

Day 8

Session/Activity	Activity time (minutes)	Cumulative time of session
Session 17: Legal and Institutional Issues of Integrated Flood Risk Management		
17.1 Role of law in flood risk management	10	10
17.2 Major legal aspects of IFM and institutional arrangements for flash flood disaster management	40	50
17.3 International conventions and laws pertaining to flash flood disaster risk management	10	60
Session 18: Flash Flood Management Cycle – Preparedness		
18.1 Concept and phases of the flash flood management cycle	10	10
18.2 Emergency planning activities at community level	15	25
18.3 Community preparedness activities for flash flood management	35	60
Session 19: Flash Flood Management Cycle – Response and Recovery		
19.1 Evacuation, search and rescue, shelter management, and health response	15	15
19.2 Damage and needs assessment	20	35
19.3 Recovery, rehabilitation, and enhancing community resilience	10	45
19.4 Monitoring, evaluation, and information management	15	60
Session 20: Overall Discussion	60	60
Session 21: Training Evaluation and Closing Session		
21.1 Training evaluation	30	30
21.2 Closing session	30	60

Session 17 Legal and Institutional Issues of Integrated Flood Risk Management

Time: 60 minutes

Objective

To learn about:

- ▶ Legal aspects of integrated flood management
- ▶ Legal and institutional arrangements for flash flood risk management at different levels and in different sectors
- ▶ How international conventions and laws apply to flash flood and disaster risk management

Activities

Activity 17.1: Role of law in flood risk management

Time: 10 minutes

- Step 1** Discuss the role of law in integrated flood risk management.
- Step 2** Discuss the need for flash flood risk management policy at the national, provincial, and local levels.

Activity 17.2: Major legal aspects of IFM and institutional arrangements for flash flood disaster management

Time: 40 minutes

- Step 1** State the major legal aspects and briefly explain each.
- Step 2** Urge the participants to become familiar with the existing major policies related to disaster management in their own countries. As an example, present the legal and institutional arrangements for disaster risk management for a given country and explain how these pertain to flash flood risk management.
- Step 3** Discuss the sectors implicated in flash flood risk management and the associated sectoral policies (see Box 15 in RM 17.2).
- Step 4** Discuss the existing institutional arrangement and note where gaps can arise among national, sub-national, and local levels. It is important to discuss the responsibilities of each institution and explain how (ideally) they should coordinate among themselves for flash flood risk management.

Note to the trainer

Examine the institutional arrangements and note the vertical linkages from the local to the national level. At the same time, note the horizontal linkages in terms of the distribution of responsibilities and the coordination between different sectors in areas such as land use, watershed management, and forest management. How are policy and institutional arrangements coordinated at the provincial and local level? And how do these come into play before, during, and after a flood?

- Step 5** Discuss how polices can be reformed to better address the needs of poor and vulnerable people in the context of flash floods.

Highlight the importance of addressing gender issues in flash flood risk management. Gender issues are social issues and should be part of an overall social protection policy. Social protection is a legal way of supporting and protecting the more vulnerable members of society.

Activity 17.3: International conventions and laws pertaining to flash flood disaster risk management

Time: 10 minutes

- Step 1** Rivers and river basins often extend over two or more countries in the HKH, this makes flash flood risk management a transboundary issue. It is often in the best interest of both countries to share hydrometeorological research and data that can be useful in early warning systems and in different activities of flash flood risk management; however, neighbouring countries can have differing approaches to sharing data. Country-specific policies to data sharing and river management are some of the challenges in transboundary flash flood risk management.
- Step 2** Mention international laws, conventions, and initiatives that are pertinent to flash flood and transboundary water management. Highlight legal provisions and initiatives that apply in the HKH region.

Session 17 Resource Materials

RM 17.1: Role of law in flood management

'Disaster risk management is the process of implementing those policies, institutions and investments to strengthen the coping capacities of society to reduce the impacts of natural hazards and related environmental and technological disasters.' (UNISDR 2009)

Integrated flood management should be based on a legal framework and supported by solid institutional arrangements. A legal mechanism is very important because many governmental and non-governmental organisations at the national, subnational, and local levels are involved in flood management. In this context, laws work to provide the framework for implementing governmental policies for flood management.

The law has three distinct roles as outlined in Figure 26.

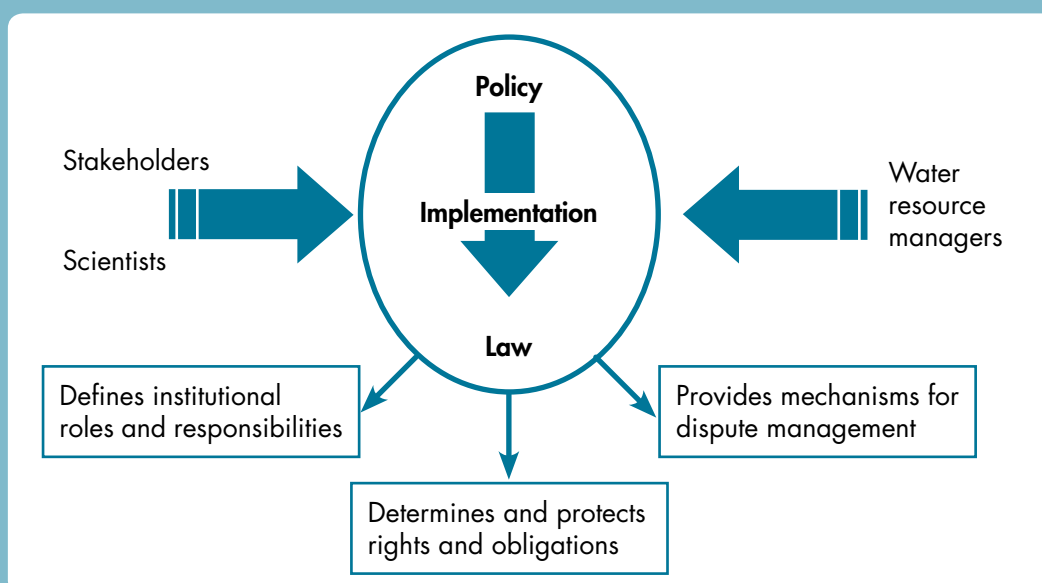
- Law defines institutional roles and responsibilities
- It protects the rights and determines the obligations of institutions and individuals.
- If conflicts cannot be avoided, the law provides a mechanism for dispute resolution through the judicial system.

These legal provisions are essential to ensure that government agencies have specific responsibilities for addressing aspects of flood management and can be held accountable. Laws define the rights and obligations of different institutions and individuals at all stages of flood management. Laws are also essential in giving flood managers the legal powers they need to intervene during a flood event, such as right of access to private property.

A legal framework at the national level should address issues related to:

- coordination and cooperation among organisations, institutions, sectors, and beneficiaries;
- availability and accessibility of the basic data and information needed for decision making;
- building and enabling a conducive environment for all stakeholders to participate and make collective decisions.

Figure 26: The role of law in IFM



Source: WMO (2006)

RM 17.2: Major legal aspects of IFM and institutional arrangements

The four major legal aspects of integrated flood management are:

- ensuring coordination and integration across institutional boundaries;
- generating and sharing information;
- enabling stakeholder participation;
- ensuring rights, powers, and obligations.

Ensuring coordination and integration across institutional boundaries

Ensuring coordination and integration across institutional boundaries is one of the major legal themes of IFM. Within the concept of IVRM, flood management decisions must take into account both how to alleviate flood risk and how to minimise the socio-economic impact. It is more likely to achieve good results when an integrated basin approach is used; but an integrated approach requires that a number of institutions and authorities work together, and for this it is essential to ensure coordination among them (Box 15).

Ensuring coordination requires that: first, planning at the governmental level must be integrated so that the government's strategy, which is implemented through different departments, is coherent and harmonised; and second, that it must be applied at all levels of public planning, whether national, regional or local, and involve all relevant public agencies. At the same time, there should also be some mechanism to ensure that local views and experiences are in turn fed back into the national planning processes.

