Chapter 17
Risk reduction after disaster

17.1 Introduction

Relief, rehabilitation and recovery initiatives should contribute to long-term development and the reduction of vulnerability – they should not simply reconstruct the existing risk. Ideas about how to do this have been discussed widely for a number of years, in various forms (the ‘relief-development continuum’ or ‘developmental relief’ in the 1990s; ‘recovery plus’ or ‘build back better’ in more recent times). There is plenty of debate about the meaning of the different terms and concepts, and their merits and drawbacks. Operationally, it may be simpler to look for similarities in their basic principles, which can be summed up as follows:

- intervene at the earliest possible stage in the disaster cycle to reduce future vulnerability;
- incorporate development principles into relief operations (e.g. build up local capacities, adopt participatory approaches);
- use relief not just to meet immediate needs but also to restore livelihood assets and rebuild livelihoods;
- use disaster relief to develop infrastructure that will be of value after the emergency is over; and
- take the opportunity to induce positive socio-economic change, not merely a return to the status quo.

The main opportunities for introducing DRR are through recovery. Originally seen as a distinct linking phase between emergency response/relief and development, recovery is now seen more as a continuing process that may take place alongside relief and development, and ideally is integrated with them. Recovery interventions should aim to restore and improve disaster victims’ physical, socio-economic and environmental conditions. However, recovery is a complex, long-term process, with many different dimensions relating to society, the economy, infrastructure, the built environment, ecosystems and institutions. These are all connected and interact. Recovery processes are not necessarily linear or uniform; they can be interrupted or come to a halt; they operate at a range of scales; social groups may reach recovery milestones through varied pathways and at different times; and the nature and speed of recovery depends on what people are recovering from and the conditions under which the recovery takes place.
The initial steps towards recovery (often called the ‘early recovery’ phase) are key moments for incorporating DRR. Early recovery starts in the humanitarian response period but works on more developmental lines. It seeks to ensure that humanitarian inputs contribute to longer-term self-reliance and resilience, building on humanitarian lifesaving assistance by supporting community actions and laying the foundations for recovery and development. It includes restoration of basic services, livelihoods support, provision of transitional shelter, establishing or re-establishing appropriate governance, ensuring security and the rule of law, environmental management or remediation and addressing other socio-economic issues, including land tenure and security and the reintegration of displaced people (in a conflict setting it also includes political processes).

There are fundamental challenges and tensions in early recovery. The immediate priorities of humanitarian response must be balanced against the opportunity to work towards longer-term needs. Developmental approaches may be unsuited to some crisis contexts, while humanitarian interventions often fail to lay foundations for enduring recovery. In any case, integrated recovery planning requires time, skilled personnel and widespread engagement. Institutional programming and donor funding schedules often set dates for completion of relief, early recovery and long-term recovery phases, but in reality humanitarian and recovery efforts overlap. It is unrealistic to expect communities to return to some kind of normality soon: human and material losses generally leave them more vulnerable than before. Post-disaster adjustment and adaptation last for years – often for decades – and disaster impacts can alter the environment, societies and economies irreversibly. Relief, recovery and development programmes need to take account of this ‘new normal’.

17.2 Opportunities, issues and challenges

17.2.1 Windows of opportunity
Disasters can be opportunities for change and renewal. They are sometimes said to present a ‘window of opportunity’ for promoting and implementing risk reduction measures, because the consequences of failing to act are strongly implanted in the minds of those who are affected by disasters, the operational agencies that have to respond to them and the public policymakers who have to manage their effects. This is demonstrated by the number and variety of initiatives introduced at all levels after major disasters. Disasters are an opportunity to change socio-economic relationships that affect vulnerability; they promote the formation of pressure groups; they prompt public debates about vulnerability and how to reduce it (Central America after Hurricane Mitch in 1998 being a notable example);¹ and they stimulate policy changes, new laws and regulations for disaster reduction. Relief and

rehabilitation initiatives sometimes lead to longer-term risk reduction projects, especially where the same agencies are involved in both relief and development work in the area concerned.

