In some pockets, there could be some resistance, which can be broken only through education and increased social interaction.

27.3.2 Economic Rehabilitation

For economic rehabilitation, apart from making the economic loss assessment, it becomes necessary to mobilize funds. Most of the funding is provided by the government at the state and central levels. As far as the central government is concerned, the scheme of financing the relief expenditure arising out of natural calamities came into force w.e.f. 1st April, 1990, consequent upon the acceptance of the recommendation of the Ninth Finance Commission. These Finance Commissions are appointed by the Government of India every five years and make recommendations for a five year period.

The Eleventh Finance Commission has already recommended the financial arrangements for 2000-2005. Apart from the Government sources, help in the form of both relief measures and funds is 'sometimes received from international agencies and through voluntary organisations. The monetary assistance from such organizations, especially the international ones, is assigned to the Prime Minister's National Relief Fund.

Economic rehabilitation generally comprises the following sub-components:

- i) Provision of safe drinking water to ensure healthcare
- ii) Provision of roads to facilitate transportation of persons and goods
- iii) Clearing drainage congestion to avoid floods and water logging
- iv) Creating local opportunities for income generation by value addition to local produce, and encouraging new products based on local raw material
- v) Education and training to create awareness on disasters and steps to mitigate the adverse impacts
- vi) Replacement of agricultural implements, cattle, small shops etc., lost in disasters
- vii) Creation of healthcare facilities especially for the elderly, handicapped and the sick.

27.3.3 Afforestation

Forests play a crucial role in environmental equilibrium apart from providing food, fuel, fodder and timber for sustenance of the people. Looking upon these as a cheap and renewable source of energy, construction material and wooden articles for homes and offices have led to extensive deforestation with adverse consequences for human, plant and animal life.

The Report of the National Commission on Agriculture appreciated the productive and protective functions of forests and recommended proper investment in social forestry to meet fuelwood and small timber needs of the rural people. As a result, the programmes for social forestry and farm forestry gained momentum.

Check Your Progress 2

- Note:** i) Use the space given below for your answers.
ii) Check your answers with those given at the end of the unit.

1) Which sections of people should receive special attention while planning a social rehabilitation package?

2) Throw light on the different sub-components of economic rehabilitation.

27.4 LET US SUM UP

Reconstruction and rehabilitation should be viewed basically as developmental activities to be taken up in extreme demand conditions such as in the aftermath of disasters. Therefore, the approach to such programmes should be positive with stress on building new socio-economic and physical structures. This unit has laid emphasis on the need to view disaster management activity as a development activity while devising structural as well as non-structural mitigation strategies. It has stressed the point that it is necessary to recognize and integrate the positive elements of indigenous technology, locally available material and traditional cost-effective coping mechanism of the people residing in risk prone areas. The unit has thrown light on the prime areas of social and economic development by drawing attention on construction of houses, infrastructure development and rehabilitation of vulnerable groups such as women, handicapped, children and elderly through adequate financing schemes and promotion of job opportunities.

27.5 KEY WORDS

Avalanche: Large mass of rock debris or snow that moves rapidly down a mountain slope, sweeping and grinding everything in its path.

Defile: A narrow long pass or passage between hills – so narrow that persons can march only in a file.

Faulting: A fracture or crack in the earth's surface.

Lagoon: A shallow lake formed at the mouth of a river or near the sea, but separated from it by a sand, mound.

27.6 REFERENCES AND FURTHER READINGS

G.C. Mathur, Housing in Disaster Prone Areas, National Buildings Organisation and UN Regional Housing Centre, ESCAP, New Delhi, 1986.

Girish K. Misra and G.C. Mathur eds., Natural Disaster Reduction, Reliance, New Delhi, 1993.

Vinod K. Sharma ed., Disaster *management*, NCDM, IIPA, New Delhi, 1994.

27.7 ANSWERS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) Your answer should include the following points:
 - Location-keeping in view of the impact of the likely disaster
 - Preference of hard bed rock sites
 - Avoidance of land which lacks natural outlet for water flow or which receives direct surface run-off
 - Avoidance of low lying area, flood plains, edges of inland lakes, downstream banks etc.
 - Acquisition of land for relocation
- 2) Your answer should include the following points
 - Upgradation of transit shelters
 - Provision of amenities in relocated areas
 - Reconstruction of roads and bridges
 - Repair and reconstruction of public buildings
 - Repair and strengthening of historical monuments

Check Your Progress 2

- 1) Your answer should include the following points.
 - People below poverty level
 - People with poor risk perception
 - People with no institutional support
 - Single parent families
 - Women and children
 - Aged and handicapped
- 2) Your answer should include the following points
 - Provision of safe drinking water
 - Provision of roads
 - Clearing drainage congestion
 - Creation of local job opportunities
 - Education and training
 - Replacement of implements, farm cattle, small shops etc. lost in disaster
 - Creation of healthcare facilities specially for the elderly, handicapped and the sick.