Box 15: Major sectors having policies relevant to flash flood management

- Agriculture and food security
- Land use (zonation)
- Forestry
- River valley management
- Watershed management
- Health
- Education
- Physical planning and infrastructure development
- Water and sanitation
- Information and communication

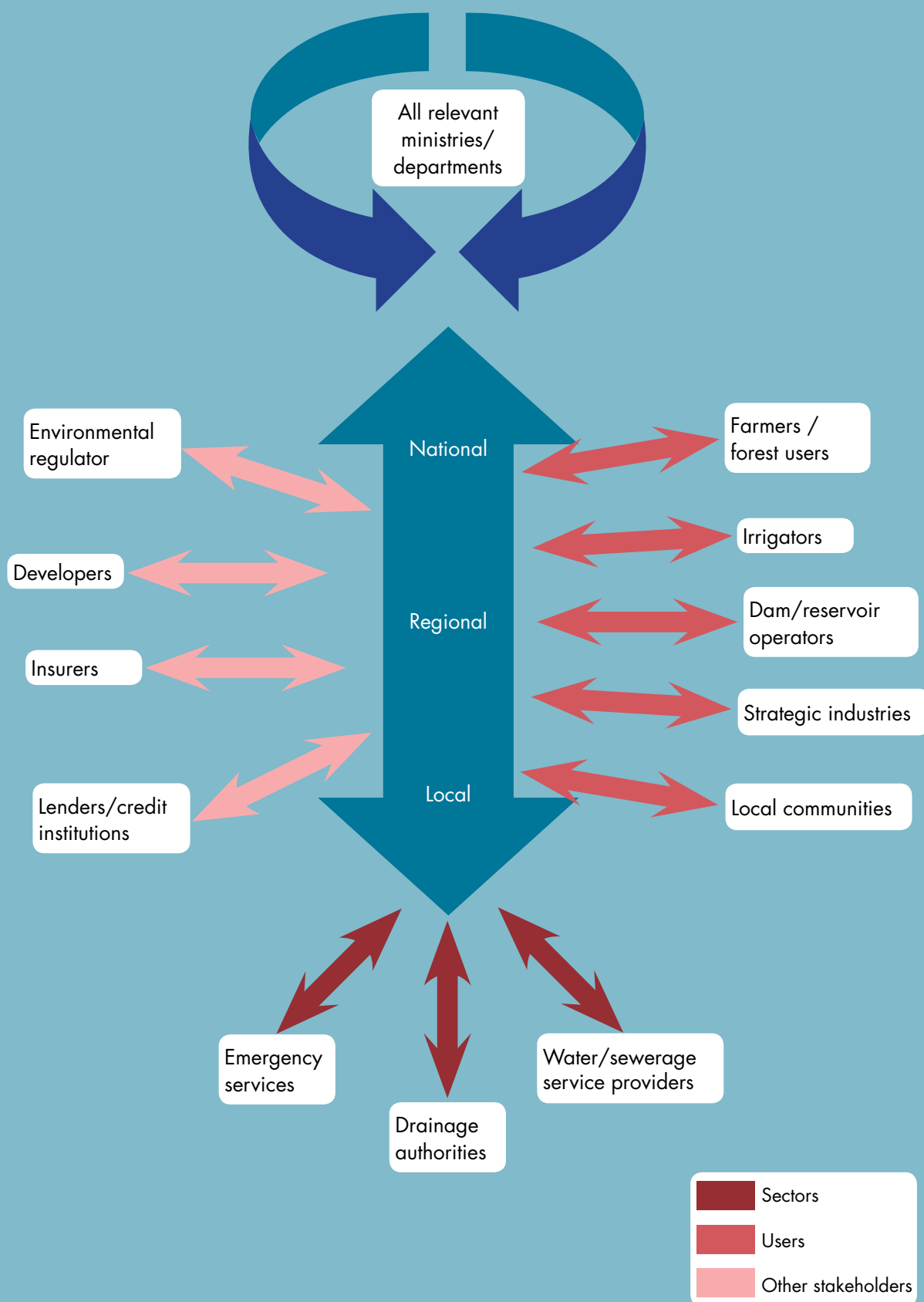
Figure 27 shows how horizontal and vertical interactions work to integrate various stakeholders and interest groups at all relevant areas of government planning. The horizontal axis shows interactions between the various government departments and ministries (at all levels), and how stakeholders and interest groups are involved in the decision-making processes. The vertical axis shows consistency in the policy and planning processes and implementation at different levels of government. From the local level up, plans should be consistent with those produced at the next higher level.

The need for a coordinated and integrated approach can be illustrated by the example of land use planning. Since land use influences flood risk and water management in general, it is imperative that land use planning and water use allocation be properly coordinated. Land use in a given area (whether urban or rural) can affect flood risk elsewhere in the basin. Moreover, the consequences for flood risk from the forestry sector (e.g., uncontrolled logging) can have consequences for erosion and, to a limited extent, for flood peaks. Similarly, agricultural land use practices (e.g., topsoil compaction) can have consequences for downstream river regimes. Consequently, forestry policy and planning should be subject to flood risk assessment. The technical aspects of forestry and agricultural practices with regards to land use may also be subject to regulations but these may be more difficult to enforce.

Information generation and sharing

Robust notification and information are required. Flood management strategies need to be based on scientific data gathered by a number of agencies and need to be constantly reviewed in the light of new data

Figure 27: Integration of various stakeholders and interest groups in flood management



Source: WMO (2006)

gathered with each new flood event. Mechanisms must therefore be in place to feed basic planning data and assessments of actual performance back into the strategic planning process. Various types of information that are generated in the monitoring process are required for preparedness as well as to keep improving strategies for emergency response, and these need to be shared across administrative boundaries.

Raising the awareness of property owners and stakeholders on the risks of flooding is paramount. When stakeholders understand the risks to which they are exposed, they are more likely to participate in the planning process. The flood hazard maps and all of the plans, programmes, and strategies that have been devised form the basic information package that should be shared with all stakeholders as part of their pre-flood preparedness. These, along with the related timing and background information that have been subjected to public scrutiny, must be made available and accessible to the public at large.

Information about the rights, powers, and obligations of the concerned authorities for the provision of flood forecasting, warning, and emergency response should also be shared. The rights of access of authorities to relevant information should be made clear, and the availability of such information should be ensured (basin wide). Authorities should be obligated to broadcast flood warnings in the mass media. Unambiguous assignment of responsibilities is also essential for establishment of liabilities in the case that warnings are issued too late, inaccurately, or without just cause.

Enabling stakeholder participation

Stakeholder participation is central to the IFM concept. In order for IFM to deliver maximum benefit to the largest number of people, all stakeholders must be involved in the decision-making process. The level of participation of the different interested groups will vary depending on their expertise and whether they are involved nationally or locally, however, regardless of the level of involvement, without effective participation from all quarters, IFM cannot succeed.

The realisation that the participation of stakeholders in flood management is necessary leads to a number of questions, such as:

- Who are the stakeholders?
- What decisions should they be involved in?
- What information should be provided, and how, to achieve effective participation?
- How much consideration should be given to stakeholder views?
- What rights, powers, and obligations should the stakeholders and the decision-making authorities have?

It is important to recognise that the stakeholders referred to above include not only property owners and inhabitants of the area (who are particularly vulnerable to flooding), but also other bodies that have an interest in the way the decisions affecting flood management are made. If flood management is to be sustainable, it must accommodate the economic, environmental, and social needs of the basin, and stakeholders reflecting each of these aspects must have a role in the way flood management is planned and implemented.

