

disaster preparedness for response and recovery

4

gateway to disaster risk reduction

Chapter Brief

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Material Resources
Preparedness
Response/Relief
Recovery
Resources

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Chapter Brief

- Disasters are events that overwhelm the response and recovery capabilities of the affected region and may require outside assistance.
- Disaster preparedness and response plans and procedures guide rapid response and recovery actions.
- It is essential to communicate information contained in disaster preparedness and response plans and procedures to potential target audiences through awareness raising, education and training.
- Activities such as drills, simulations and demonstrations enhance team building among response and recovery personnel, identify necessary improvements to disaster plans and procedures, improve response and recovery capabilities and accelerate the response and recovery process.
- Encouraging participation in developing a disaster preparedness plan will contribute to sustainable development.
- Preparedness can strengthen communities to better respond to disasters.

Key Words

Early Warning

The provision of timely and effective information, through identified institutions, that allows individuals exposed to a hazard to take action to avoid or reduce their risk and prepare for effective response.

> *Early warning systems include a chain of concerns, namely: understanding and mapping the hazard; monitoring and forecasting impending events; processing and disseminating understandable warnings to political authorities and the population, and undertaking appropriate and timely actions in response to the warnings (UNISDR, 2004).*

Human Resources

Human resources include trained staff and volunteers to: disseminate warnings; assist evacuation; carry out SAR and first aid; make needs assessments; and manage the distribution of relief aid. The skills of medical personnel, the police, fire fighters, engineers, architects, scientists, doctors and medical staff, media professionals and many others will also be needed.

Material Resources

This includes: SAR equipment; boats and vehicles (and fuel to run them); and stockpiles of relief goods such as food, medicines, water purification and oral dehydration tablets, emergency shelter materials, blankets and cooking utensils, etc.

Preparedness

Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations (UNISDR, 2004).

Preparedness activities include the development of disaster response and recovery plans and procedures to guide rescue efforts, medical assistance, the issuance of timely and effective warnings and the temporary removal of people and property from a threatened location, the distribution of disaster supplies and equipment, etc.

Recovery

Decisions and actions taken after a disaster with a view to restoring or improving the pre-disaster living conditions of the stricken community, while encouraging and facilitating necessary adjustments to reduce disaster risk.

Recovery (rehabilitation and reconstruction) affords an opportunity to develop and apply disaster risk reduction measures.

Response / Relief

The provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected. It can be of an immediate, short-term, or extended duration depending on assessments, needs andcapacity (UNISDR, 2004).

Introduction

"In every sector, transition should lead to recovery that facilitates movement to sustainable development. In other words, the foundations laid for sustainable recovery during transition must put people on a path to sustainable development."

Praveen Pardeshi, Manager,
UNDP Gujarat Programme (UNDP, 2001:5)

This chapter emphasises the links between preparedness and successful response and recovery. Innovative ways in which organisations, institutions and individuals from different sectors and government levels have prepared, responded to and recovered from disasters are presented. The overwhelming human needs caused by disaster events demand immediate and extensive resources to support response and recovery activities. Preparedness activities, including response and recovery planning, training and education, simulation and demonstration activities and the purchase of disaster supplies and equipment, provide the foundation for an effective and rapid disaster response and recovery. Without disaster preparedness planning, an ad-hoc, less efficient emergency management effort will emerge.

Government and non-governmental entities generously provide many forms of assistance to disaster stricken areas, such as aid, loans and debt relief. The most effective use of these resources demands advanced planning. The ability to immediately deploy and manage disaster response and recovery teams depends on the presence and understanding of disaster plans and procedures. Critical tasks include search and rescue (SAR), medical assistance, food and shelter, damage assessment, restoration of essential infrastructure and the distribution of resources to those most affected.

The initial response will be provided by the directly affected community itself, emphasising the need for preparedness at all levels. As response and recovery efforts escalate and there is time for those outside the affected area to mobilise, central governments, lead agencies, donors, NGOS, private organisations, volunteers, etc. who are willing to offer assistance. This multi-sector assistance must be guided by strong leadership and good management to be effective.

The budget allocated by national governments for disaster response continues to increase every year. National governments must often divert money intended for development to support urgent disaster response and recovery needs. Rapid increases in loss of life and property over the past few decades even though the rate of disaster remains constant, demonstrates that addressing response and recovery needs is not enough to reduce disaster related human misery.

Sustainable development measures aimed to strengthen communities against disaster, can complement disaster preparedness activities to improve response and recovery capabilities. Interventions that provide protection against future disasters can put communities on the path toward a safer and more sustainable development future.

Concepts of Disaster Preparedness for Response and Recovery

Importance of Response and Recovery Programmes

Disasters can make individuals, organisations and governments aware of the critical need to develop and implement integrated disaster risk management programmes that focuses on preparedness for response and recovery. Such programmes address both immediate response and recovery needs as well as long-term actions to contribute to greater social resilience to disaster impacts. The priority given to implementing and maintaining disaster risk management programmes will have a significant influence on reducing the extent of potential damages and losses.

A review and evaluation of the disaster response and recovery process provides an opportunity to identify the gaps and shortcomings that must be addressed in future disaster response and recovery plans and procedures. This de-briefing activity is critical to the continual improvement of disaster response and recovery capabilities. For example, identification and improvement of evacuation facilities of adequate capacities can make a big difference during frequent events such as flooding in Bangladesh and the Mekong Delta.

see Bangladesh Case Study

As part of the post-disaster review and evaluation process attention must also be directed to identify interventions that can provide long-term protection against future disaster impacts. For example, after a disaster, technical assistance to improve construction practices can prevent reconstruction of inadequate pre-disaster levels that can, recreate the original risk. Revised or new land-use policies can restrict development in high hazards areas, such as those prone to frequent flooding. These interventions are generally not implemented in Asia.

Basic Principles of Disaster Preparedness, Response and Recovery

Disaster preparedness develops the capability and provides the tools to guide a rapid and effective disaster response and recovery. The implementation of well-rehearsed response actions can stabilise disaster situations, such as the spread of fire, and help prevent additional loss of life. Preparedness tools, such as disaster response and recovery plans and procedures can guide rescue workers, medical personnel, evacuation teams, shelter personnel, etc. However, preparedness does

not prevent a disaster from occurring. The benefits of preparedness take affect after a disaster occurs.