Characteristics of the ‘window of opportunity’ at a more local level may include: residents and local officials are made to think about the problem of risk, when they do not normally do so; the disaster may already have forced some changes (for example by destroying unsafe buildings and infrastructure); the community has to make decisions about recovery; and technical and expert advice and resources become available from government and non-government sources.\(^2\) It is hard to tell how long the window will remain open, what types of change might take place (and whether their outcomes will be positive or negative), or what conditions must be met to take advantage of the opportunity. Momentum can easily be lost and lessons are soon forgotten. Chances of success at community level may be improved by acting quickly before fear or the enthusiasm for change created by the disaster have lessened; basing interventions on familiar technologies and local resources as far as possible; concentrating on a small number of important actions, rather than introducing a whole portfolio of changes that dissipate efforts; focusing on what is achievable – communities already hit by a disaster have many urgent problems to attend to, and they will not respond if they believe the proposed mitigation measures are beyond their reach; and encouraging, supporting and involving communities as participants in change.

Post-disaster needs assessments (PDNAs), a key tool in post-disaster response, also have a key role to play in recovery and DRR planning. They collect information on damage losses and recovery priorities, including human development needs, and can be designed or adjusted to determine a range of recovery requirements and priorities, linked to DRR and development objectives. There are formal procedures for conducting PDNAs, particularly at government level, but any assessment of disaster impacts and needs can provide some kind of baseline and inform recovery policies.

Above all, it makes sense to agree on recovery goals and draw up plans before disasters happen, when there is time to think out strategies carefully and engage relevant stakeholders. Even if recovery needs after a disaster cannot be predicted reliably, credible scenarios can be created and the structures and systems to enable recovery can be established well in advance (as in preparedness planning).\(^3\)


Case Study 17.1 A window of opportunity for DRR

Cyclone Nargis, which struck the Ayeyarwady Delta in Myanmar in May 2008, was a devastating disaster: there were more than 140,000 fatalities, 700,000 homes and critical infrastructure were damaged or destroyed, 2.4m people were affected, and the loss of crops and livestock was immense. However, the experience also stimulated improvements in disaster management and a new emphasis on DRR. Nargis made the government of Myanmar realise the limitations of its disaster management capacity, in particular the need to invest more in DRR. Soon afterwards, the Myanmar Action Plan for Disaster Risk Reduction, Preparedness, Relief and Rehabilitation was developed by a task force from government ministries, the Myanmar Red Cross, UN agencies, the Association of Southeast Asian Nations (ASEAN) and the Asian Disaster Preparedness Center. The action plan was considered a landmark in cooperation between the government, civil society and international agencies in Myanmar. A new national disaster management law and building codes were also drafted and programmes were initiated to mainstream DRR into the health and education sectors. In 2009 international donors set up a trust fund to improve food and livelihood security for the rural poor, who had been the main victims of the disaster, and the government designed a development plan for the Ayeyarwady Delta that sought to use recovery programmes as a platform for longer-term economic regeneration.

Local groups, businesses and religious networks had been active in the emergency response to Nargis: new alliances and partnerships were formed, which bridged ethnic, religious and class divisions. This led to government agencies, communities, local authorities and international aid agencies making new connections between each other, and working together to plan and carry out recovery programmes. A variety of DRR interventions were undertaken, including public education programmes on preparedness and risk reduction, the establishment of village disaster management committees, training in first aid, search and rescue and early warning, and the construction of cyclone shelters. Businesses also began to take risk reduction more seriously. Large construction companies educated smaller counterparts on building codes and seismic resistance, and the construction of schools and hospitals which could also be used as cyclone shelters.

17.2.2 Coordination

Coordination of activities and interventions relies on collaboration between agencies working in relief, development and DRR. Such collaboration can be hard to achieve in the aftermath of major crises, when there may be a massive influx of national and international agencies of all kinds. The UN’s cluster system (which includes early recovery as one of its key themes) is attempting to streamline coordination between agencies. Relief and post-relief initiatives tend to operate on different scales, with mass coverage being more easily achieved in relief operations, and humanitarian agencies must weigh the imperative to assist as many people as possible during an emergency against the need to support them against future emergencies.

