

Learning from Disaster Recovery Guidance for Decision Makers

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Fig 1. Tsunami devastation in Sri Lanka

Within this image the scale and complexity of disaster recovery is revealed:

- *Psycho-social recovery of a cluster of bewildered survivors...*
- *Economic recovery of fishermen, having lost their jobs, boats and nets...*
- *Physical recovery of dwellings and infrastructure...*
- *Environmental recovery of the coastal eco-system...*
- *Administrative recovery of destroyed government offices, records and lost officials...*

Executive Summary

This book claims to be a groundbreaking project, the first ‘evidence-based’ examination of international experience to determine the nature of successful disaster recovery. This study is certainly not the first book on disaster recovery, but it is the first to be published by a consortium of UN Agencies, based on a systematic analysis of disaster recovery experiences. The publication of the book coincides with ongoing recovery operations following three epic-scale disaster events: the Indian Ocean Tsunami, Hurricane Katrina and the India/ Pakistan earthquake, and these operations have yielded vital data concerning the recovery process that have been described and analysed in the following text.

This is the first major product of the International Recovery Platform (IRP) that was launched during the *World Conference of Disaster Reduction (WCDR)* in 2005. The IRP has been designed to promote collective learning, and is supported by a consortium of United Nations Agencies: UNDP, ADRC, UNISDR, and the Government of Japan.

The project fills a major gap in international knowledge through the careful analysis of recovery operations following a diverse range of natural disasters that have occurred during the past twenty years. The intention is to learn vital lessons by understanding what constitutes an effective recovery operation and what can impede the process. Thus, evidence has been assembled from the analysis of approximately 70 accounts of recovery. This has been augmented through the addition of first hand experiences gained from visits made by the author and a research field team drawn from the International Recovery Platform to review recovery lessons from flooding, earthquake and tsunami impact in Mozambique, Sri Lanka, Indonesia and Bangladesh. The results, summarised in this book, seek to provide practical help to key decision makers directing recovery actions to avoid them ‘re-inventing wheels’.

The broad aim of the study is to assist decision makers in their efforts to create more resilient societies through well designed recovery operations. This is a complex and all embracing task that includes the ability of societies to resist the impact of natural hazards, to bounce back rapidly following impact and adapt and change during the recovery process in order to ‘build back better’. It is anticipated that the study will result in significant progress in the following areas:

- *Improved global recovery management following major disasters.*
- *Better value for the money invested in recovery through an ‘evidence based approach’ based concerning what works and what is likely to fail.*
- *Improvements in the assessment of damage, needs and capacities.*
- *Better integration of psycho-social, economic, physical, environmental and administrative recovery actions into holistic policies and programmes.*
- *Advice on ways to incorporate risk reduction into recovery.*
- *Guidance to officials managing recovery programmes to cope with multiple strategic and tactical dilemmas.*
- *The development of a framework for future reporting on disaster recovery.*

The study is structured under various key themes that form the overall framework of disaster recovery:

- *The scope of learning from disaster recovery.*
- *The overarching concept of building resilient communities.*
- *The organisation and implementation of recovery.*
- *Reducing risks in recovery.*
- *Damage, needs and capacity assessment.*
- *Dilemmas in recovery.*
- *The continuum from emergency to long-term.*
- *Five Recovery Sectors: (psycho-social, economic, physical, environmental and administrative/ institutional).*
- *Resources needed for recovery.*
- *Cross-cutting issues: (strengthening capacities, gender factors and information management).*

Since disaster recovery concerns the rebuilding of people and society as well their livelihoods and the buildings and towns they inhabit it requires the acceptance of shared values by decision makers. Therefore, to aid this process a series of underlying recovery principles: ethical, strategic and tactical are proposed with summaries of policy guidance in relation to each of the themes.