The reduction of disaster severity such as, saving lives, reducing injuries, alleviating human suffering, etc.; facilitates a more rapid recovery process and can have lasting affects. The implementation of recovery plans supports post-disaster normalisation and provides an opportunity to establish reconstruction guidelines. Improved reconstruction design requirements, land-use policies etc.; help establish sustainable development practices that raise the community's resistance to a new level. Implementing sustainable development practices reduces the need for disaster response and recovery actions, but maintaining highly effective preparedness programme must remain a priority. The preparedness programme is necessary to address the unexpected needs not met through development practices.

Enhancing capacity of the response teams

An effective disaster response requires immediate action. To facilitate a rapid response there are a number of things to be considered and addressed in disaster response plans and procedures:

- Are there pre-assigned disaster response teams with clearly defined duties?
- Where will members of the disaster response teams assemble?
- How will they communicate?
- Are alternative planned actions in case normal communications are not possible?
- Is there a designated co-ordination center to meet the needs of response personnel such as: safety and security, emotional support, rest etc.
- Are there pre-designated field coordination centers to manage local response activities?
- Do you have or can you obtain supplies and equipment for the operations center? For the field response? For the community?
- What is the method established for monitoring disaster warnings and weather conditions in coordination with the pre-designated national agencies?
- Is the method of communication with Police, Fire Brigade, Defense Services, Civil Defense established?
- Are arrangements made to maintain law and order to prevent looting and theft of the evacuated premises?
- Is there a system established for getting reports on response and recovery activities from field centers and onward reporting to government or higher-level authorities at different stages?
- Is there a procedure established for requisitioning accommodation, vehicles and equipment for relief duty?
- What is the method for sanctioning expenses for reimbursement and how is the necessary approval to be obtained?
- What is the mechanism for intervention to prevent and initiate legal action on those engaged in hoarding, price hiking, corruption and unauthorised sale of relief materials with the assistance of Police and relevant officers.

- Have details been disseminated about legal and official procedures for assignments for coronary inquests and location where carcasses can be disposed of?
- Have details been disseminated about legal and official procedures and eligibility criteria with respect to relief and compensation for loss of life, injuries, livestock, crop, houses, etc. to be sent from the operating center?
- What are the arrangements for ensuring safe storage, distribution and transport of relief supplies and coordination of supplies distributed directly by NGOs and other organisations including private donors?
- How to ensure acceptability of supplies including medical equipment and medicine donated by private local and international donors (eg. Winter clothes for countries with a warm climate, pork meat for Muslim dominated countries, drugs with details given in different foreign languages not understood in the locality)?
- Are there arrangements for assessing transport requirements, for coordination to get government helicopters, to supply of fuel for authorised relief vehicles (credit coupons, fuel orders etc.), for proper maintenance of vehicles and equipment etc.?
- Has an information centre been set up for sharing of information with mass media and community?

Enhancing response capacity

To ensure that response is carried out effectively and in a timely manner after a disaster, it is very important to ensure that all procedures are in place and capacity building of all stakeholders is done. The preparedness plans should include plans and procedure for deciding the acceptance, tracking and utilisation of donated resources (human and material). Some questions to ask to ensure such preparation are listed below:

- Are the contact information of essential persons available including names, telephone numbers, fax numbers, mobile numbers etc.?
- Are disaster maps of the locality showing areas that may be affected, information regarding alternative routes, water sources, layout of essential services which may be affected etc. available?
- Have the prime agencies been identified to issue disaster early warning in case of different disasters?
- Are the mechanisms for early warning dissemination established?
- Are the evacuation routes for different disasters (likely landslides, floods, tsunami etc.) identified and shown with name boards?
- Have the people been made aware of the evacuation process and drills carried out?
- Are arrangements made to maintain law and order to prevent looting and theft of the evacuated premises?
- Has training and awareness been carried out for identified informal groups such as community leaders, religious leaders, boy scouts, Community Based Organisations (CBOs) etc. about Search and Rescue (SAR), evacuation centers, evacuation routes, first aid and other immediate essential response activities?

- Have search and rescue teams been trained for different disasters?
- Is there coordination established with armed forces to call them for SAR activities if required?
- For urgent road clearing necessary for evacuation, is there coordination with agencies responsible? Can the community involvement be obtained for such activities?
- Are Emergency Health Care Teams established for requirements during SAR? Will they have enough drugs and equipment?
- Will the number of ambulances available with public and private hospitals be adequate?
- Are the hospitals prepared to receive the injured and the sick?
- Are specific SAR and response functions assigned to specialised NGOs?
- Are there arrangements to mobilise and coordinate work of volunteers ensuring community participation?
- Are coordination mechanisms established to involve local level NGOs and other national level NGOs?
- Is there a method pre-identified to assess immediate relief and response needs?
- Have the temporary shelter and relief camps been identified in safe areas with adequate capacity, sanitary and cooking facilities?
- Are there procedures to ensure proper sanitation and disposal of waste?
- What are the arrangements for relief supplies, dry rations and family kits to transit camps and relief camps, and to site Operations Centres?
- What are the arrangements for ensuring safe storage and distribution of relief supplies donated by NGOs and other organisations including private donors?
- How to ensure acceptability of supplies including medical equipment and medicine donated by private local and international donors (eg. drugs with details given in different foreign languages not understood in the locality)?
- What is the arrangement for supervision of cooking arrangements, sanitation, water supply, disposal of waste, water stagnation and health services?
- Is the method established for sanctioning expenses for reimbursement with the necessary approvals?
- Is there a way of providing shelters with recreation facilities (in case they have to stay for long periods)?
- What arrangements are made for treatment of sick in the camps, preventive medicine and anti-epidemic actions, psychological trauma counseling?
- Acceptability and how to handle foreign medical personnel who have come to assist in trauma counseling but not understanding local languages?
- Will the hospitals have the medical equipment and medicines required to cope with the situation?
- Should there be a mechanism to assess, supply and supervise additional requirements for the hospitals?
- Should assistance be provided to affected communities in their homes for storage of rations, sanitation, water supply, disposal of waste water stagnation and health services?
- Are there any arrangements made for livestock and supplies of fodder and cattle-feed?