Relief funding is likely to cover only short-term, often fixed periods (typically of a few months, except in chronic crises), and the artificial distinction between relief, recovery and development in typical donor budget lines may lead to effort and resources going into activities that are not sustained, and to strict limitations on activities deemed too ‘developmental’ by relief donors. Agencies are often under pressure to spend money quickly in order to meet donor deadlines. Seeking funding from development budget lines may not be a realistic alternative given the length of time donors can take to reach decisions. Another issue is that some agencies divide their humanitarian, development and DRR work institutionally into separate teams that do not necessarily collaborate or share knowledge effectively. Finally, large-scale interventions by international agencies can bypass or marginalise national governments and NGOs, reducing local ownership of post-disaster initiatives, making it harder to achieve coherent and planned recovery and risk reduction and reducing long-term impact. Conversely, the withdrawal of international organisations and support may lead to further fragmentation, especially if it is sudden.

17.2.3 Phasing out

Relief and rehabilitation agencies bear some of the responsibility for ensuring that the underlying causes of vulnerability are addressed and longer-term DRR activities are sustained. Many post-disaster assistance projects come to an end abruptly, with little or no provision for follow-up or ongoing funds, materials and other resources for consolidation and replication. Response organisations talk a great deal about ‘exit strategies’, but what an external agency describes as a phase-out may be seen locally as the agency walking away instead of seeing the job through.

Organisations that work in the short to medium term in a disaster-affected area should plan their withdrawal carefully, recognising that there will be plenty of unfinished work and that community expectations may not have been fulfilled. Phased withdrawal is preferable to sudden departure. There must be a coherent handover to locally based organisations and communities that have been involved in planning the exit strategy and have the appropriate
capacity and resources. The process should be planned early; it should be transparent, and agreed and coordinated with partners. The goal of an exit strategy is to ensure the sustainability of impacts after a project or programme ends.

17.2.4 Participation

Community participation (see Chapter 6) is just as important after a disaster as before it. Communities should drive the recovery process: they should as far as possible determine their own needs, making decisions about priorities for recovery and designing, implementing and monitoring interventions. The need for urgent response in a disaster often overrides participatory principles and mechanisms. To some extent this is understandable, but it can easily lead to agencies making too many hasty assumptions about what people need and want. This results in inefficient relief distribution and closes off opportunities for other areas of intervention to increase resilience. Inadequate participation can also reinforce existing local power structures that marginalise certain groups and keep them vulnerable.

17.3 Recovery interventions and DRR

17.3.1 Restoring livelihoods

Preserving livelihoods is vitally important to poor and vulnerable people, and vulnerability is closely linked to livelihood security (see Chapter 9). After a disaster, earning a living will very soon be a priority for the victims. Disaster response agencies sometimes fail to appreciate how important this is. For example, in the case of drought, interventions are often launched only after communities have begun to dispose of essential livelihood assets as the last resort in their coping strategy. Relief efforts also risk undermining local markets and incomes by flooding them with goods (e.g. food aid, shelter materials) or outside labour (e.g. in housing reconstruction programmes). Without adequate beneficiary participation in assessment and planning, there is a danger that livelihood support activities will be inappropriate. It is often difficult for outside agencies to identify key livelihood issues in the chaotic and stressful conditions after a disaster, but there are tools to help with this, such as the Emergency Market Mapping and Analysis (EMMA) Toolkit, a manual designed to assist front-line staff doing rapid assessments of market systems in the first few weeks following a crisis. Even rapid participatory approaches can give valuable insights.