Ensuring rights, powers, and obligations

Institutions and individuals must have the necessary rights and power to implement the legal provisions related to flash flood management. Legislation works within the framework of the constitution of a country. Constitutional rights differ from those arising from the overall statutory framework. The rights of institutions and organisations need to be examined separately from the rights afforded to individuals. Some countries have promoted decentralisation and transferred powers to formal village groups and associations; in that context group rights have been significant. With the adoption of integrated and participatory approaches to flood management there is a growing need to develop conditions under which groups can form legally constituted associations or local self-governance units to exercise their legal rights.

In general, the property owner has a corresponding right to claim compensation for any damage caused by the construction of works which need to be implemented during a flood emergency. When private land has to be expropriated for flood defence work or for flood retention, the expropriating authority must have adequate purchasing power to be able to compensate the landowner.

RM 17.3: International conventions and laws that pertain to flash flood and disaster management

Many international laws and initiatives pertain to flood management. For example,

- the 1997 United Nations Convention on the Law of the Non-navigational Uses of International Watercourses (also known as the United Nations Watercourses Convention) – the only global framework treaty to address the use of rivers for purposes other than navigation – adopted IFM as its central policy concept in the area of water hazard and risk (UN, 2005);
- the International Flood Initiative adopted IFM as a central policy concept (UNESCO-IHP, 2007);
- the Hyogo Framework for Action explicitly recognises the need for IFM strategies (UNISDR 2005).

Basic principles of the 1997 United Nations Watercourses Convention

Equitable and reasonable utilisation. In articles 5 and 6, the principle of equitable and reasonable utilisation is spelled out as follows:

Utilisation of an international watercourse in an equitable and reasonable manner ... requires taking into account all relevant factors and circumstances, including:

- *Geographic, hydrographic, hydrological, climatic, ecological and other factors of a natural character;*
- *The social and economic needs of the watercourse States concerned;*
- *The population dependent on the watercourse in each watercourse State;*
- *The effects of the use or uses of the watercourses in one watercourse State on other watercourse States;*
- *Existing and potential uses of the watercourse;*
- *Conservation, protection, development and economy of use of the water resources of the watercourse and the costs of measures taken to that effect;*
- *The availability of alternatives, of comparable value, to a particular planned or existing use.*

... The weight to be given to each factor is to be determined by its importance in comparison with that of other relevant factors. In determining what is a reasonable and equitable use, all relevant factors are to be considered together and a conclusion reached on the basis of the whole.

No significant harm. Closely linked to the rule of equitable and reasonable utilisation is the obligation that watercourse States not cause significant harm. While the rule of equitable and reasonable utilisation focuses on balancing competing interests, the focus on 'no significant harm' is on the management of risk. "Watercourse States shall ... take all appropriate measures to prevent the causing of significant harm to other watercourse States."

The Convention seeks to harmonise the obligation of no significant harm with that of equitable and reasonable utilisation by stating in Article 7(2) that:

Where significant harm nevertheless is caused to another watercourse State, the States whose use causes such harm shall, in the absence of agreement to such use, take all appropriate measures, having due regard to the provisions of articles 5 and 6, in consultation with the affected States, to eliminate or mitigate such harm and, where appropriate, to discuss the question of compensation.

Precautionary principle

The precautionary principle can broadly be defined as “the imposition of controls in advance of complete scientific understanding” (WMO 2006). In the context of environmental protection, Principle 15 of the Rio Declaration provides that: “where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation” (UN, 1992a).

A precautionary approach could equally be taken with respect to the protection of human life or property. Article 3(3) of the United Nations Framework Convention on Climate Change states that: “The Parties should take precautionary measures to anticipate, prevent or minimise the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost” (UN, 1992b).

Legal framework for IFM in transboundary basins

The HKH region has many transboundary river basins. The most relevant law relating to flood management issues at the transboundary level is the Law of International Watercourses, which includes United Nations Watercourse Convention. It will be necessary to explore whether other provisions, such as the protection of the environment and the principles enunciated in other related international conventions and protocols, could be drawn upon to establish a legal framework for IFM in transboundary basins.

Session 18 Flash Flood Management Cycle – Preparedness

Time: 60 minutes

Objective

To understand the management cycle for flash flood preparedness and its related activities, which includes understanding the following:

- ▶ The different phases of the flash flood management cycle
- ▶ The importance of emergency planning and related activities
- ▶ Different preparedness activities

Note to the trainer

Remind the class that community-based flash flood management and social hazard mapping was discussed in Sessions 7 and 9 and that the Community Flash Flood Risk Management Committee (CFFRMC) is responsible for undertaking emergency planning and preparedness activities at the community level.

Activities

Activity 18.1: Concept and phases of the flash flood management cycle

Time: 10 minutes

Discuss the flash flood management cycle. Clarify that it starts with community preparedness before the flood event, follows through with response during the event, and wraps up with recovery activities after the flood.

Activity 18.2: Emergency planning activities at community level

Time: 15 minutes

- Step 1** Highlight the need for emergency planning for flash flood management. Clarify who is responsible, what the activities are, and how the activities are managed.
- Step 2** Discuss the major activities for emergency planning. Discuss what resources, equipment, and materials may be needed, how to plan for safe places, and how to address the specific needs of women, children, the elderly, and the disabled.

Activity 18.3: Community preparedness activities for flash flood management

Time: 35 minute

- Step 1** Review what a community can do to be prepared for a flash flood. Highlight the importance of community and household awareness and preparedness (see Box 16 in RM 18.3). Engage the

class in a short question and answer session in which they are asked to come up with different methods that can be used to raise community awareness. Get the class to think about how different segments of the society can be reached.

- Step 2** Quickly review the different flood forecasting and early warning systems that may be available; remember to include local knowledge for early warning. Review what a community should do if any of the warning systems signal an impending flood.
- Step 3** Discuss the various systems that are used for early warning in local communities, such as the herder relay system (as in Pakistan), watchtowers with an alarm (as in Chitwan, Nepal), big fires, and the sounding of various musical instruments. Highlight the importance of communicating early warning information in a way that is easy to understand, time and cost effective, and sustainable. Discuss ways of making information from scientific early warning systems more understandable to local communities.
- Step 4** Discuss what small structural and non-structural methods people can use for hazard mitigation. Mention how techniques such as bioengineering and ethno-engineering can be used for flash flood hazard mitigation.
- Step 5** Explain that during an emergency situation, it is necessary to establish a control room. Go over the functions of a control room, and review related information such as where to locate it (geophysical location), minimum area requirements, how far it can be from settlements, and safe access routes.

Note to the trainer

Ask participants what community awareness measures are most effective in their region. Discuss why early warning systems, even if they are available, might not be effective. For example, communities in remote mountain communities may not have a local radio station, and if they do, not every family may own a radio. Some segments of the community, e.g., women, do not often have time to listen to radio or other reports. Since scientific warnings and data, before they are edited for mass media, are not appropriate for distribution to the community, local knowledge still plays a vital role in the community.

Emphasise that the participants need to be sensitive to community perception. In many communities, respected individuals or organisations (e.g., the village head, school teacher, or health workers) are considered the most reliable and authentic bearers of information, and their advice is heeded. The CFFRMC can mobilise these persons and organisations for effective communication and awareness rising.