- Is there a system for reporting to government or higher level authorities at different stages?
- Has the method been clarified about legal and official procedures and eligibility criteria for issuing of relief tickets to affected families, cash compensation requirements, compensation for loss of life, injuries, livestock, crop, houses etc.?
- Has the method been clarified about legal and official procedures for carrying out coronary inquests and location where human and animal bodies can be disposed of?
- What is the method to request transport requirements (including helicopters, additional boats etc. when required), fuel, maintenance of vehicles and equipment etc.?

(Wisner and Adams, 2002: Carter, 1991)

Enhancing recovery capacity

After a major disaster, aid for response and recovery may flow in from many donors. The preparedness plan should include guidelines and procedures for the acceptance, tracking and utilisation of donated resources (material as well as human). The recovery plan should consider both immediate recovery issues, such as providing temporary shelter, but also long-term recovery needs. For example, after a major disaster, the reconstruction of housing is often a priority but in the absence of technical guidance the displaced persons may reconstruct the destroyed assets to pre-disaster level. In order to avoid producing the same vulnerable conditions that existed before the disaster, it is better to have reconstruction guidelines prepared in advance to provide technical assistance to minimise future losses and damages. In consultation with stakeholders, it would be useful to consider:

- Is there an acceptable methodology and trained staff to conduct assessment of short-term and long-term recovery needs? For example: assessments, mechanisms for mobilising funding, identification of resettlement etc. in many cases countries do not have an assessment methodology acceptable to the donor countries and banks. It will be difficult to obtain needed assistance within a short period.
- For urgent road clearing necessary for immediate recovery needs, is there coordination with the responsible road authorities?
- What is the arrangement for clearance of debris?
- What arrangements are there for temporary repairs to damaged infrastructure and utilities (water, power, transport, telecommunication, roads, bridges, canals and drains, public buildings etc.)
- Is there an arrangement for providing facilities such as hand-pumps and water bowsers where necessary?
- If the needs arise, are there arrangements for constructing or repairing temporary structures for storage, medical facilities, postal facilities, help aids when required, educational facilities etc.
- What agencies should provide assistance to self-help rebuilding or engage directly in housing construction, and what partnerships with community organisations and the private sector are possible?

- Are donations appropriate for the affected area?
- Should particular groups (such as artisan groups) be given special consideration?
- Are there ways of encouraging those engaged in self-help rebuilding to incorporate new safety features against earthquakes, wind, flood, etc. as appropriate?
- How can the "informal" construction industry that exists in many countries be stimulated to work with residents in building safer houses?
- Is it necessary to introduce new industries and techniques and start training building workers, etc. especially in low-cost safety improvements?
- Are new arrangements needed to provide financial support for house repair and new housing?
- Is it necessary to modify the laws governing land ownership, or access to vacant land for building, as well as zoning regulations?
- Are laws needed during the recovery period to regulate speculation in urban land prices and the prices of building materials?
- What are the arrangements for longer term road rebuilding?
- Is there a procedure for accommodating private donors, NGOs etc. willing to assist by putting up housing, schools, medical facilities, hospitals and other such essential facilities, to identify such facilities to their likes, allocate land, provide local guidelines and other necessary requirements

(Some of this checklist is sourced from Wisner & Adams, 2002: 73-74)

Preparedness, Response and Recovery Planning

The procedures usually adopted for preparedness, response and recovery planning are listed below:

Preparedness procedures



see Chapter 2

- Establishing policies and legal arrangements (laws, regulations, acts etc.) that assign roles and responsibilities for all levels of government before, during and after disaster.
- Identifying the institutional framework appropriate for the delivery of disaster response and recovery programme activities.
- Preparing effective response and recovery plans and procedures that establish the emergency management organisational structure, define response functions and identify roles and responsibilities for all respondents.
- Identify communication channels for timely dissemination of early warning messages, evacuation directions, identification of temporary shelter locations and obtaining critical supplies and equipment.
- Establishing coordination plans and procedures with outside organisations, such as the Red Cross and Red Crescent Societies, including the definition of their roles and responsibilities during response and recovery.

- Developing and delivering training and education to disaster response and recovery teams.
- Preparing, delivering and evaluating response and recovery exercises, such as table top and functional exercises, drills, simulations etc.
- Obtaining and strategically locating disaster relief supplies and equipment.
- Developing partnerships for preparedness.
- Raising awareness - the first step to preparedness.
- Sustaining preparedness measures.
- Linking recovery to development planning.
- Linking recovery to sustainable development.
- Establishing databases of response and recovery personnel, including contact information, location, capabilities, team assignments, etc.
- Developing damage assessment methodologies, including checklists to guide assessments.
- Establishing legal and institutional mechanisms for mobilising resources by the respective governments reconstruction.
- Preparation of technical guidelines, codes and standards for construction in hazard prone areas.



see Bangladesh Case Study

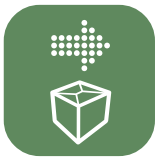


see Indonesia, Vietnam, Maharasthra (India) & Patanka Case Studies

Response procedures

Emergency response plans and procedures are implemented following notification of a potential disaster event. Emergency response plans include procedures that provide a step-by-step guide to carry out the following actions:

- Monitoring and reviewing alert and warning information.
- Interpreting alert and warning information.
- Activate emergency plant program.
- Notifying disaster response and recovery personnel (eg. SAR and first medical response).
- Activating or establishing Emergency Operations Center (EOC) at the appropriate level depending on extent of disaster and need.
- Activating emergency response teams.
- Carrying out preliminary damage and needs assessments.
- Combining the resources (hardware and software) for effective response.
- Knowing when and how to call on resources.



see Bangladesh & India Case Studies

Recovery procedures

The disaster recovery plan includes procedures to carry out the following recovery activities:

- Notifying and activating disaster recovery teams.
- Establishing disaster recovery centers.
- Assembling multi-disciplinary teams to carry out damage assessments.
- Establish database of all information collected.
- Providing technical assistance for reconstruction.
- Providing management and coordination.
- Ensure full participation of the national government.