Disaster response programmes usually recognise the need for livelihood support. Relief/rehabilitation aid commonly includes food- or cash-for-work schemes (see Section 17.3.2), and it is common to provide seeds and tools, livestock, household utensils and shelter

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materials. The appropriateness of such goods (e.g. are the seeds suitable for local conditions and farmers?) is much debated, and national governments and other aid agencies are increasingly using financial assistance such as emergency loan funds and cash transfers (see Chapter 12) to help disaster-affected households replace or repair assets, transferring decision-making to beneficiaries and allowing them to decide for themselves what they need most. There may also be opportunities to introduce livelihood activities that are more resilient to natural hazard events. It is also worth noting that disasters can make existing livelihoods unviable: for example, land flooded by salt water in a cyclone may no longer be fit to farm. In such situations, recovery initiatives may need to support alternative livelihoods or adapt existing livelihood strategies.

Interventions to support livelihoods in post-disaster conditions must be able to adapt to rapidly changing circumstances. Overcoming indebtedness, which increases after disasters, is a significant challenge. Moreover, as livelihood strategies vary greatly between and within communities, support programmes need to be equally varied and based on thorough knowledge of local conditions. Local NGOs and CBOs are best placed to undertake such work – and, because they are locally based, to follow up. Participatory approaches are clearly

**Case Study 17.2 Rebuilding livelihoods after disaster**

After the October 1999 cyclone in the Indian state of Orissa, two Indian NGOs – Voluntary Health Association of India (VHAI) and Orissa Voluntary Health Association (OVHA) – established a wide-ranging community-based disaster management initiative in which livelihood support played a central part. It supported a wide range of income-generating groups: women's groups involved in dry fish processing, mat-weaving and broom-making, artisans, small traders and women-headed households (through poultry and animal husbandry). It also supplied fertilisers and seeds, renovated wells, ponds, latrines and salt pans and built water-harvesting structures. Village volunteers were trained in disaster preparedness and health care. The type of support varied according to the activity. For example, fishermen’s cooperative groups were offered equipment under a long-term repayment scheme. Two women's groups were trained in literacy and small enterprise management, enabling them each to secure a loan of Rs20,000 ($440) to fund fruit processing: in their first three months of operation, each enterprise earned a profit of over Rs7,000 ($155).

valuable for identifying needs, setting priorities and targeting beneficiaries. Relief agencies that are unfamiliar with a disaster-affected area are likely to find it particularly challenging to implement effective livelihoods initiatives.

17.3.2 Work programmes

Cash- and food-for-work programmes are a standard device in an emergency, intended to give temporary help to disaster victims and provide more permanent community facilities for the longer term. One of the most famous examples is the 1972–73 drought in Maharashtra, India, where at one point nearly five million labourers were employed on public works by the state. The income they received under the programme enabled them to buy food, helping to prevent famine. Public works activities tend to focus on the construction or repair of physical structures such as roads and schools, or short-term activities like clearing rubble. They are also often used to build mitigation infrastructure, including irrigation channels, dams and other water harvesting structures, embankments, flood shelters and measures to stabilise hillsides (terraces, gabions and afforestation).

Although food- and cash-for-work initiatives can protect livelihoods and reduce risk, success depends on good planning and management. Projects should be based on a good understanding of local labour markets and wage rates, to avoid distorting local economies. Objectives should be clear: some schemes aim to provide income and public facilities, but in practice these two aims can be difficult to reconcile. The need to create work quickly may lead to projects of limited value, whereas it takes a long time to set up more substantial, complex initiatives because of the level of technical, managerial and other inputs required. Inadequate planning and consultation can lead to effort being wasted on mitigation structures that are not a priority for the community, or are inadequate. Decisions about such projects should be made through consultation with communities and local authorities, to ensure that they are relevant to people’s needs and will be maintained afterwards. If beneficiaries feel they are not participants in the project, but treated merely as cheap labour, this can result in poor-quality construction. Timing may be important, especially in areas where demand for labour is seasonal. Poor targeting may fail to support those most in need or create divisions within communities by selecting some individuals and not others; here it is important to ensure that marginalised social groups are not excluded. Case Study 17.3 (Cash for work and food insecurity), although not a recent example, illustrates well the typical complexity of cash-for-work projects.