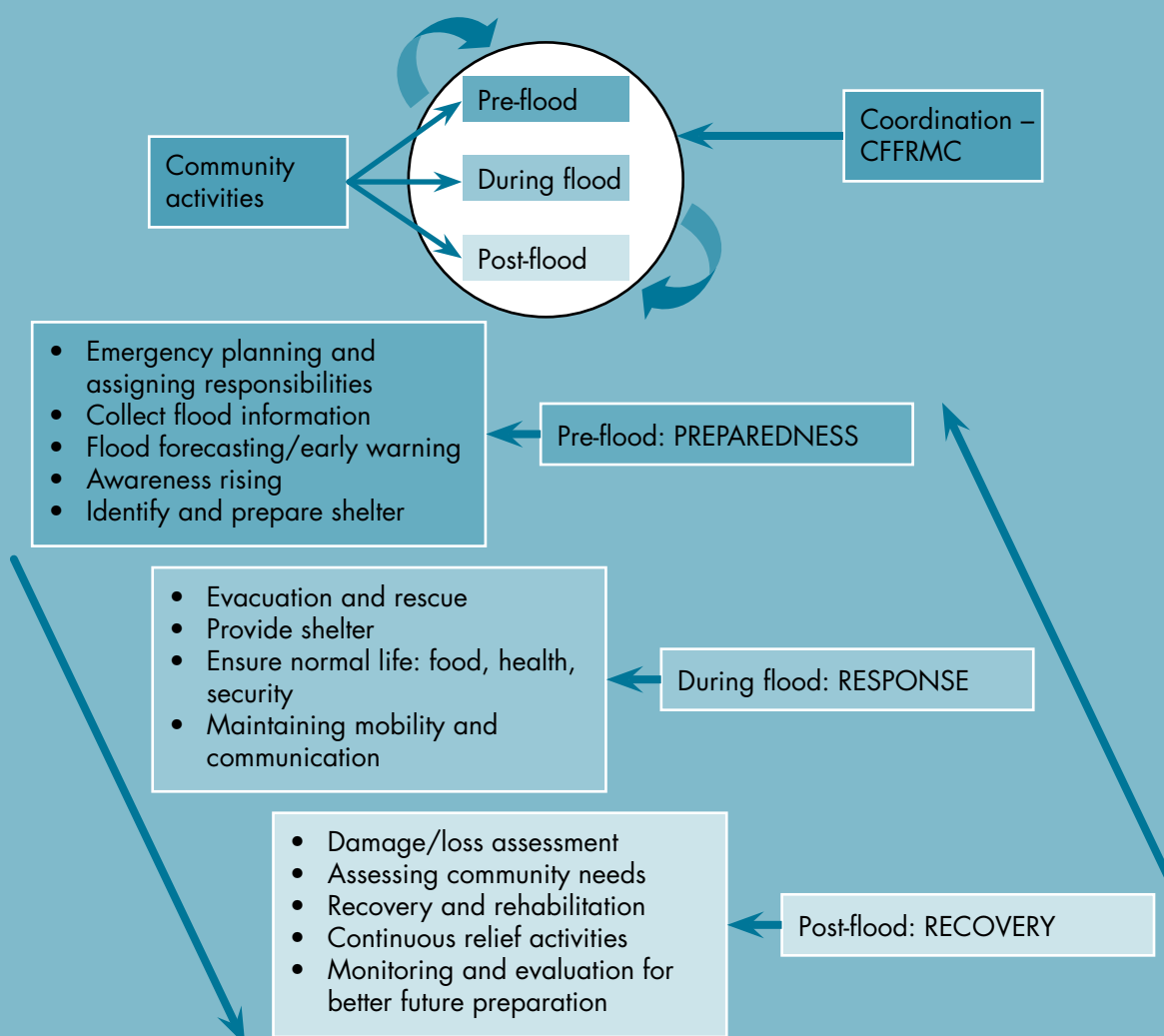
Session 18 Resource Materials

RM 18.1: Concept and phases of flash flood risk management cycle

The management of flash floods (and floods in general) takes place in three phases: preparedness, response, and recovery.

The preparedness phase aims to prepare an effective response to a flood disaster; the community and the concerned authorities each prepare accordingly. The response phase aims to reduce adverse impacts during the flood. The recovery phase aims to assist the affected community to rehabilitate and rebuild. The last phase evaluates, monitors, and documents its activities so that everyone concerned can better prepared for future events. The cycle of flood management and major activities is given in Figure 28.

Figure 28: The flood response management cycle; major activities by phase



RM 18.2: Emergency planning activities in the community

Emergency relief plans are contingency plans used to cope with the devastation. Before a flood occurs it is impossible to predict with certainty when it will occur and what intensity it will have. All eventualities need to be considered and for this reason emergency planning is based on the comprehensive risk assessment scenarios put together by the community. The plans are designed by the various sub-committees of the CFFRMC in close collaboration with the community and other external organisations. The design and discussion of plans is one of the important preparedness activities because once the plans have been agreed upon it is easier to deliver a quick and effective response to evacuate and provide relief to those affected during an actual emergency situation.

Emergency relief plans need to be culturally sensitive and need to take cultural sensitivities into consideration so that no disputes arise when the plans are implemented. The plans must be comprehensive and look after the needs of the local population.

Emergency relief planning involves the following activities:

- setting clear roles and responsibilities for CFFRMC members, team leaders, and volunteers;
- ensuring the participation of beneficiaries;
- keeping an inventory of the trained human resources available in case of emergency;
- developing the capacity of the CFFRMC in rapid disaster needs assessment at the local level;
- establishing an emergency operation centre (i.e., control room);
- planning for relief camps and shelter management;
- planning activities to ensure timely disaster relief;
- planning for the specific needs of children, women, and people with special needs during the relief phase;
- identifying the resources that might be needed for emergency relief;
- ensuring that there are emergency stockpiles at each cluster level for use during the emergency;
- identifying safe places for evacuation during flash flooding and planning evacuation routes;
- fostering good communication between the different agencies during the relief phase to avoid duplication of effort and to avoid possibly overlooking some segments of the populations.

RM 18.3: Community preparedness activities for flash flood management

Communities must be prepared to mitigate the risk of flash floods (Box 16). Preparedness involves:

- awareness raising and community mobilisation;
- drills;
- forecasting and early warning;
- various small structural measures.

The CFFRMC is responsible for handling these preparedness activities. The CFFRMC can also unite the community, make preparedness plans, and assign duties and responsibilities to the members of the community.

Raising awareness

Community awareness about flash floods is very important for effective risk management activities and behaviour (Box 17). Various awareness campaigns can be conducted to inform and unite the community. Awareness raising measures can include posters, brochures, songs/drama/street theatre, school arts projects and essay competitions, audio-visual presentations, training and demonstrations, regular drills, and promotion by local celebrities such as singers, leaders, and actors. The objective of community mobilisation is to increase the resilience of the community.

Box 16: Community and household preparedness

Why should communities in flash flood prone areas be prepared?

Flash floods are inevitable and beyond anyone's control. Everyone living in the flood prone area will be affected to some extent. Outside support is limited, and no institutions outside the community can manage flash flood risk. The community should therefore be prepared for the event.

Community mobilisation, awareness raising, and preparation can increase community resilience. Resilient communities are capable of adjusting and bouncing back from adverse events. They can do this by actively preparing for economic, social, and environmental change. Community resilience can be cultivated through social learning, which is the learning process that takes place among a group of people who seek to improve a common situation by taking action collectively; flash flood risk management is just such a situation.

Emergency preparedness at the household level

Communities need to be prepared for flood hazards. Each member of the hazard prone community should be prepared with the following:

- emergency supplies of important items (such as medication, money, bank information)
- stockpiles of food, water, and fodder for livestock
- stockpiles of cooking utensils and fuel
- a plan for refuge in case of an evacuation
- materials and methods for emergency flood proofing (sandbagging and boarding)
- plans to move vehicles and livestock to higher ground

How to raise awareness for local preparedness

- Street drama and songs
- School art and essay competitions
- Training and demonstrations (with audio-visuals)
- Printed matter (posters, brochures, etc.)
- Regular drills
- Promotion by local celebrities

Box 17: How to respond to a flood warning

- Listen to the radio for updated emergency information.
- Be alert to signs of flooding.
- Bring outdoor belongings (e.g., patio furniture, bicycles) indoors.
- Move valuable household possessions to the upper floors or to safe ground if time permits.
- Move quickly to higher ground. If you live in a flood prone area or think you are at risk, evacuate immediately.
- Follow instructions and heed the advice of local authorities.
- If advised to evacuate, do so immediately.
- Follow recommended evacuation routes.