Multi-phase Preparedness, Response and Recovery Actions

Activities typically carried out in the preparedness, response and recovery phases of the disaster risk management process:

Activity	Preparedness Phase (Before Disaster)	Response Phase (During Disaster)	Recovery Phase (After Disaster)
Assessments	Conduct risk assessments.	Rapid assessment eg., • Damage • Health • Social / Economic • Immediate needs	Complete detailed damage assessments (multi-disciplinary and sector based).
Planning	Prepare response and recovery policies, programs, plans and procedures.	Implement response actions; develop quick contingency plan for responding to unforeseen events (if required).	Implement immediate recovery actions as outlined in recovery plan.
Implementation – capacity building, training, networking, partnerships	Build human resource capacity through promotion of family, community and government preparedness.	Mobilisation of community, SAR parties, medical first respondents, volunteers.	Establish communication and consultation with stakeholders for technical assistance.
Plan verification	Verify effectiveness of plans and procedures through drills, simulations, table top discussions and exercises.	Note strong points, lapses and short comings in the plans; (what worked, what did not).	Note strong points, lapses and short comings in the plan; (what worked, what did not).
Review and Revise Plan	Review and revise plans and procedures following disasters and annually after exercises.	Record the gaps, shortcomings, opportunities and difficulties in existing plan implementation.	Conduct post event surveys to identify gaps and revise recovery plan.
Implement proposals after revision	Implement public information programmes to create awareness of all aspects. Introduce / amend construction codes, technical guidelines for practices that are not covered under codes and enforce as appropriate.	Mobilisation of community, SAR parties, medical first respondents, volunteers.	Use amended construction codes, technical guidelines for construction.

Multi-sector Preparedness, Response and Recovery Activities

Activity	Preparedness Phase (Before Disaster)	Response Phase (During Disaster)	Recovery Phase (After Disaster)
SAR and Medical Assistance	Training, education and exercises for first responders: community, fire brigade and police, doctors, nurses and aides, ambulance services.	Carry out initial evacuation, SAR activities, establish field medical centers, control and direct traffic, law and order.	Provide long-term medical care, and initiate psychological treatment.
Child Safety Education	Parents and children: Child safety awareness programs, participation in art contests, dramas, drills, disaster safety day events.	Establish child-parent reunification centers.	Establish child counseling programs, education centers.
Emergency Supplies and Equipment	Emergency Management / Military: identification and storage of emergency supplies and equipment, including medical supplies, food, temporary shelters, construction tools etc.	Distribution of supplies and equipment.	Inventory and replace disaster response supplies and equipment; store according to disaster plan .
Supply of potable water	Water utility companies: planning for purifying and distributing water; water bottling companies; beer brewing (can bottle / can water).	Initiate water safety procedures: boiling water orders, purification tablets, bottled water, cleaning of polluted water sources.	Initiate repairs to water systems; Apply disaster donations to upgrading water facilities.
Solid waste and waste water disposal	Waste water and solid waste systems: plans and procedures for disposing of waste materials, controlling run-off, treating waste water.	Deploy teams to repair damaged systems, re-route discharge as needed, treat.	Repair system to higher performance standard; install treatment facilities.
Transportation	Transportation: identify alternate routes, landing zones for large planes and, helicopters; identify repair needs.	Initiate immediate emergency repairs based on damage assessment, re-route traffic around damaged areas; assist with evacuation and transport of wounded.	Review and assign priorities to long-term transportation repair; identify potential design and routing improvements.
Roads and Highways	Responsible agencies: plan and assess capabilities to clean debris and open roads, temporary repairs and long-term repairs.	Clear debris, open roads for evacuation, SAR, carry out temporary repairs.	Repair roads to higher standards.
Communications from Operations Centre	Telecommunication services: plans and procedures; identify alternative communication modes; non-power dependent options; repair needs and capabilities.	Help establish emergency communications: radios, cell towers, repair / install repeaters, coordinate with incoming communication resources.	Review and evaluate communication system performance; identify necessary supplies and equipment to enhance response capabilities.
Utilities	Power utilities: plans and procedures; assess capabilities of system to perform under various hazard scenarios; estimate power needs to operate critical systems.	Repair and replace system elements; deploy portable generators; coordinate with outside resource providers.	Review and evaluate power system performance; identify necessary supplies and equipment to enhance response capabilities.
Partnership and Collaboration	Private sector: role of organisation in response; training and education of employees; resources available for community.	Provide resources and assistance identified in public / private sector disaster response plan.	Review effectiveness of public / private partnership; revise in-house plans and procedures.

Disaster Preparedness and Response Planning Process

Pre-planning

Establish or delegate responsibility to an organisation who will provide management and coordination oversight of the disaster preparedness programme. Local government administrations can provide this function. The oversight body comprised of high-level officials. The following activities are suggested:

- Establish a government multi-level, multi-sector disaster preparedness team
- Select a leader for the disaster preparedness team (DPT).
- Identify all stakeholders, eg. key organisations, institutions, community leaders volunteers-individuals, etc. with a role in disaster preparedness, response and recovery who might participate on the DPT or team subcommittees.
- Identify and review existing disaster policies, plans and procedures and recommend improvements.
- Identify and interview key stakeholders to determine how current response and recovery programme is now carried out. This completes a capability gap analysis and identifies areas that need improvement.
- Assess risks through systematic context analyses and scenario building
- Define planning assumptions, objectives and rationale for contingency planning.
- Establish present situation, set targets and estimate potential costs needed.
- Prepare a preparedness "road map" or a strategy action plan that details each item that needs to be addressed to prepare the disaster preparedness programme, recommend policies, set time lines, identify planning participants, describe roles and responsibilities.

Plan Preparation

Define the context by describing the levels of planning that will be addressed and the scope of the geographic area, for example; city level, consisting of 11 municipalities, 38.55 km^2 with different daytime and night time population. Consideration must be given to the **numerous emergency scenarios, various time-frames** as well as the **resources** required to manage them. The use of historical information may provide direction to this process of scenario building.

- Establish the emergency management organisation (if there are no legal provisions it is advisable to form an informal committee).
- Define emergency response and recovery functions, such as logistics and operations and establish committees and sub-committees for defined functions.
- Assign roles and define responsibilities.