Case Study 17.3 Cash-for-work and food insecurity

Koisha is a woreda (administrative unit) covering 700 square kilometres in southern Ethiopia, with a population of over 150,000. The region was badly affected by the 1984 famine. The development NGO SOS Sahel began working in Koisha in 1991 on an agricultural development programme, but soon realised that chronic seasonal food insecurity made it necessary to develop an integrated strategy of relief and development. This included a cash-for-work project to rehabilitate the main road through Koisha, to improve marketing opportunities for local farmers.

A review of the initiative two years after it had begun identified a number of benefits. Nearly 700 households took part in the first year of the project (a good year agriculturally) and over 1,300 in the second year (a bad year). Even so, the project could not provide for many in need. Nor did it make provision for those unable to work (an estimated 15% of families could not participate because they did not have the necessary labour).

The targeting method used, which involved community participation in selecting beneficiaries, was effective, but support and training are required to make such processes sustainable. Most work was carried out during the slack period in the farming season, and in the mornings, allowing labourers to attend to their farms and other activities. Cash-for-work improved food security: nearly half the money earned from the road repair in the first year was spent on food, and it appeared that the increase in money supply did not affect grain prices in local markets. Most labourers would however have preferred food for several reasons, including fear of losing out when cash was converted into food and the likelihood of creditors becoming more insistent when cash was available. Over 40km of road through the woreda were rehabilitated, leading to increased commercial and relief traffic, a fall of 50% in transport costs and improved access to markets and services.

The review also found that, if such employment schemes were to make a real difference to local food security, they must be longer-term investments, managed as far as possible by communities and directed towards public works identified as a priority by the communities. Government and non-government institutions would have to be involved, and shared responsibilities negotiated. A range of projects would be required, together with a high degree of flexibility that would allow initiatives to close down during peak periods of demand for agricultural labour, and to scale up or down during good and bad years.

17.3.3 Psychological and psychosocial support

Recovery from the psychological shock of disasters is central to restoring well-being. Post-traumatic stress can be a significant influence on the way survivors, the bereaved and responders deal with disasters and their consequences, although we still have much to learn about this. Post-traumatic stress disorder (PTSD), depression, anxiety and substance abuse are often documented after disasters, but psychological and psychosocial recovery are still neglected in relief and recovery work, particularly where disasters triggered by natural hazards are concerned (there has been more engagement in post-conflict settings). This may be because these matters are assumed to be personal and private to the individuals and communities concerned, and hence not a task for outside agencies; or they may simply be overlooked. For instance, in large-scale disasters, emergency response agencies often bury bodies as quickly as possible under the (often mistaken) assumption that they present a major public health risk, but this denies families the chance to follow cultural burial practices that may assist grieving. Clinical psychologists, psychotherapists and counsellors are needed to provide specialist support for individuals with post-traumatic stress disorders, and there is a growing number of people and organisations with skills in psychosocial support.

The term ‘psychosocial’ refers to the relationship between a person’s individual psychological dimensions (such as internal feelings and thought processes) and their social dimensions (such as relationships, family, social capital and cultural values and practices). Psychosocial support takes many forms, including listening to and communicating with people in distress (‘psychological first aid’), lay counselling, peer support and facilitating peer and self-help groups. Traditional community organisations can play an important role (see Case Study 17.4: Community-based psychosocial recovery), as can trained volunteers. Psychosocial support can benefit anyone affected by a disaster, although some may need support from clinical psychologists and other mental health professionals. Ideally, it should be integrated with other aspects of recovery, such as livelihoods or skills development, or it can be an entry point for these. It is important to remember that those involved in supporting disaster victims may themselves need support to cope with the psychological pressures of working with people affected by trauma.

Over-emphasis on negative responses such as PTSD and unresolved grief can lead to the assumption that people affected by disasters are passive victims, when in fact disaster-affected communities are the main actors in the response, and the experience of disasters can even stimulate survivors and the bereaved to work vigorously for better risk reduction efforts in the long term (see Case Study 11.1: A voice for disaster-affected people).