An effective means of reaching the community is to approach the children. Children will relate these school activities to their families and friends. The older participants can also be asked to prepare evacuation plans for their families highlighting their knowledge of safe places, and their understanding of what food and other basic supplies and equipment might be needed. Various types of training can be given to adults and workers regarding hazards, existing resources, and considerations in flash flood risk management. Since experience shows that it can be difficult to give awareness training to elderly people, one strategy can be to approach them when they are taking part in local feasts and festivals. During this time, awareness programmes can be presented using audio-visual media.

Street theatre can also be used at times of social gatherings in the village to help raise awareness. Similarly, if local celebrities can be convinced to participate in the event they can lend their voice to it and help to convey the message effectively and in an entertaining manner.

Cooperation with local media can be helpful but it is necessary to be mindful that many of the poorest households still do not have access. Yet another approach can be to place large and attractive maps of flood hazard areas in public places such as schools, market places, health posts, and village councils to get local people to discuss them and become acquainted with the different features.

Drills

In addition to all the preparation measures, demonstration drills are also very helpful. The CFFRMCs can conduct drills to prepare the community for emergencies by involving all members of the community, including women, children, and the elderly. Demonstrations, drills, and simulations are necessary for efficient disaster preparedness. Exercises and demonstrations can include orientations to provide general information on evacuation plans. Drills also serve to test run the plans and verify how effective they are (ADPC/UNDP 2005).

Flood forecasting and early warning

Communities use a variety of forecasting methods to minimise losses since some warning systems work better than others depending on the environment. In some communities, one particular warning signal might be more effective than others because of the nature of the hazard. The key to an effective forecasting and warning system is to be able to disseminate the information and to communicate it in a form that is understandable to a mass audience. Radio and television can provide weather information such as how much rainfall is expected and where it is expected. Since this type of information can be useful in forecasting flash floods, communities should be encouraged to heed these mass media weather reports especially during the monsoon season.

CFFRMCs should be familiar with local knowledge and incorporate it in preparedness plans and early warning systems. Local knowledge can be as simple as observing clouds in the upper catchments or observing changes in the water flows (e.g., rising water levels, river water mixed with mud, and leaves floating on the water). Increasing numbers of fish in the river, unusual sounds or smells, and unusual behaviour of animals also provide clues that something has changed and that a flood may be imminent. Ice avalanches and glacial calving generate loud noises that can be taken as early warning signals. Similarly, continued rainfall in the surrounding areas or in the upper catchments of a stream provides a clue as to the likelihood of a flood event. The CFFRMC (through volunteers) can set up a network of rain gauges and they can share the information with each other about the amount and intensity of rainfall.

A person from the community can be given the responsibility to keep an eye on upstream watershed condition from the early warning outlook tower; if the water level rises above normal, he or she can issue a warning to the community (Box 18). Issuing an audio-visual warning can be as simple as beating a drum, flashing a mirror, or starting a signal fire. A simple yet effective means is to use a mirror to reflect sunlight down to the village. Alternatively, creating a large fire on a hilltop can warn downstream communities.

Box 18: Some ways to communicate warnings

- Warning flags, fires, or flashing mirrors
- Radio broadcasts
- Loudspeakers or beating loud drums
- Police
- Interpersonal communications
- Telephone (landline and mobile)

Herders who see signs of an impending flood can also issue a warning to the community, by shouting to other herders on lower pastures or to the nearest village in a chain system. Since herders typically spread their flocks evenly on the available grazing space, they are in a good position to see other herders further on down the valley; in this way the message can be relayed from valley to valley. Herders typically use different rhythms and tunes to convey different messages. Using this type of local knowledge for communication ensures that it is in tune with the local socio-cultural context, and that, as such, it is well accepted and trusted as well as being cost effective.

Structural measures for hazard mitigation

To address hazards properly, some community-level structural measures are also needed. An account of the past history of the community can encourage its households to minimise flood damage by taking some structural measures. Simple structural measures can be:

- embankments along tributaries;
- minor drainage works which allow the flood to pass, thus avoiding inundation;
- irrigation canals that divert water to agricultural fields;
- culverts and floodways;
- construction of houses, communities, and roads in upland areas only;
- polders to enclose houses, fields, food supplies, or animal fodder;
- construction of public buildings such as schools or auditoriums in upland areas so that they can also be used as refuges where the whole community can take shelter during a flood.

In constructing buildings with the intention that they can also be used as refuges, it should be remembered that they will need to have access to a safe supply of drinking water and sanitary facilities.

Control room

A well equipped central location is needed for the use of the early warning and communications team to use as a headquarters where they can carry out management activities. The control room should be located in a convenient and easily accessible location that is also out of immediate danger. The location of the control room needs to be decided upon before the flood season begins and needs to be operational on a 24-hour basis during the flood.

The control room not only acts as a centre for information dissemination but it can also be used as a place to: prepare advance contingency plans, to conduct rescue drills, to gather the community and assign duties during a flood, to train volunteers, and to store emergency supplies and equipment.

Some suggested features of a control room are:

- convenient, safe, and easily accessible location;
- the facility for an enquiry counter and information display board;
- communication links such as landline telephone, FAX, mobile communication, radio, television, and computer with Internet access;
- ready access to up-to-date information;

The functions of the control room are:

- to be the headquarters for receiving weather forecast information;
- to be the location where villagers can learn about possible air dropping sites;
- to pass on messages from every part of the affected area to the appropriate authorities;
- to collect the information that will be needed for distributing relief items after the event;
- to keep updated inventory of rescue items.

Session 19 Flash Flood Management Cycle – Response and Recovery

Time: 60 minutes

Objective

To become familiar with the response and recovery phases of the flash flood management cycle and their associated activities, such as:

- ▶ How and where to evacuate, search and rescue procedures, temporary shelter management, health and special needs
- ▶ How to carry out damage and needs assessment
- ▶ The activities involved in recovery and rehabilitation, and methods of enhancing community resilience
- ▶ Methods of monitoring, evaluation, and information management

Activities

Activity 19.1: Evacuation, search and rescue, shelter management, and health response

Time: 15 minutes

- Step 1** Discuss the aim of evacuation and rescue. Engage the class in a short question and answer session on what factors to consider when responding to a flood. Summarise and prioritise the answers. Go over the steps that the evacuation and rescue teams of the CFFRMC should undertake. Reiterate that evacuations are most effective when the community has had a chance to think about their response beforehand either by participating in the social hazard map or by being informed through an awareness campaign.
- Step 2** Go over the list of things that the community should do both inside and outside the home during a flash flood (see Box 21 in RM 19.1).
- Step 3** Discuss practical aspects of search and rescue and list what major equipment can be useful.
- Step 4** Discuss the importance of temporary shelters and shelter management. Emphasise the need for women to have some privacy, and the requirement for other special needs groups such as children, the elderly, and the disabled to be cared for.
- Step 5** Go over the list of health issues that can be expected after a flood and what medication needs to be stocked.
- Step 6** Go over the need to practice good hygiene. Mention the need for proper disposal of waste, human corpses, animal carcasses, and the like.
- Step 7** Make sure that everyone is aware of the special health needs of women, children, the sick, and the disabled.

Activity 19.2: Damage and needs assessment

Time: 20 minutes

- Step 1** Discuss the importance of damage assessment.
- Step 2** Distinguish between 'damage assessment' and 'needs assessment'. List the types of damage that can be expected after a flood and for each one discuss what 'needs' should be considered.
- Step 3** Present methods for assessing physical, quantifiable damage and non-physical damage. Physical damage refers to damage to physical entities and assets (e.g., infrastructure), while non-physical damage (which can be difficult to quantify) refers to loss of agricultural productivity, physiological stress to people, injury or death of human beings and livestock, etc. A detailed inventory of each type of damage should be prepared for damage and loss assessment. Examples of checklists for both types of damage, physical and non-physical, are given in Handout 19.2. Checklists should include detailed information on the type of damage, the location of the damage, the estimated cost, and so on. The list can be prepared using participatory rural appraisal methods. The CFFRM team members should work in collaboration with the community and external support agencies to prepare the inventory. This group may choose to organise a focus group discussion – a research methodology in which a small group including representatives from the community and a researcher or moderator gathers to discuss a specified topic. The focus group can be tasked with preparing the inventory. Another method for obtaining specific information is a key informant survey.