- Prepare a basic preparedness plan identifying policies, authorities, plan references (eg. existing response plans), description of situation (demographics, potential hazards, etc.), description of potential hazards; the basic plan should not have information that changes frequently.
- Prepare an operational response plan describing the emergency management organisation, location of emergency operation centers and detailed description of roles and responsibilities for each response function. Operating procedures should be developed for different agencies with the participation of representatives of such agencies spelling out their response actions.
- Add to the operational plan a separate Appendix with information such as, emergency contact names, locations, email addresses, telephone and fax numbers, etc. This avoids revising the whole plan each time phone numbers and information changes.
- Prepare a recovery plan based on sector-based plans for example, for construction sector identifying construction policies, reconstruction contact information (eg. engineers, cleaning companies, heavy equipment operators, etc.). These sector based plans should also include Operating procedures spelling out their roles and responsibilities.
- Define management and coordination functions for all stakeholders and establish a reporting system based on a checklist for reporting at different time intervals as a routine function.
- Prepare the comprehensive disaster preparedness and response plan combining above components.
- Arrange frequent meetings of the emergency management committee for continuous reporting, review and update of the plan.
- Establish procedure for activation of the emergency plan.

Plan Implementation

Plan concurrence

After the plan is prepared concurrence for the plan must be obtained from the relevant authorities comprised of members who are committed to implement the plan. The plan will indicate the relevant persons who will have the authority to respond in emergency or crisis by initiating or activating steps, which may be on the following lines:

Crisis / initial response

Activation steps

Step 1 On declaration of an emergency situation the EOC and relevant SOCs are activated. National level department officers manage field operations with their resources from Departmental Operation Centres (DOCs), and coordinate with other relevant authorities.

Step 2 Departmental Operation Centres (DOCs) send rapid damage assessments and analysis; and coordinate their respective

interdepartmental and interagency resource requests through the EOC and their line ministries.

Step 3 If the District or local administration cannot meet the required resources, the EOC must work to secure the needed resources from the National Government through the Natural Disaster Management Authority.

Training and education

- Identify training and capacity building needs for various stakeholders.
- Develop a training plan and conduct training.
- Prepare and deliver training seminars and workshops to prepare all response and recovery personnel for their disaster roles and responsibilities. Training should include procedures for warning and notification, assembly locations, reporting process, etc.
- Prepare materials to guide response and recovery activities.

see Chapter 6

Public awareness

All people involved in the plan must be made aware of the existence of the plan, their roles and responsibilities. If a wide cross-section of the population is involved, it is important to launch an effective public awareness campaign to communicate this information.

see Chapter 6

Drills, simulation and demonstration

Training and education is not enough to ensure a rapid, efficient disaster response or recovery. Exercises, drills, simulations etc. for different target audiences are necessary as well. Exercises include plan orientations to provide general information on plan content and structure; 'table top' exercises to apply the plan to disaster scenarios in a group setting; and, functional exercises to test one or more aspects of the plan. There must be verification of the plan through simulation and demonstration involving all stakeholders.



Purchase of supplies and equipment

The purchase of supplies and equipment may be done at the community, provincial / district and national levels. A strategic plan for the storage and distribution facilitates immediate access following a disaster.

see Chapter 2

Institutionalisation

It is necessary to set up legal provisions and standards for various functions (including at national, local government and institutional levels). Institutional arrangements and coordination mechanisms have to be institutionalised for smooth functioning of:

- Emergency planning and drafting committees at various levels.
- Committee for implementation of emergency plans.

- Setting up an activation of Emergency operation centers.
- Early warning and emergency declaration in case of severe disaster events (authorisation for declaration and process of action at various levels).

Inter-institutional coordination: for example, at national level National Disaster Management Organisations (NDMO) may take the lead role with the support from other sector-based institutions. Similar arrangements have to be made at district level, local government level, and community level so on.

Important factors for ensuring the success of preparedness plan



To ensure the success of the plan it will need:

- Broad participation of relevant sector employees in planning and implementation.
- Maintain advocacy, promotion and training.
- Conduct simulations and evaluation exercises to test the effectiveness of plans.
- Disseminate information on lessons learned in similar incidents, (for example data on damages, emergency needs, competencies of SAR parties, medical first responders, temporary shelter.
- Rehabilitation programmes for complete recovery after disaster considering the physical, social, economic and environmental aspects.
- Support by government through policy formation to institutionalise the activities and actions.



Tools and Techniques Used to Support Disaster Response and Recovery

Early Warning Systems

Widely promoted during the international decade for natural disaster reduction (IDNDR), the emphasis on building good hazard forecasting mechanisms and early warning systems has resulted in a reduction of severity of the impact of natural disasters. It is used to warn of forthcoming events so people can protect both lives and property. However, for effectiveness, systems must be integrated and linked to all stakeholders to form a reliable communication chain between the scientific and technical data and the community at large.

Experience has shown that the process involved in early warning systems need to be part of a national legislative frameworks. They also need to be timely, accurate, reliable and understandable information for those at the grassroots level - the target audience for the warning, should be able to receive, process and make decisions in proper context.

Alert, warning and notification policies and procedures guide an effective disaster response. Exercises need to be conducted to test procedures and equipment to ensure operational capacity. Post-disaster assessment provides recommendations for improvements. Components of alert, warning and notification approaches include, but are not limited to:

- **Hazard identification and assessment** - Identification of hazard events for which an alert and warning system would provide an opportunity to save lives and property.
- **Operational capabilities** - Accurate forecast or prediction of an impending disaster through successful application of hazard monitoring / assessment techniques.
- **Clear communication channels** - Development of clear communication and reporting lines for transmitting information to local levels (from data source to user) - eg. Bangladesh Meteorological Department's communication of warnings to cyclone preparedness programme's (CPP) headquarters.
- **Clear and timely issuance and dissemination of warnings** - Timely issuance and dissemination of warnings including possible impacts on people and infrastructure (risk assessment results converted to maps, GIS data bases, block diagrams so on), and recommended actions to decision-makers (i.e. appropriate authorities and the population at risk).

see Chapter 2

- **Coordination from the center to local government and to community** - Involvement of stakeholders at national and local levels in the verification of information, agreement on the decision-making process, standard operational procedures and selection of appropriate communication media and dissemination strategies up to community and family levels.
- **Ensuring stakeholder participation** including community representatives) in planning and plan implementation
- **Planning** - Specification of roles and responsibilities in the disaster response plan for authorities and response workers to facilitate prompt operations.
- **Political consensus** - political support for mobilisation of finances from different sources for investing in appropriate technologies and training for the use of technologies with the greatest outreach.
- **Monitoring and evaluation** - Regular monitoring and evaluation are critical, particularly after a disaster. Disasters are opportunities to test the effectiveness of the measures and systems developed to reduce risks. Results from the evaluation need to be incorporated in the form of amendments to legislation, policies and programme objectives.