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Case Study 17.4 Community-based psychosocial recovery

Between 2002 and 2004 the NGO Richmond Fellowship Peru (RFP) carried out a psychological support project for displaced women who had fled from long-running conflict in the highlands to live on the outskirts of the capital, Lima, with little or no access to official services and care. Many of the women were widows or wives of missing persons. The project provided therapeutic activities to help participants share their experiences and grief through the creation of mutual assistance groups, which were partly derived from the highland traditions and culture of collective meeting and decision-making. Sessions were held in familiar places such as community centres built by local people, where the participants felt safe and confident, and in their indigenous language. Sessions were held fortnightly for 16 months. Ninety per cent of the participants were women (more than 940 women took part); 70% had suffered directly from political violence, and 65% from domestic violence. As a result of the treatment, many people were able to speak openly about their experiences and feelings for the first time. Psychological tests showed a distinct decline in symptoms of post-traumatic stress disorder. RFP incorporated lessons from the project into training courses for health and emergency services professionals.


17.3.4 Reconstruction and safer housing

Post-disaster reconstruction offers good opportunities for DRR in the built environment: rebuilding homes and infrastructure so that they are ‘safe’ or ‘disaster-resistant’, retrofitting or strengthening existing structures and rethinking land use planning and regulations. Shelter relief and reconstruction programmes absorb large amounts of international aid, yet we still have much to learn about their long-term impact in making vulnerable people more secure. In the past, the impact of many programmes has been limited, for the following reasons:9

- An emphasis on technically ‘safe’ housing, without certainty that such housing is affordable or culturally acceptable. Large-scale programmes are particularly likely to be technology-driven and introduce new or expensive construction technologies.

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• Although reconstruction programmes can and do provide jobs for local builders, in many cases the builders and their traditional skills are displaced by imported technologies and labour. Communities do not acquire the skills needed to extend, modify and repair the new houses.

• Where reconstruction does create local jobs, it is not clear how sustainable these new livelihood opportunities are once the programmes funded by aid agencies come to an end.

• The focus is on *houses* (physical structures) rather than *housing* (the arena of social and economic life). Homes are not seen as places of work, learning, communication and relationship-building. Houses are built without regard for how – or if – this will improve social and economic status or reduce vulnerability in its widest sense.

• Lack of community participation. Most reconstruction projects claim that they are participatory, but there can be an element of agency propaganda in this, and the extent and nature of such participation are sometimes hotly disputed.

In general, participatory approaches, based on local skills and appropriate technologies (see Chapters 7 and 8), offer the best chance of long-lasting success in post- and pre-disaster situations alike. External agencies have increasingly chosen to give material, financial and technical support to disaster-affected households to rebuild their homes themselves (generally known as ‘owner-driven’ reconstruction), rather than implementing their own housing projects (‘donor-driven’ reconstruction). This shift is an acknowledgement of the major role played by households in building, extending and repairing their homes in normal times.

The owner-driven approach is generally quicker, cheaper and more effective, but it is not necessarily very participatory. In some projects, donors and technical support agencies still make the key decisions about design, technology and quality: the owners are given a limited range of choices, or merely provide labour for house building, rebuilding and retrofitting. Moreover, by focusing on people who own their land and homes, it marginalises the many others who do not. This is a particular problem in urban settings, where a large proportion of the population may be renters or squatters. There have been calls for reconstruction to become more ‘people-centred’ and better linked to other areas of recovery intervention and vulnerability reduction. Building local technical capacity and skills is essential if safer building practices are to become widespread and sustainable; raw materials and skilled and unskilled labour must also be affordable.