The Pyramid of Principles

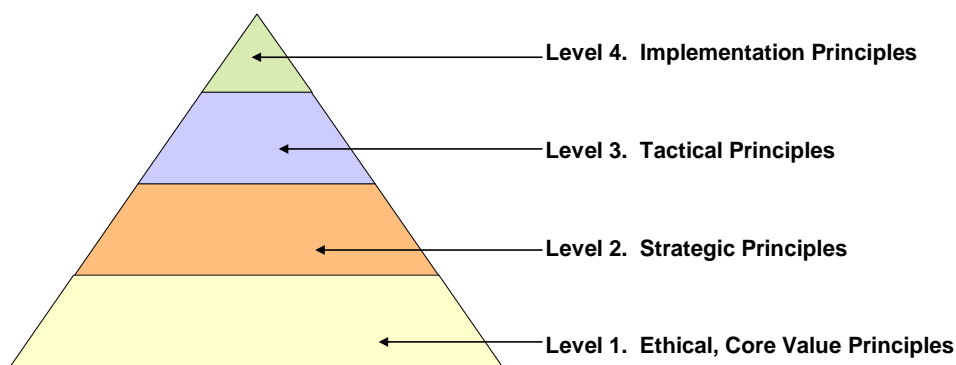


Fig. 2 A Pyramid of Principles

Two aspects of knowledge are addressed in this book: first to help readers gain knowledge and understanding of disaster recovery, but also to indicate some routes to further knowledge through access to published material, hyperlinks to Internet sources etc. To achieve these twin objectives the book has been designed to be accessible, relevant, strategic, and evidence based.

To realise these ambitious objectives a variety of formats are adopted in the text:

- *A review and analysis of diverse experiences.*
- *A `series of `boxes` are inserted throughout the text. Some are accounts of disaster recovery while others concern key issues as well as personal reflections from persons with direct experience of recovery operations. This brings in different `voices` into the text, to add diversity and seeks to enrich the messages of the book.*
- *Throughout the chapters a variety of models are used that seek to conceptualise key aspects of recovery management. Where appropriate, specific disaster contexts are applied to the models.*
- *Each chapter concludes with a summary of principles and policy guidance.*

The summary content of the chapters is as follows:

Chapter 1. The scope of learning from disaster recovery.

This introductory chapter contains a wide ranging discussion on the process of institutional learning from past experiences. The 'experiential learning cycle' (a familiar model developed originally by David Kolb and widely used in education and training is described, with a consideration how the cyclical progressive learning stages apply to disaster recovery. These stages are: 'experience', 'description', 'analysis' and 'action planning' These are then related to the way a town in Mozambique has recovered from severe flooding.

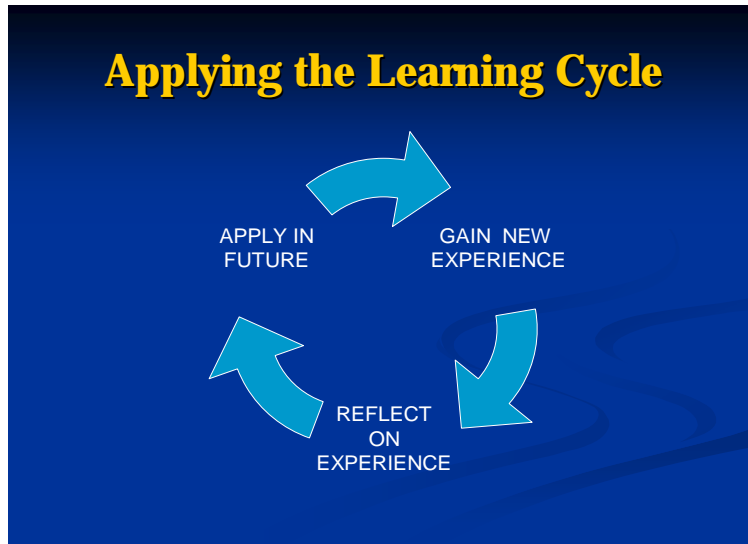


Fig.3. Applying the Learning Cycle

The chapter considers what forms of evidence have been consulted and analysed in writing the text. The chapter provides some signposts to inform the reader about the layout of the text and also discusses the aim of the book, intended audiences and describes the overall approach and format that has been adopted.