Communication Systems

Communication failures commonly accompany disaster events. Multiple systems provide options in case one or more systems are non-operational. High-tech solutions, such as satellite phones, VHF radio systems, cell phones, landlines, etc., may be considered. *Battery operated radios are found to be more reliable in dissemination of information even in remote areas in Asia during disaster events*. Event triggered response procedures should be developed in case communications fail. Runners / volunteers may carry information within communities to pre-designated emergency operations centers.

Database Tracking Systems

Before, during and after a disaster there are a multitude of supplies and equipment to manage. During and following a disaster, most of the international institutions mobilise donations for victimised families. But in most countries there are no systems for disaster assessment and need analysis and it further complicates the ability to identify and distribute necessary items. The donors need to consider cultural and religious practices, and values in the countries and the tracking system should be able to provide information on the real needs of communities affected. Preparation of tracking systems as part of preparedness activates will help the response and recovery teams remain organised. Microsoft Excel and Access are two of many data base systems that could be used for this purpose. Manual systems should be maintained in case of power outages.

see India Case Study

Case Studies



Bangladesh

Bangladesh

Combining hardware and coordination of key responders for effective response

Cyclone preparedness saves millions

Disaster history

The Cyclone Preparedness Programme (CPP) was started by the International Federation, the Bangladesh Red Crescent Society and the Government of Bangladesh after the 1970 cyclone when almost 500,000 people died. Wind speeds reached 220 kilometers an hour and tidal surge topped ten meters that year. In 1991, wind speeds were even higher and the maximum reported tidal surge was six meters. 140,000 people died but 350,000 were safely evacuated. In 1997 a similar cyclone with winds over 230 kilometers an hour and a tidal surge of up to 4.5 meters claimed less than 200 lives while a million people were evacuated into shelters.

Preparedness activities

- Increased number of shelters.
- Established mechanism to manage and maintain shelters.
- Established warning system.
- Trained volunteers to rescue, evaluate and provide first aid to people; carry out post-cyclone damage assessment.
- Pre-disaster exercises and awareness rallies.

Shelters, communications systems, evacuation

Over this period, the CPP has been progressively extending its shelter and communications systems. The Government of Bangladesh contributes to 56 per cent of CPP's operational costs, which amounted to US$ 460,000 in 2001, and the International Federation covers the remainder. Local communities raise funds to manage and maintain the 1,600 cyclone shelters across the coastal region.

Clearly, the investment paid off. The CPP can now alert around 8 million people across the entire coastal region, and can assist 4 million people to evacuate. The warning system uses Asia's largest radio network, linking the CPP's Dhaka headquarters with 143 radio stations. Radio warnings are then relayed by 33,000 village-based volunteers using megaphones and hand-operated sirens. The volunteers are also trained to rescue and evacuate people to shelters, administer first aid and assist in post-cyclone damage assessment and relief. Between disasters, volunteers organise simulations exercises and awareness raising rallies.

Next steps

A recent study conducted by FOCUS on the CPP, revealed areas for improvement. It showed that around 60 per cent of the people surveyed had problems understanding the signals or announcements due to complicated and technical language. Almost 80 per cent of the people stated their preference for broadcast bulletins in local dialect which would be easier to understand. The survey also showed that some people did not evacuate due to inadequate facilitates for water supply and sanitation and the lack of *purda* for women (a separate space for religious and security reasons) at the cyclone shelters.

(IFRC, 2002: and Ullah, 2003)

Papua New Guinea

Developing partnerships for response and recovery

Understanding tsunami



Papua New Guinea

Disaster history

On the evening of 17 July 1998, a strong earthquake was felt in the Aitape coast, located at the north-west tip of Papua New Guinea (PNG). A loud sound, similar to an explosion or the violent clap of thunder followed by the churning of what seemed to be a low-flying jet plane was heard. Curious to identify the noise, people from the surrounding villages ran to the waters edge, only to discover a huge wave forming.

Within seconds people were running as far away from the beach as possible, some climbed trees, others ran back to the village to warn the others, some ran to their boats moored in the lagoon nearby. The coast of Aitape was the scene of chaos for 35 minutes, and then there was calm. The entire coastline and inland area was completely destroyed by a tsunami. Over 2,200 people were killed, and 10,000 left homeless.

Response and recovery activities

- Partnerships with scientific institutions enabled data collection and damage assessments to be carried out after the tsunami in PNG
- A public information programme was implemented after the tsunamis

Data collection and damage assessment

Directly after the disaster occurred, PNG-based researchers began the process of data collection - documenting eye-witness accounts, and mapping the patterns of destruction and distribution of sediment brought by the tsunami. International and local-based scientists continued with further investigations such as marine and onshore surveys. PNG based scientists conducted intensive interviews with survivors to determine the procedures, if any taken to ensure survival. Hazard assessments such as historical profiles of past tsunami events, and damage assessments were also conducted.

Risk communication - public information programme

From the series of research and assessments, it became apparent that there was no recollection of past tsunami events, and people were unaware of what had occurred. The people had to be reassured that this was a natural phenomenon, so accurate, concise and simple information was provided, and people were encouraged to ask questions. A comprehensive public information programme began in early August 1998. It involved the feedback from scientific investigations, distribution of pamphlets, visits by scientists to hospitals and universities, and regular stories in the national press to inform the people of the phenomenon. They remained unconvinced that this was not a human-induced disaster.

see Chapter 6

The Asian Disaster Reduction Center (ADRC) and Tohoku University, both in Japan, were called upon to share their own experiences of tsunami events with the people of Aitape. ADRC designed a tsunami information poster, which was distributed nationwide. A public awareness campaign for safe evacuation procedures was tried and tested as a second tsunami, this time hitting the north-east coast of PNG in November 2000 resulted in destruction of homes, but no deaths.