Transitional shelters (i.e. basic houses designed for temporary occupation) are often provided by humanitarian agencies to bridge the gap between emergency shelter, such as tents, and permanent housing. They are an attractive option in major disasters that leave many people homeless because large numbers can be built rapidly. They are not designed with long-term resilience in mind and may be located in hazardous areas, but in some cases they become semi-permanent dwellings because there is insufficient funding available to
Table 17.1 *Key considerations in reconstruction programmes*

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<thead>
<tr>
<th>Planning</th>
<th>Design</th>
<th>Construction</th>
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<tr>
<td>• Understanding the context and impact of the disaster</td>
<td>• Selection of appropriate sites for reconstruction</td>
<td>• Different methods of implementation</td>
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<td>• Understanding the local governance structures, regulatory framework and establishing methods of coordination</td>
<td>• Resolving issues of land tenure</td>
<td>• Management of construction projects</td>
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<tr>
<td>• Understanding funding steams and timescales</td>
<td>• Physical planning of settlements</td>
<td>• Specification, procurement and transportation of materials</td>
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<td>• Identifying beneficiaries</td>
<td>• Definition of appropriate quality for reconstruction</td>
<td>• Management of labour and workmanship</td>
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<td>• Determining which method of assistance is most appropriate</td>
<td>• Identifying appropriate types of construction</td>
<td>• Handover, maintenance and post-occupancy evaluation of completed projects</td>
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<td>• Establishing partnerships with other stakeholders in order to provide assistance</td>
<td>• Minimising the environmental impact of reconstruction</td>
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<td>• Recognising natural hazards which pose a future risk</td>
<td>• Incorporating disaster risk reduction strategies</td>
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<tr>
<td>• Capturing the objectives, timescales, resources and risks in the programme plan.</td>
<td>• Design of houses, schools and health centres</td>
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<td></td>
<td>• Capturing the scope of works, programme, human resources, cost and risk management plans into a detailed project plan to inform construction</td>
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meet the demand for permanent housing. Lower-income groups, who cannot afford other housing options, are more likely than better-off people to remain in transitional shelters.

Good land use and planning play a vital role in early recovery and DRR. Land is a critical issue in housing reconstruction, food security and economic recovery, and land issues, such as security of tenure, access to land and land administration, can assume great importance after disasters. Disaster-affected communities need access to land for emergency, transitional and in many cases permanent shelter. The loss of land ownership records in a disaster can result
in people losing their land or in 'land grabs' by more powerful individuals and groups. People who have lost identity cards or other forms of documentation find it difficult to establish their ownership of land and property.

Infrastructure plays a vital role in providing for basic needs, delivering essential services and supporting national economic development. Functioning infrastructure systems are also essential for delivering humanitarian aid quickly and efficiently. For these reasons, the repair and replacement of damaged infrastructure is seen as a priority after disasters (which also offer an opportunity for upgrading and modernisation). Governments and international financial institutions are the main agencies involved in this, because of the high costs and technical complexity associated with such projects, but there are good opportunities for community involvement in rehabilitating local infrastructure such as public buildings, roads, paths, footbridges, market places and water reservoirs and pipes. However, local infrastructure of this kind may also be more vulnerable because it is less likely to be built to high specifications or with higher-quality, more resilient materials.

17.3.5 Relocation and resettlement

Disasters can displace large numbers of people, some for long periods or even permanently, because the places where they lived are made uninhabitable (e.g. covered by a landslide or volcanic eruption) or closed off, they lack the resources to rebuild wrecked homes and infrastructure or the general destruction of local markets and economies cripples their livelihoods.

A common response by official agencies to the destruction of housing in disasters is to resettle their occupants in safer locations (see also Chapter 13.5). In some cases, many thousands may be moved in this way. Governments usually plan and manage large-scale resettlement because of its high costs and major practical challenges, but international agencies and NGOs are also often involved. From a purely hazards point of view, relocation makes sense. Some locations – floodplains, exposed coastlines, unstable hillsides, soils likely to liquefy as a result of seismic tremors – are inherently unsafe, and it is extremely costly, sometimes even impossible, to make communities that live in such places more secure. After a major disaster, survivors may be so traumatised and afraid of future hazard events that they are very keen to move. Provision of land can also improve livelihoods where it is used to grow crops or products used in building or craft work.