Chapter 2. Resilient Disaster Recovery

The concept of 'resilience' is introduced in this chapter as a particularly appropriate framework for sustainable recovery, since it is an over-arching approach that relates well to the various phases of disaster recovery. Resilience is considered in relation to three contexts: pre-disaster, to absorb the extreme forces from hazards; in the immediate aftermath of a disaster to bounce back rapidly and in the recovery phase to adapt and change to capitalise on the opportunities for change and to avoid rebuilding risks within a given society. The chapter also addresses the opposite of a resilient recovery: decline or deterioration and why this can occur. The concept of resilience is tested in relation to the immediate post disaster situation experienced in New Orleans following Hurricane Katrina.

Chapter 3. Organisation and Implementation of Recovery

Key questions are raised in this chapter concerning 'good practice' in the administration of recovery. For example, should recovery management be handled by a special task force of government, be left to normal line ministries to undertake, or be placed in the hands of a new organisation? Another key issue concerns the links or the discontinuities between the short-term management of the disaster response and longer-term recovery. The complex political dynamics of recovery will be noted. The discussion brings in some lessons concerning recovery management in various contexts, such as India and Colombia

Chapter 4. Risk Reduction in Recovery

There is a general recognition that disaster recovery offers unique opportunities to introduce or strengthen safety measures. But what are the constraints on these attempts?

A 'chain of safety' model is proposed comprising the various risk reduction elements in a picture that seeks to emphasise the mutual interdependence of the varied aspects of risk reduction as well as the reality that a chain 'is only as strong as its weakest link'. Thus emphasising the importance of all the safety measures.



Fig. 4. The Chain of Safety

A frequent difficulty is to maintain a vigilant system of bye-law enforcement of risk reduction measures when a building boom is taking place as often occurs following a devastating disaster. A case study from Bangladesh demonstrates how risk reduction has evolved over the past decades and what obstacles have been overcome in the process.



Fig. 5. Community flood shelter constructed by the Government of Bangladesh following severe 2004 flooding

(Photograph: Ian Davis)

Bangladesh has one of the best disaster risk reduction capabilities in the world due to the frequency of major hazards as well as vigilant Government and NGO efforts sustained over three decades. One highly effective strategy is to construct two storey flood or cyclone shelters to protect families displaced by flood impact. Such buildings often have a 'normal' use as kindergartens or health dispensaries, and these everyday functions are important since they ensure that the community are all familiar with the buildings and secondly building maintenance is always more likely to occur when a building is in regular use. These community flood shelters are a well integrated element within an overall local risk reduction strategy that comprises: public awareness programmes concerning flood risks, community flood evacuation drills organised by the village disaster preparedness committee and a community disaster plan based on a local risk assessment.



Fig. 6. New, highly vulnerable condominiums being constructed in the Cayman Islands in 2005.
(Photograph: Ian Davis)

Within a year after the Cayman Islands was devastated by Hurricane Ivan these condominiums are being built in close proximity to the sea. This is a highly dangerous development:

- *The building has been allowed to be built virtually on the beach, far too close to the sea where hurricane surge conditions may cause devastation. Even if the residents are sufficiently wealthy to insure the property, the siting of this building may damage the coastal eco-system as well as posing a threat to other people or property.*
- *The ground floor could have been designed with supporting walls that run at right angles to the shore to enable the storm waves to pass through a building without causing its demolition. In addition the ground floor should be used for non-habitable uses such as general storage, garage or boat space etc.*
- *However, one strength of this design is the fact that the building is two stories in height thus providing vertical evacuation in the event of coastal flooding*

Chapter 5. Damage, Needs and Capacity Assessment

Some of the first people to arrive at a disaster site are teams of assessors who are charged with developing an accurate statement of losses and needs under extreme time pressure. Many issues are raised concerning the approach of these assessors. Why do they normally only look at the double negative of damage and needs without a parallel assessment of capacities? Why do multiple agencies often assess the same situation that has already been reviewed by another agency? Why is assessment data not generally shared? What is the link between *pre-disaster* risk assessment data, (that may have been collected for the same area now devastated) and *post-disaster* damage and needs assessment? This vital subject reviews some of the successes and failures of assessment in Sri Lanka and Aceh following the Tsunami impact.