Note to the trainer

In the aftermath of a flood disaster it is common to focus on damage assessment rather than on needs assessment. Remind the class that both are equally important.

Activity 19.3: Recovery, rehabilitation, and enhancing community resilience

Time: 10 minutes

- Step 1** Discuss the aim and major aspects of recovery and rehabilitation activities.
- Step 2** Discuss how the community can participate in rehabilitation activities.
- Step 3** List the different areas for recovery and rehabilitation efforts.
- Step 4** Discuss what community resilience is and review the factors that contribute to it.
- Step 5** Discuss how community resilience can be threatened by a flood event.
- Step 6** Discuss how community resilience can be enhanced.

Note to the trainer

Review the benefits of community resilience. Being resilient means being better prepared to save lives and property and being able to recover quickly after a flood event. Resilient communities:

- are in a better position to receive and make good use of national and sub-national funds;
- have better access to emergency managers and researchers;
- have a well informed public;
- have identified their needs;
- have good core infrastructure that can address community concerns.

Activity 19.4: Monitoring, evaluation, and information management

Time: 15 minutes

- Step 1** Clarify the importance and objectives of monitoring, evaluation and information management.
- Step 2** Discuss methods of monitoring, evaluation, and information management.

Session 19 Handouts

Handout 19.2: Example of damage and loss assessment inventory, showing some typical impacts of flash floods

Impact	Physical/quantifiable/direct	Non-physical/non-quantifiable/indirect
Infrastructure damage	X	X
Household		
Assets	X	
Employment	X	X
Injury*		X
Death	X	
Mental health		X
Trauma		X
Economic loss/business		
Assets (merchandise)	X	
Labour	X	X
Down time	X	X
Productivity loss	X	
Agricultural loss		
Crops destroyed	X	
Damage to surplus	X	
Damage to fields	X	
Damage to equipment	X	
Labour	X	X
Time lost		X

* It is also common to consider injury as physical damage.

Source: ADPC/UNDP (2005)

Session 19 Resource Materials

RM 19.1: Evacuation, preparedness for search and rescue, shelter management, and health response

It is critical to have a well coordinated and well managed response during a flash flood event. Planning for the eventuality of a flood and establishing guidelines ahead of time are two ways to minimise loss and damage.

Evacuation

The aim of evacuation is to remove people from the flood and its associated hazards (Boxes 19 and 20). The following factors should be considered by the evacuation and rescue teams.

- Have evacuation procedures in place and available for the case in which there is little warning time.
- Have alternative evacuation routes marked on the social flood hazard map.
- Make sure that people are aware of the secondary hazards that can occur after a flash flood recedes, such as landslides, mudslides, exposed 'live' power cables that have snapped during the flood (which can be very dangerous), and snakes and other animals displaced from their natural habitats (which likewise can be dangerous to humans) (Box 21).
- Give special consideration to the evacuation of vulnerable groups such as children, pregnant women, the elderly, and the disabled.

Box 19: Evacuation and rescue

Evacuation and rescue have different functions. During the evacuation phase, persons at risk are moved to safer ground. During rescue, the victims are resettled and provided with shelter and basic needs.

Box 20: Essential activities for the evacuation and rescue team

- Register the people who will be housed in the shelter.
- Take note of any injury or medical requirements during the registration (if possible).
- Take note of any other special requirements they may have.
- Inquire whether they know if their family members and neighbours are safe or need to be rescued.
- Dispense health information.
- Provide a basic level of security and see that women and children are safe. It is important to ensure that women are protected from any violence.

The CFFRMC (in coordination with other agencies) should help to provide and maintain basic health services and hygiene.

Box 21: Responding to a flash flood – outside or inside

If you are outside during a flash flood

- Avoid going to flooded areas.
- Do not let children play outside.
- Watch out for hanging or submerged power lines and wires. If possible, report fallen electrical lines.
- Do not venture to unstable ground.
- Do not go to flooded river bank areas to catch fish or retrieve logs or timber.
- If you are driving, stop driving and climb to higher ground.
- Do not try to drive or walk over flooded roads or bridges.

If you are inside during a flash flood

- Gather together your preassembled emergency supplies.
- Shut off all power and propane gas in the house. Remember, fire is the most frequent hazard after a flood.
- Quickly evacuate to safer or higher ground. If there is no time, climb to a higher floor or to the roof top and signal for help.
- Avoid walking around after the flooding as steps and floors are slippery and can be covered with debris and broken glass.

- Determine whether people can walk or drive out of the flooded area. Help them to move to higher ground or to the tops of buildings to await assistance.
- Consider the various modes of transport such as walking, non-motorised vehicles, buses, cars, boats, helicopters, and army vehicles.
- Notify people of evacuation routes and safe areas by communicating through the CFFRMC.

Safe areas should be provided so that people can convene temporarily either before they are removed to evacuation camps or before they are assigned temporary shelters, or until they can safely return to their houses. In these safe places, victims need to have access to basic supplies such as blankets, water, food, medication, first-aid, and sanitation facilities.

It is essential to offer safety and security to the flood victims. The military or police may be able to provide security for the period after the flood event until people can return to their homes. If it is possible to prevent looting after the emergency phase by protecting people's assets it will facilitate the recovery phase. The CFFRMC should coordinate security with the military and the police. The safety and privacy of women must be prioritised.

Search and rescue

As soon as possible after a flash flood event, the evacuation and rescue teams should initiate search and rescue activities. Trained, untrained, or semi-trained volunteers can be mobilised and led by experienced team leaders. Volunteers are dispatched in groups and usually asked to work on a rotational basis to minimise stress and exhaustion. Search and rescue volunteers need to have communication equipment to maintain contact with the control room at all time (Box 22). Rescue work should be fast and effective.

Box 22: Suggested equipment for search and rescue

- Suitable rescue ropes
- Ladders
- Buckets
- Torches
- Loudspeakers
- Blankets
- Floating rescue devices, inflatable boats
- Two-way radios and other reliable communication equipment

Shelter

Temporary shelters are essential to house people who have been left homeless by the flood. The number of temporary shelters needed depends on the population of the community. Temporary shelters protect people immediately after flooding and provide them with a level of security and privacy. Volunteers can manage the logistics of registering the names of people who have been rescued and can assign shelters. It is vital to record the names of those who have been rescued in order to be able to inform relatives and to identify those who are still missing.

During the planning phase before a flood event, due consideration needs to be given to both the location of the site and to considering how many temporary shelters would be needed. The location needs to be easily accessible, yet at a safe enough distance from any hazard.

Other considerations for temporary shelters include:

- **Capacity:** The population in each temporary shelter must be managed so that requirements do not exceed supplies.
- **Relief items:** These can include food, clothing, medicine, cooking utensils, and general household items.
- **Gender:** Arrangements for women in temporary shelters are often very poor. No matter how bad the situation is, women must be ensured at least a minimum amount of sanitation, security, and privacy.

Health

Members of the CFFRMC team responsible for health care must be able to dispense first-aid and to deal with large numbers of injured people. They also need to be aware of the possibility of secondary health problems such as water-related communicable diseases that are common after floods. Diseases such as typhoid, acute diarrhoea, skin infections, scabies, malaria, and dengue are common in flood-affected areas. It is necessary both to have an adequate supply of medicines on hand and to make people aware that some diseases can be prevented through good hygiene and sanitation practices such as preventing flies from gathering at waste disposal sites.

In a post-flood situation (Box 23) it is essential to dispose of waste properly and to manage the removal of carcasses and corpses to minimise the spread of disease. It is important to respond to the special health requirements of women, children, and the elderly. The following are some key health and sanitation issues to be prepared for after a flood event.