Relocation is a viable option in some circumstances, but it presents considerable practical challenges, including the cost of purchasing land and providing infrastructure and the difficulty of securing legal title and land rights. There are examples of planned relocation projects failing because the community could not obtain public land or buy private land. Organisations that become involved in such projects need to work very closely with local authorities and beneficiaries to resolve these problems, but this requires considerable time, adequate financing, detailed planning and careful negotiation with a range of stakeholders.
More fundamentally, the policy of resettlement overlooks the economic and other reasons that make people settle in unsafe areas in the first place. Even after disasters, many people are reluctant to move if their livelihoods depend on their existing location. For example, farmers living in fertile floodplains or fishing communities living on coastlines and riverbanks may be willing to live with the risk of storm surges or floods because they have no alternative source of livelihood. There are many examples of resettled households losing their livelihood assets, social networks and cultural identity and becoming unemployed, landless, poor or marginalised; they may also lose access to educational opportunities and other social services. Host populations may resent the arrival of large numbers of newcomers, which can cause social tensions and even conflict. Because of these potential problems, incentive

Case Study 17.5 Communities and post-disaster relocation planning

Four million people in the Philippines were displaced or made homeless by Typhoon Haiyan in November 2013. As part of its post-disaster recovery programme, the government proposed relocating 200,000 survivors away from the coast to safer inland locations and establishing no-build zones along shorelines. In February–March 2014, Oxfam surveyed people targeted for relocation in three provinces about their needs, priorities and concerns if they were moved. Maintaining livelihoods was their top priority: most people living near the sea were fishermen or worked in the fishing industry. Other concerns were security of tenure, availability of basic services and maintaining social support networks, although protection against future typhoons was a significant incentive. Some affected communities were afraid that relocation was being used as a means of evicting informal settlers to make way for commercial activities. The study also identified weaknesses regarding consultation, even though Philippines law requires that affected groups be informed and consulted. Little information had been provided; hardly anyone had been consulted by government officials; most were unaware of their rights regarding relocation; and many did not know where they would be moved to.

Due to the Philippines’ decentralised government structure, responsibility for implementing the relocation programme fell on municipalities and Local Government Units. However, these lacked the financial resources, technical capacities and staff to tackle the many challenges associated with the task, which included limited availability of land, long and expensive land acquisition procedures and a range of other housing and property issues. A lack of official guidance on key issues such as selection criteria, arrangements for secure tenure and ensuring equity led to inconsistent local planning.

schemes are often needed to persuade people to move. Sometimes, however, resettlement programmes are forced upon communities.

17.3.6 Environmental management

Disasters generate a number of environmental problems that can reduce communities’ resilience to future events. They damage ecosystems’ capacity to buffer the impact of future natural hazard events (e.g. by taking away topsoil and trees). They create large volumes of debris and waste, some of which may itself be hazardous (e.g. toxic materials). The pressing need for the reconstruction and restoration of livelihoods following a disaster may lead to over-exploitation of natural resources.

Recovery strategies need to address such problems and find ways to improve sustainability and resilience. There are plenty of possibilities here. Some waste can be recycled or re-used: materials from destroyed buildings, such as concrete, masonry and brick rubble, are often used in reconstruction, for example. There are opportunities for environmentally sound reconstruction through the adoption of alternative designs and building materials, and local procurement of materials. Alternative farming practices and diversification of livelihoods can help to reduce pressure on the environment; waste land and ecosystems can be rehabilitated.

In development projects providing housing, infrastructure and other services it is usual, and generally a legal requirement, to carry out an environmental impact assessment. Such assessments are rarer in recovery planning because environmental issues have low priority against other competing pressures. Where they are carried out they tend to be limited in scope and only apply to formal projects, not the extensive self-recovery efforts of disaster survivors. Nevertheless, it is possible to carry out environmental assessments in various forms during the post-disaster period, including rapid assessments in emergencies.10 Other tools and resources have been developed to help organisations incorporate sustainability into recovery and reconstruction, although little is known about how widely they have been applied and what the results have been.11


11 For example, the Green Recovery and Reconstruction Toolkit (http://green-recovery.org) and the QSAND (Quantifying Sustainability in the Aftermath of Natural Disasters) tool (http://www.qsand.org).