Assessment is most effective when it can not only use *pre*-disaster hazard maps, and vulnerability and capacity assessments but also involve using the same assessors where they are available. There is a particular urgency in undertaking damage and needs assessment since there may be the threat of secondary disasters that may require urgent protective actions. For example, the risks of fire or aftershocks following earthquakes, the risks of continued volcanic activity over months or even years following a major volcanic eruption and the threat of secondary landslides following a main hazard. Initial assessments require regular updating as damage, needs and capacities change rapidly throughout the recovery process.

Chapter 6. Dilemmas in the Recovery Process

The recovery process is full of complex social, physical and political dilemmas. They include speed versus safety, speed versus quality or speed versus participation in decision making. Then there is a classic dilemma to consider that concerns the opportunities for reform versus realism in post disaster planning. How can such dilemmas be resolved when there are opposing viewpoints that are both highly legitimate concerns?



Fig. 7. Water collection in a relocated settlement in Maputo, Mozambique

(Photograph: Ian Davis)

In 2000 Mozambique suffered the worst floods in living memory. A key aspect of the recovery process was a decision to relocate over 45,000 people to higher altitude sites. In this site, on the outskirts of Maputo, the residents are collecting water from a local water distribution point and when questioned were unanimous in their view that the best feature of their new settlement was their convenient access to a secure water supply. In their previous homes, that were inundated and destroyed in the flood, they either had to buy water at a high cost from a local water carrier or walk up to three kilometres to collect it from a well.

One of the dilemmas addressed in this chapter is whether to seek for reform or replication. In some cases this is a complex, well balanced issue but in this case it was a rather clear-cut decision to use the unique opportunity, presented by the disaster, to use the recovery for widespread reform rather than return to the previous inadequate and vulnerable situation. The most positive legacy of the Mozambique flood disaster have been the massive improvements in infrastructure in the reconstructed or relocated settlements: water supply, electricity, roads, ferry services etc. that were possible is using the \$490 million (US) international grant support.

Chapter 7. Continuum from Emergency to Long-Term Recovery

In recent years a new concept has been introduced into the disaster response community: *'Linking relief, rehabilitation and development'* (LRRD) this chapter will explore some of the dynamics in this progression that remains a complex challenge. Various issues will be considered, such as the culture of relief and humanitarianism of relief officials and how this relates to the developmental community, with different values and traditions, since both groups are present in the same recovery situation. A key question relates to what effect early decisions, taken in the immediate aftermath of a disaster, have on long term recovery? Is recovery best regarded as a single process, or a sequence of connected (or disconnected) phases?



Fig. 8. Three phases of post-tsunami shelter in Sri Lanka: the continuum from emergency shelter to permanent dwelling. (Photograph: Ian Davis)

In April 2006 this family in Galle, Sri Lanka are surrounded by three forms of shelter that they have progressively occupied over a sixteen month period. First the tent they were initially given about a week after the disaster, second, they stand in the doorway of a 'transition house' and to the right hand side of the picture their new home that the family built with the support of UN HABITAT. All of these forms of shelter are in use as living accommodation or as storage spaces.

Chapter 8. Recovery Sectors

The overall philosophy of the International Recovery Platform (IRP) is to promote a five part fully integrated recovery process: rebuilding the local administration and damaged local institutions as well psycho-social, physical, economic and environmental recovery.