- Provide toilet facilities for people and make sure that the waste is disposed of in a sanitary manner.
- Protect water supplies from contamination.
- Be ready to provide simple first-aid. For example, provide oral saline when there is an outbreak of diarrhoea; administer aspirin for scorpion bites (if possible, put ice on the sting); and use calcium tablets or powdered eggshell to minimise allergic reactions. If necessary, quickly transfer the patients to the nearest hospital or health care facility.
- Hang small open bottles of carbolic acid outside shelters (but out of reach of children) to help ward off snake invasions and avoid snakebites.
- Control infestations of house flies by using deltamethrin and permethrin in and around cooking and eating places.
- Make sure to provide at least a minimum amount of water for drinking, cooking, and personal and domestic hygiene.
- Ensure that people have enough containers to collect and store clean water.
- Ensure that people have sufficient cooking utensils, equipment, and fuel to cook and store food safely.
- Make people aware of health hazards.
- Ensure that people have soap for washing their hands.

Box 23: What to do after a flood: Practical tips

- If you are in a partly flooded building, get out and ask for help.
- If you are outside, stay outside until the flood water subsides.
- Help neighbours who require assistance, especially children, the elderly, and the disabled.
- Make sure that buildings are safe to reoccupy. Inspect foundations and roofs for cracks or other damage. Check for animals (such as poisonous snakes) that may have taken shelter in the house.
- Continue listening to the radio or other announcements for further instructions and warnings.
- Look for electrical damage. If you see electrical hazards (such as hanging 'live' wires), ask for help.
- Boil, disinfect, or distil water before drinking.
- Do not eat contaminated food.
- Check that a proper waste disposal system is maintained.

RM 19.2: Methods and processes of damage and needs assessment

Damage assessment refers to gathering information on the extent to which the flash flood damaged life and property in the area. Flash floods can destroy physical infrastructure, houses, livelihoods, and other socio-cultural and economic establishments. The damage needs to be assessed before any sustainable rehabilitation work can begin.

Damage and needs assessment, followed by prioritisation, are the first steps towards recovery. After a disaster occurs, it is necessary to gather information on the damage incurred, but in doing so, there is also a danger

of being overwhelmed by too much information and so losing sight of the priority needs. It is very important to focus on the community's needs, to make community vulnerability the first concern, and to address it using a rights-based approach. It is the right of the most vulnerable to have priority in a needs assessment; their needs should be assessed first.

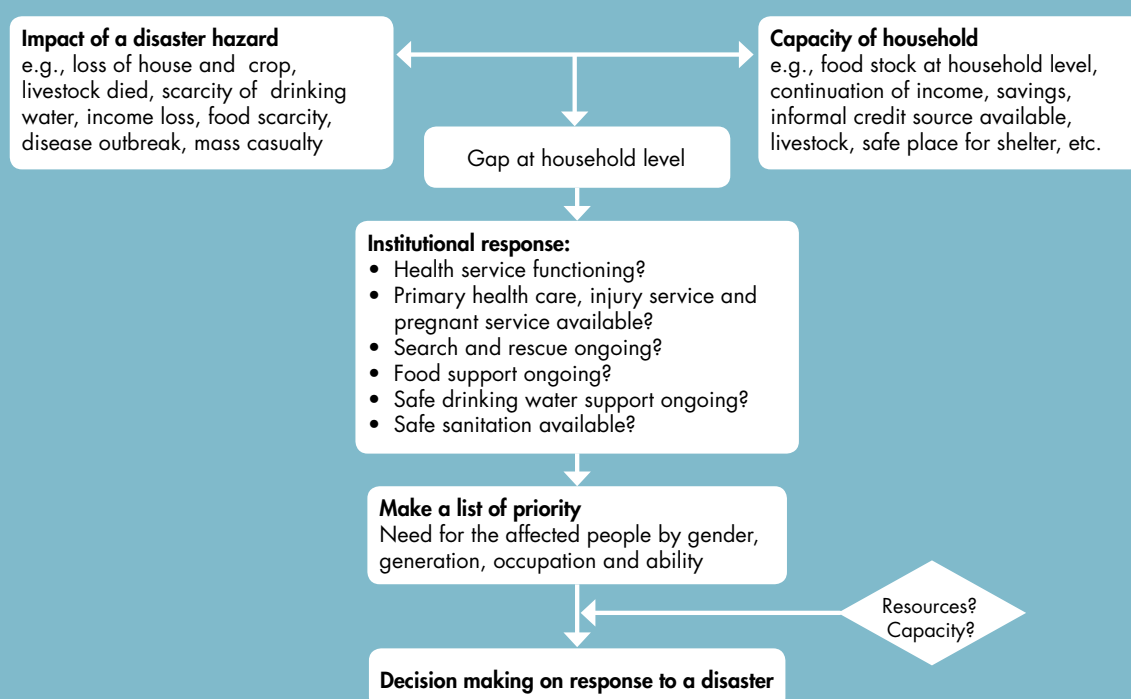
For this, the relief and rehabilitation team of the CFFRMC needs to be equipped with the proper skills and expertise. In conducting a needs assessment:

- Determine the magnitude of the damage and how much area has been affected.
- Determine what type of support is needed and how much is needed.
- Keep a record for future reference.
- Identify areas where the condition of the watershed can be improved to reduce the possibility that such a disaster could recur.

Damage can be of two types, physical and non-physical. A conceptual framework for damage and needs assessment is given in Figure 29. Physical damage is quantifiable; this includes damage to structures and loss of assets. Environmental damage such as soil erosion, sedimentation, and damage to ecosystems and biodiversity should be assessed properly since this has consequences for agriculture.

Non-physical damage or losses, such as the loss of productivity of agricultural land, loss of tourism revenues that would not be realised, delays in the economic growth of the area, or workforce losses due to injury, are more difficult to quantify. Trauma stemming from natural disasters can be devastating, and in extreme cases, survivors may continue to suffer extreme psychological distress long after the event (ADPC/UNDP 2005). As such, socio-economic losses must be assessed very carefully. It is difficult to correlate economic and social losses in the immediate aftermath of a flood; the first step is to conduct an assessment of the immediate needs such as shelter, water and sanitation, medical facilities etc., and to provide mental health counselling as needed, if possible. Handout 19.2 simplifies and categorises some of the direct and indirect, quantifiable and non-quantifiable, physical and non-physical impacts.

Figure 29: Conceptual framework for damage and needs assessment



Source: Based on ADPC/UNDP (2005)

RM 19.3: Recovery and rehabilitation activities: How to enhance community resilience

After flooding, many people may be at high risk and desperately awaiting different types of services. It is essential to assess the community's needs and to carry out recovery and rehabilitation activities. These may include the reconstruction of buildings and infrastructure, maintaining basic hygienic conditions, maintaining basic economic conditions, maintaining or establishing gender equity, and enhancing the environment.

People can show a great deal of courage in accepting their losses and in trying to rehabilitate their property, even if they have to start from nothing. Often, because of sentimental attachment, people tend to rebuild at the original location. In such cases, the survivors should be encouraged to consider the location carefully to avoid rebuilding in a location that again leaves them vulnerable to possible future flash floods.

Health effects can surface immediately after a disaster and can continue for a long time. Waterborne diseases, mental illness, and malnutrition-related diseases are common in flood-affected areas. Volunteers must be prepared to assist the community by providing both mental and physical health care.

Flash floods can be devastating for the economic condition of the community. Prosperity achieved over a lifetime can be lost in seconds. The speedy rehabilitation of economic activities is important for community resilience. In order to boost the local economy it is necessary that certain fundamental services be restored, including regular supplies of commodities such as electricity, kerosene, and gas; transportation; and the reconstruction and strengthening of river training works. Agricultural planning is important for enhancing economic viability. Other measures include providing temporary employment opportunities, training for income generating activities, and loans for small business, all of which can help local people in the short term. For the long term, adopting new farming techniques may be a good measure to reduce future risk.