(Source: Davies, et al, undated)

India

India

Linking recovery to development planning

Maharashtra emergency earthquake rehabilitation programme

Policy and legal arrangements

The state of Maharashtra, India experienced a devastating earthquake in September 1993. After the earthquake, the Government of Maharashtra drew up the Maharashtra Earthquake Emergency Rehabilitation Programme (MEERP) in consultation with the Government of India, the World Bank and other stakeholders.

The MEERP was implemented between July 1994 to December 1998, although some work continued up to mid-1999. The total implementation cost of the programme was US$ 358 million. Lessons learned from this programme contributed significantly to implementation of the recovery process after the 2001 Gujarat Earthquake.

Recovery

Rehabilitation programme

Accessing and motivating almost 200,000 beneficiaries required a multi-pronged effort, including local banks, material depots, contracted engineers, trainers and communications specialists. MEERP's greatest contribution was the disaster management plan. It was the first rehabilitation programme supported by a document with objectives and strategy, and spelt out beneficiaries' entitlements.

The government planned to relocate the worst damaged villages which led to the construction of 27,919 houses. Construction and engineering consultants were appointed for the design of village layout and houses, tender documentation, supervision and billing. Rural resettlement planners worked with the engineering consultants in preparing village layouts, Community participation consultants joined the planning process by drawing in the villagers. For the first time, social and community aspects of housing were included by engineering consultants in the planning process, widening consultative participation and bringing together different perspectives on rehabilitation.

Training and education
Throughout the programme the government acted as a facilitator instead of an implementer. Beneficiaries carried out reconstruction with the government support, and became conscious of their entitlements and the rehabilitation process. In the relocated area, the government improved living conditions by promoting the construction of stronger houses, developing extensive infrastructure and accessible services, as well as, building capacity in earthquake-resistant building.

(Source: MEERP, undated)

India
Linking recovery to sustainable development
A model recovery programme



India

Project initiation
Patanka Village of Patan District, Gujarat was among the worst hit but least served villages following the Gujarat Earthquake in January 2001. Applying lessons from previous earthquake recovery projects, 15 like-minded organisations from India and abroad came together to pilot a "model" rehabilitation programme in Patanka.

Instead of simply building houses for residents of Patanka, the programme team worked together with local and state government officials and community groups in conducting a risk assessment and developing a plan of action for recovery that is based on the priority needs of the village.

Recovery plan
The Patanka Navjivan Yojana (PNY or Patanka New Life Project) incorporates risk reduction measures as part of their recovery strategy. The aim is to strengthen people's capacity to protect themselves from future disasters.

PNY emphasises sustainability and replication. Activities introduced such as the methodology for constructing stronger houses is developed to ensure that it will not only continue after the programme ends, but also spread to other communities.

Training and education

The programme team discovered that existing capacities in earthquake safe construction were very low. The community was ready to build their houses themselves. However, they needed guidance and support in building techniques and use of building materials.

From their findings, a comprehensive capacity building programme for different stakeholders was developed.

(Gupta, 2002)



Vietnam

Vietnam
Flood kindergartens
Safe areas

Project initiation

In Vietnam, children have been found to be most vulnerable during the flood disasters. In the severe floods of 2000, 2001 and 2002, 1,683 people were killed of which 72% were children under the age of 16.

Preparedness activities

The Central Government and provincial authorities supported the development of flood kindergartens (or child care centers) that takes care of children during the flood season. These kindergartens are often established in private houses, which have been donated for this cause. Sometimes they are in health commune stations and schools that are closed during the flood. This has eased the burden of many families, especially women as the flood season is the busiest time for fishing. During flood events, parents who need to travel distances to work or find food no longer have to leave their children unattended.

Since 2000, government and donor funds were granted to build these centers. Allowances for teachers and food for children were provided, and teaching and learning materials were donated. Currently there are over 1,000 centers keeping over 20,000 children safe in flood-prone areas. Almost half of the kindergartens have been transformed into permanent kindergartens for children.

Benefits and next steps...

This initiative has not only resulted in a 62% decrease in number of child-deaths where the kindergartens were established, but provided rural children access to kindergarten education for the first time. This programme plans to phase out government funds and get the community to take care of the total cost in the near future.

(Olsson, 2003)

Case Study Lessons Learned



- **Collaboration and coordination is necessary to promote accurate, timely and meaningful warnings.** Collaboration and coordination among scientific institutions, early warning agencies, public authorities, the private sector, the media and local community representatives is necessary to promote accurate, timely and meaningful warnings that can result in appropriate actions by an informed population.

- **Early warning systems are not always effective**, especially for extremely infrequent and fast developing events such as tsunamis. When this is the case, good community preparedness planning should be put in place to lessen destruction of the impact.

- **The needs of different groups at risk must be understood.** In the case of the CPP, warning signals and announcements need to be prepared in a number of different dialects and pilot tested in selected communities to ensure that messages transmitted are effective in reducing risk. Cyclone shelters also need to be improved to meet the social and cultural needs of women.

- **Volunteers are the link between the technical warning data and the people.** They are the disseminators of information, and the active facilitators of the evacuation plan. They execute drills, demonstrations and training in evacuation and first aid at the community level. Responsible and fast acting volunteers are a vital component of the smooth running of the CPP.

- **Building on existing resources** (eg. using existing houses, retrofitting, health stations and schools for flood kindergartens) can reduce costs. Simple initiatives combining small resource contributions from different sources can make a big impact.

- **Small projects:** Small projects are the most effective when they identify a target group with a specific need.

- **Involvement of school children is very effective**: When designing risk communication programmes, involvement of school children is very effective. They should be treated as a separate segment of the society. Children are an effective entry point to the family and community and can be used to convey strong messages on preparedness aspects with proper training, drills and simulation exercises. By adopting this process, these practices can be easily institutionalised within a community.

- **Resource contributions from multiple sources** can support administration and operation. Financial and political support from national level decision-makers, policy makers and local communities have greatly contributed to the sustainability of this programme. A major reduction in the death toll is the result of their commitment.

- **Outside expertise:** Calling on outside expertise to assist establishment of risk parameters and sharing of their experience and knowledge can enhance the understanding of the disaster event, its impact on the community and possible risk management interventions.