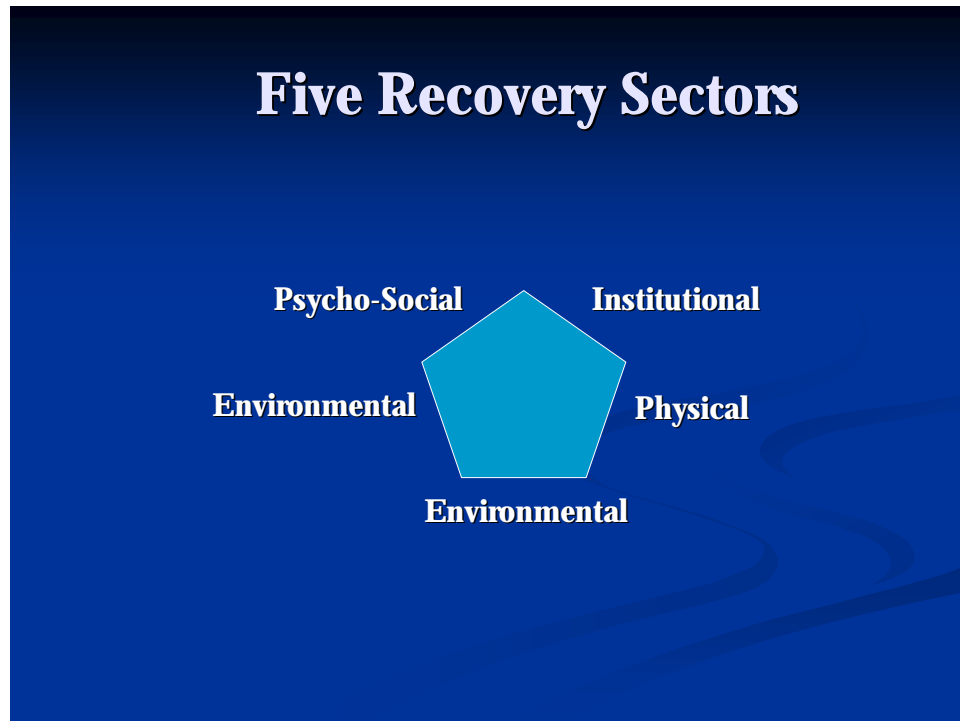


Fig.9. Integrated Recovery Sectors

Since each sector has its own attendant professions (*engineers for physical recovery, social or health officials for psycho-social recovery etc.*) there are major challenges in demolishing professional barriers to facilitate joint working. But the issue is wider, how can the various line ministries of government or UN agencies work together to achieve a holistic recovery? A rare example of synthesis is cited below that describes how owner-driven housing reconstruction has strengthened three of the recovery sectors: psycho-social, economic and physical recovery in Ache.



Fig. 10. ‘Owner-Driven’ Permanent Houses in Ache, Indonesia as an example of well integrated recovery (Photograph: Ian Davis)

The construction of these houses was a joint product of a local community working with the support of UPLINK, a National Indonesian CBO. The provision of these houses for a community living in a coastal area of Ache strengthened four key recovery sectors:

1. The decision making and building process proved to be valuable **psycho-social** therapy for the community where residents have lost all or some of their families in the tsunami.
2. The building process has helped strengthen the **local economy** as the community has shared the profit margin that would normally be paid to a building contractor. But in addition, where community members have built their dwelling or organised sub-contractors to build they have been paid for this work, thus providing a much needed source of income. Many local families have gained new skills in building, community organisation and financial management through this experience, thus **strengthening their livelihoods**. This is another aspect of economic recovery.
3. Through the process each surviving member of the community received a new safe house, a key element in their **physical recovery**. In the photograph it is possible to notice that not all the houses are identical, one having an external access stair to the first floor. The project enabled community members to choose

from various design options. Safety factors have been incorporated by raising the living area to the first floor to provide protection from a possible future tsunami or coastal flooding. This was a key requirement that the local community insisted on. In addition the first floor construction switches from the heavy concrete substructure to lightweight construction on the first floor to provide seismic protection.

- 4. UPLINK have a holistic approach to recovery and there is a strong **environmental recovery** emphasis in their work. For example all surviving trees in the areas being reconstructed have been carefully preserved to provide the residents with some landmarks to give them some continuity with their past in which virtually every building had been destroyed. Since the ground level has dropped by about 1.5 metres special attention has been given to putting pressure on the government to build a protective coastal barrier*



Fig. 11. Agricultural Extensionist in Mozambique with responsibility for assisting residents of a relocated settlement to plant nutritious fruit trees and vegetables in the gardens of their homes. (Photograph: Ian Davis)

Following the 2000 flooding the Government of Mozambique, working with various international NGO's relocated over 45,000 people into new settlements. Each displaced family was allocated a small house of about 30 square metres with a large garden. In an

enterprising programme the Government's Department of Forestry allocated Agricultural extensionists to various new settlements who then developed plant nurseries on the various sites and embarked on a local development programme. The scheme was to offer plants and seedlings free of charge to local residents as well as providing practical guidance in planting and maintaining their gardens. The scheme had four intentions: firstly to improve the nutritional status of the communities-especially small children, secondly to strengthen livelihoods as families began to market their garden's crops of fruit and vegetables, thirdly to improve the skills of residents in better farming techniques including complex grafting techniques to accelerate the production of fruit trees and finally to improve the overall soil quality by reducing soil erosion.