Every affected person must be assured of help from disaster relief measures irrespective of his or her economic and social status. Emphasis should be given to women's needs and their protection from violence.

Resilience is the extent to which a community has the capacity to regain its original state (Box 24). Even after vast destruction, resilient communities can get back on their feet by themselves and rebuild. Characteristics that enhance resilience include vibrant leadership, shared goals and values, established institutions and organisations, positive socioeconomic trends (stable and healthy populations with a diversified economic base), constructive external partnerships and linkages, and the availability and use of resources and skills (Gardner and Dekens 2007).

Box 24: Elements of community resilience

- Good governance
- Robust socio-economic and livelihood systems
- Good land use and resource management
- Good structural design
- Knowledge and understanding of risks
- Effective warning and evacuation systems
- Effective emergency response system
- Disaster recovery plan in place

Source: UCAR (2010)

Community resilience is threatened by shifts in biophysical conditions; expansion of infrastructure such as roads and buildings; erosion of traditional knowledge and practices; population growth; permanent and transient migration; natural resource extraction; development of commercial agriculture and horticulture; protection of strategic interests and national security; war; and tourism development (Gardner and Dekens 2007).

Traits and activities that foster community resilience can include the following:

- ability to learn from past flash flood experiences and to use this knowledge to prepare for possible future floods;
- understanding of how ecological diversity (e.g., changed cropping patterns, stall feeding of livestock to discourage pasture degradation, and rehabilitation of degraded forest) can reduce the risk of vulnerability;
- recognising the value of local knowledge about the local environment and the landscape;

- valuing community cohesion and cooperation by bringing all the expertise to one forum to address the disaster and its effects;
- establishing linkages and partnerships with different partners and stakeholders;
- making educational materials for response to flash floods available to everyone in the community;
- increasing public awareness and understanding on severe weather and other hazards.

RM 19.4: Monitoring, evaluation, and information management

The CFFRMC usually monitors and evaluates the effectiveness of programmes and gives feedback to the process. Monitoring and evaluation can also be conducted by supporting NGOs or district-level government representatives. Monitoring typically has three phases: process monitoring, effect monitoring, and monitoring of significant changes in flash flood risk management. The major aims of monitoring and evaluation are:

- to determine the full extent of positive and negative outcomes and impacts, usually at the end of a project;
- to identify lessons that can be applied in future and improve effectiveness;
- to document experiences for the purpose of advocating for policy change and institutionalisation;
- to collect data demonstrating the quality and effectiveness of the process;
- to ensure and demonstrate accountability;
- to improve monitoring methods;
- to take stock of the programme's strengths and weaknesses;
- to compare the programme with others like it;
- to share experiences;
- to evaluate cost effectiveness (to see if the work is costing too much and/or achieving too little).

Information is a major resource for learning and planning. CFFRMCs should keep records of all flash flood events, damage incurred, their own activities, and how they responded to the flood. CFFRMCs should collect the relevant information for preparedness, which can be used before, during, and after flood situations. Information on how often local floods occur and the extent and duration of the inundation is very important for reviewing preparedness and action plans. CFFRMCs should keep records of maximum flood levels at different locations since this can facilitate postflood investigations by technical agencies and can be helpful in planning for possible future events.

Managing information for future reference is important because it:

- helps planners to visualise what long-term support people will need;
- provides a reference point to allow development workers and researchers to determine the cause of the disaster by knowing its magnitude and duration in the watershed – information that can be used to support integrated watershed management;
- quantifies the loss of life and property;
- clarifies the constraints on preparedness that limited intervention in the past;
- clarifies what went wrong in the areas of evacuation and temporary settlements;
- can be a source of ideas for improvements and innovations that can help to reduce future losses.

The CFFRMC can also record its own activities (Box 25) as well as those of other groups that it has worked with such as INGOs, NGOs, research institutes, and development agencies. Documentation and records should also comprise relevant audio and visual information, inventory lists of damage, and a record of dates, times, and flood levels. It is equally important to document local knowledge on the community's general perception of the environment before the flash flood.

Box 25: Continuous evaluation and improvement of the CFFRMC

The CFFRMC can call a general meeting to discuss the strengths and weaknesses of the risk management efforts. Since community members directly or indirectly monitor the activities of the CFFRMC, their opinions can be noted and used to evaluate the CFFRMC's risk management programme. Alternatively, the programme can be evaluated through informal interviews with key informants. The CFFRMC can also choose to assign the evaluation of its work to an independent body of villagers. This body, through interviews, questionnaires, and focus discussion groups, can prepare an independent evaluation report. It is also important to evaluate the activities of the CFFRMC from a gender perspective.

Session 20 Overall Discussion

Time: 60 minutes

Objective

This is an open session. Participants can choose to have a discussion on any one of the topics that has been covered during the training or that is otherwise pertinent to it. Alternatively, if the facilitator sees that there is a need to revisit a certain topic, he or she can set an agenda for the discussion.

Activities

If there is no outstanding issue to be discussed, the facilitator can use this session as an opportunity to review some of the course material.

This is an interactive session; the facilitator can divide the class into three or four different groups (making sure that, to the extent possible, the groups have participants from each country that is represented in the class). The facilitator then assigns each group a problem based on any one of the themes covered in the training sessions or based on the field observations. It must be a practical problem that demands an integrated solution – it should not be too long or too complicated and should be a problem that can be worked out in the 40 minutes allotted.

Each group discusses the problem and comes up with a way of approaching it. At the end of the allotted time a spokesperson from each group makes a short (5 minute) presentation to the whole class.

Session 21 Training Evaluation and Closing Session

Time: 60 minutes

Objective

To evaluate the training and to conclude formally.

Activities

Activity 21.1: Training evaluation

Time: 30 minutes

This is an informal session. It is expected that the participants will independently and freely evaluate the training. For this purpose, the facilitator can prepare a semi-open-ended questionnaire (for example, Handout 21.1). The questionnaire can cover different aspects of the training such as: How well prepared were the resource persons? How effective were the training methods and materials? Was enough time allotted for discussions and sharing? Were the logistics and other practical aspects of the training adequate? What is their overall assessment of the training?

The participants are asked to fill out the evaluations and return them to the facilitator.

The facilitators should scrutinise the evaluations to see what improvements can be incorporated in future training courses.

Activity 21.2: Closing session

Time: 30 minutes

The closing session is a formality that provides an opportunity to give thanks and to distribute the certificates.

Each facilitator can design the closing ceremony as he or she sees fit. Below is a list of suggested components.

- Closing remarks: The facilitator can decide who should say a few words.
- Participants' feedback on training: This can be a short informal question and answer session, or the facilitator can choose to summarise the feedback given on the evaluation forms.
- Distribution of certificates: The facilitator should see beforehand that these are printed and filled out appropriately.
- Vote of thanks.

Session 21 Handouts

Handout 21.1 Training evaluation form

Title of the workshop:					
Date:					
Resource persons:					
<i>Please indicate your impression on the items listed below. Place a check in the box against each statement as applicable; 5 signifies the highest rating and 1 signifies lowest rating.</i>	Rating				
	1	2	3	4	5
A. Curriculum					
1. The objectives of the workshop were relevant and followed.					
2. The materials distributed were adequate and useful.					
3. I will be able to apply what I learned.					
4. The content was well organised and easy to follow.					
B. Resource persons					
1. The instructions were clear.					
2. The presentations were interesting and practical.					
3. The resource person(s) met the training objectives.					
4. Participation and interaction were encouraged.					
5. Adequate time was provided for questions and clarifications.					
6. Adequate time was provided for group work.					
7. The resource persons were knowledgeable.					
C. The workshop					
1. How do you rate the training overall?					
2. Will the training help you to do your job better?					
D. Additional comments					
1. What did you find most useful?					
2. What did you find least useful?					
3. What were topics you would like to see added?					
4. How far did the training meet your expectations?					
5. How was the field visit? Was it relevant to the course?					
6. Other comments					