- **Phased out withdrawal of recovery actions is important:** Recovery often ends abruptly after a short time-frame or communities become dependent on assistance. More careful phased withdrawal is needed.

- **In the absence of historical information on events** developing knowledge through assessments and research on disaster events is appropriate. Disaster risk reduction interventions formulated to reduce the level of risk through such deterministic approaches are fundamental to effective response and recovery.

- **Documentation after a disaster:** Following a disaster, documentation is important after carrying out an audit and recording all events and lessons learned, including the need to incorporate risk reduction in future development activities; partnerships that worked well; sustainable community rehabilitation such as capacity building on improved disaster resistant construction techniques; improvement of livelihoods etc.

Discussion Questions



The discussion questions are provided to stimulate discussion about preparedness, response and recovery activities. These questions are just suggestions that may help guide your discussions. You may wish to discuss other disaster preparedness issues that will help improve your response and recovery capabilities.

- Does your community have a disaster preparedness committee, disaster committee or are elements of your local administration tasked to address disaster issues, including preparedness?

- Where would such an organisation be located and how would it relate to the local community and government organisations?

- Who would participate: government representatives, NGOs, community leaders, consultants, etc. All these stakeholders and perhaps others could be a part of a comprehensive disaster committee, of which there may be a preparedness subcommittee.

- Do you have disaster supplies and equipment? Where are they stored? Who has access?

- Who in your community has emergency related duties, eg. public works, fire services, that would be interested in contributing to the disaster preparedness effort?

- What policies, plans, procedures already exist for disaster preparedness?

- What has been your past experience responding to and recovering from disaster?

- What development projects are you planning and how might they be enhanced to reduce future response and recovery needs?

Challenges

Disaster preparedness comprises of forecasting and warning, and planning for response and recovery. A range of organisations working in different sectors with different groups of people, competencies, specialities at different stages of operations, are required for disaster preparedness planning and implementation. Hazard events will reveal the appropriateness of the pre-planned activities, competencies of people involved and effectiveness of strategies adopted to deal with emergency situations. When an emergency occurs, these different organisations will be acting in their identified roles at a designated location for a specific purpose. Any failure or shortcomings in the pre-planned activities will convert the emergency into a major disaster.

The key challenges in developing and implementing a comprehensive preparedness programme is:

- Development of preparedness plans for response and recovery through multi-stakeholder participation including vulnerable communities. Developing clear roles and responsibilities for preparedness, response and recovery can be easy when it is institutionalised as a part of mandatory provisions of governments of different levels. The sector based plans should be incorporated into other levels and resources should be mobilised for plan implementation during disaster events and plan verification during peacetime.

- Creating legal and institutional frameworks to integrate preparedness plans with longer-term development plans is essential. Establishment of regular review and revision processes and having a coordinated approach for all actions should be considered as an important aspect.

- Sensitivity to the needs, development priorities and resources of the disaster-affected communities are important factors and should receive the adequate recognition and commitment of the plan development committees.

- It is a difficult task to prepare communities to overcome the impacts of hazards, which are of rare occurrence such as Earthquakes and Tsunamis. Creating awareness in such cases is a challenge, as communities do not expect such events.

- Effectiveness increases when response and recovery programmes for disaster events lead to livelihood improvement and sustainable development. National and International NGOs are making genuine efforts to introduce such programmes with maximum community participation. But it is difficult to mobilise the resources through international donor participation when it is not recognised as a priority by the appropriate government institutions.

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Resources

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http://www.aseansec.org/home.htm

FAO Global Information and Early Warning System (GIEWS)
http://www.fao.org

Mekong River Commission (MRC)
http://www.mrcmekong.org

Regional Cooperation for Flood Information Exchange in the Hindu Kush-Himalayan Region
http://www.southasianfloods.org

World Meteorological Organisation (WMO)
http://www.wmo.ch

Resources for response and recovery

For response and recovery there are a number of guidelines and approaches developed by international humanitarian organisations. Examples include codes of conducts, standards, training courses and equipment kits for assessments, the management of goods (food, medicine, emergency shelters) and services (search and rescue, medical first response), and improving accountability during response and recovery. Some initiatives include:

ADPC
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FEMA (2004) Emergency Preparedness Checklist.
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FEMA 'Are you Ready?' Series helps communities to plan for multiple hazards, including floods.
http://www.fema.gov/areyouready/

Field Operations and Response guide for Disaster Assessment and Response, USAID, Bureau for humanitarian Response, OFDA (Chapter 2 - Assessments)
http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/ resources/pdf/fog_v3.pdf

The Code of Conduct for the International Red Cross and Red Crescent Movement and NGOs in Disaster Relief
http://www.ifrc.org/publicat/conduct/index.asp

The Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response
http://www.sphereproject.org/handbook/index.htm

The Humanitarian Accountability Project
www.hapgeneva.org/index.htm

UN Disaster Management Training Program (1994) New York, UNDP / DHA
http://www.undmtp.org/english/disaster_preparedness/disaster_preparedness.pdf
UK Environment Agency (2005) – Ideas for a Household Flood Plan
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Training courses

ADPC *(http://www.adpc.net)* offers regular courses on:

Public Health and Emergency Management in Asia and the Pacific
Public Health in Complex Emergencies
Hospital Emergency Preparedness
Medical First Responder
Collapsed Structure Search and Rescue
Road Accident Rescue
Canine Search and Rescue

RedR *(http://www.redr.org/redr_australia/index.htm)* offers a series of training courses for response and recovery including:
Essentials of Humanitarian Practice
Humanitarian Management

Humanitarian Logistics
Personnel Security and Communications
SPHERE Core Technical Sectors

ALNAP (2003) ALNAP Global Study: Participation by crisis-affected populations in humanitarian action - Practitioners' Handbook (draft). London: Active Learning Network for Accountability and Performance in Humanitarian Action (ALNAP).
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Cross-sectoral resources for preparedness, response and recovery

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WHO (2002) Gender and Health in Disasters, Geneva: World Health Organisation.
http://www.who.int/gender/other_health/en/genderdisasters.pdf

Rapid Environmental Impact Assessment in Disasters Response (REA)
http://www.benfieldhrc.org/SiteRoot/disaster_studies/rea/rea_index.htm

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