Chapter 9. Resources for Recovery

What are these human, financial, economic and physical resources and how can they be tapped by those who need them urgently? How can resource flows be managed so that they do not damage fragile local resources? And how to avoid the waste of social and economic capital in situations where disaster survivors stand by as idle spectators watching imported labour and materials being used to rebuild *their* future? This chapter also reviews the issues of macro-finance that is donated or lent by the large international financial institutions or key donors. How are such funds secured following major disasters, what conditions apply and what has been the experience of National and International officials in their quest for support for recovery?

Chapter 10. Cross-Cutting Issues: (Strengthening Capacities, Gender Factors and Information Management)

These three topics have been selected as cross cutting issues since they apply to all the issues noted above.

Strengthening Capacities is likely to be one of the key aims in seeking to build a sustainable future through the recovery process and yet all too often the latent capacities of the victims are replaced by the paternalistic of the relief hand-out. How can this syndrome be avoided?

There are two models in place for disaster recovery and each have their strong supporters.

The first model '*Welfare Delivery*' grows out of the initial relief phase of a disaster where there are acute needs that need to be met urgently. Most emergency service personnel: medical, social, search and rescue, police, military etc. are trained to function as service providers.

The second model '*Development*' does not derive from a disaster planning environment, rather from ongoing support for capacity development in communities in their struggle to reduce poverty and replace it with secure and sustainable livelihoods.

Gender Factors are of fundamental importance in any consideration of disaster recovery in recognition of the severe vulnerability of women and children, often in their care, as well as the key roles that women play in many societies in maintaining secure livelihoods. This subject explores roles that women can play in recovery management.



Fig. 12. Resilient tsunami survivors in Aceh describing how they survived the disaster (Photograph: Ian Davis)

(Sohel – Please insert name of first lady interviewed if you have this)

Insert name X, a widow who used to live close to the sea in Aceh is describing how she was swept for several hundred metres in the tsunami wave. Eventually someone took her to the hospital where almost miraculously she was only found to have suffered minor injuries. Her immediate frantic task was to search for her family, but all except one child were missing presumed dead. In the subsequent days before any relief aid arrived she was cared for a neighbouring community in Aceh that were unaffected by the disaster. She expressed her thanks to the Indonesian CBO 'UPLINK' for giving her work to do within the community he has they organised the building programme of safe houses. She stated that this useful work, as well as community support had helped her overall recovery. The women surrounding her have all had similar stories to tell.

Information Management relates to all phases of disaster recovery, to all management levels and to all sectors of the subject. This section considers what information systems are needed to achieve what purpose and who should establish them? Dr Claude de Ville de Goyet, who was the director of disaster preparedness in the Pan American Health Organisation (PAHO) once wisely observed that *'Information Management is Disaster Management'*.

A set of conclusions as well as recommendations drawn from these themes is brought together in the final Chapter 12. These include a range of key issues with a conclusion that relates to each chapter of the book.

1. Learning

While there are important variables in societies recovering from disasters there are patterns that frequently recur. Therefore it is possible to learn and apply vital lessons drawn from the experience of others.

2. Resilience

The primary aim of recovery management is to use the opportunity to build or strengthen resilience in all directions: to society, to its citizens, its assets, its buildings, its critical facilities, its livelihoods, its government administration and its natural environment.

3. Organisation

Effective recovery requires a single point of overall responsibility in government. This may be best achieved by having a dedicated organisation established at the apex of political power and decision making with a clear mandate supported by appropriate legislation, adequate resources, direct links to all line ministries and knowledge of the dynamics of the disaster recovery process.

4. Risk Reduction

Despite the difficulties risks must be reduced in the recovery process to avoid a repeat of the disaster. The recovery provides the physical opportunity as well as a collective mindset to introduce changes in structural and non-structural risk reduction elements, and these need to be co-ordinated in an integrated manner. Risk reduction also needs to be mainstreamed into the central flow of government policies and planning, and disaster recovery may provide the catalyst for such changes.

5. Damage, Needs and Capacity Assessment

Accurate impact assessment, conducted as soon as possible after a disaster, provides the foundation blocks of effective short and long-term recovery. There are six essential requirements:

1. to use the highest levels of available expertise;
2. to secure good knowledge of the local context;
3. to obtain close involvement with local surviving communities- who are best placed to understand their losses as well as their resources;

4. to work directly with the local government in undertaking and communicating assessment data;
5. to insist that agencies do not duplicate assessments;
6. to maintain full transparency, so that assessment data is made freely available in a Disaster Management Information System. (DMIS)

6. Dilemmas in the Recovery Process

Recovery leaders and managers have to resolve many complex dilemmas. Many concern the relentless pressure for rapid recovery from all quarters set against the normal demands for prudent planning, detailed consultation, reviews of safety requirements etc. There is also the demand for reform to be balanced with another pressure for realism or a return to pre-disaster norms. In facing most dilemmas *both* issues are needed and need to be balanced and integrated into a unified policy and in many cases the resolution of such dilemmas may be addressed through parallel initiatives using 'action-planning' approaches.

7. Continuum from Emergency to Long-Term Recovery

There are many different communities working in disaster recovery, coming from different backgrounds and cultures and traditionally disaster recovery is split into different phases: 'relief', 'rehabilitation' and 'reconstruction'. However, recovery gains immeasurably from being regarded as a fully integrated process. Thus, initial decisions made in the heat of a post-disaster activity may well have long-term consequences. The implications are for emergency service staff to become aware of their role and interdependence within the overall recovery system and vice-versa for urban planning staff to recognise their links to initial decision making by other participants.

8. Recovery Sectors

One aim of recovery is to restore damage sustained to people, economies, property, the natural environment and the government administration. The situation is highly complex since each of these five sectors may have its own government line department, related professions and traditions. This closely guarded autonomy may give priority to the recovery of a given sector but it can also threaten a holistic process of integration. In the above text illustrations have been included of community housing in Ache and the work of an agriculturalist in Maputo where integrated recovery has been creatively designed to embrace multiple sectors. Therefore this book takes a broad view of the full recovery process, looking hard at patterns of inter dependency between sectors.

9. Resources for Recovery

Any major disaster creates the need for a massive influx of human, material and financial resources and these may far exceed national capacities. International finance can greatly assist, whether in the form of grants or loans. Experience suggests certain key principles that can indicate how such resources may be managed effectively:

- High levels of accountability are needed in two directions: upwards to the boards of international financial institutions and downwards to the beneficiaries of the assistance.
- Transparency is needed to minimise the risks of corruption.
- Integrity is essential and this has to start from the top and be maintained at all levels.
- The ‘Code of Conduct’ and the ‘Sphere Standards’ can provide useful benchmarks in recovery management.
- All forms of assistance to support recovery should be ‘*demand-driven*’ rather than ‘*supply-driven*’ and patterns of support should be based on responses to the assessments of damage, needs and capacities.

10. Cross-Cutting Issues:

Strengthening Capacities

In disaster recovery, (aside from the initial life threatening phase), the only model available is development, with support for capacity development in all sectors and at all levels. The continuity of a paternalistic welfare approach into long-term recovery, regarding disaster survivors as passive victims awaiting assistance is totally misplaced and if followed by government or NGO’s can yield a deadly long-term legacy of dependency .

Gender Factors

Policies and practices need to be formulated to ensure that gender relations receive the support they need throughout every phase of disaster recovery. This priority has particular obvious significance in ensuring that women play key roles in the management of recovery

Information Management

Unless an effective Disaster Management Information System (DMIS) is established and maintained throughout the recovery process it will be virtually impossible to maintain progress. The system needs to include information on:

- Initial damage, needs and capacities.
- Monitoring ongoing needs and capacities
- Relevant maps of all affected areas.
- Secondary disaster threats and what actions are needed for protection.
- A register of all assisting groups listing their ongoing work and contact details.
- Government policies and plans.
- Available assistance
- Progress reviews with evaluations freely available

Summary

To summerise, this book attempts to give practical advice to key decision makers in government to think and prepare and plan and decide to enable their society, stricken by the trauma of disaster to ‘*build back better*’.

