

Community-based disaster risk management

Experience gained in Central America



Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH

Division 4200
Governance and Democracy

Community-based disaster risk management approach

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Eschborn 2003

Published by:

Deutsche Gesellschaft für
Technische Zusammenarbeit (GTZ) GmbH
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Eschborn, January 2003

The views expressed in this publication are those of the author and do not necessarily reflect the views of GTZ..

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0. Summary

In the 90s, Central America played a pioneering role in efforts to reduce natural disasters and made major progress in conceptual and practical terms. A major milestone was the recognition of the role of the local and particularly the community level for disaster risk management and the resultant involvement of local actors. The governments in the region are supported in implementing this policy by many national and international organizations.

On behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ), GTZ has been providing advice to the Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAC) since 1997. Using the practical experience gained, the aim is to develop strategies and know-how in this endangered region for a broad mainstreaming of disaster risk management at local level as part of decentralized national systems. Since its inception, the project has been expanded through the inclusion of further measures. The main findings can be summarized as follows:

- The populations in the regions threatened by disaster are prepared to take an active part in disaster risk management. Local disaster risk management capabilities have been built up in most project municipalities and these have in part considerably reduced disaster risk for the population. This is, however, the outcome of a long and often difficult process.
- Local disaster risk management capabilities are organized most effectively when responsibility is borne jointly with the municipal authorities and other representatives of the population and the population at risk and representatives of various social sectors (e.g. education, health) are involved as far as possible.
- Planning disaster risk management should be participatory and if possible coupled with measures for raising awareness or training and an initial risk analysis. This is essential because the causes of disaster risk and ways of reducing it are largely unknown and the first thing that is needed is a common information and conceptual base.
- Plans for disaster risk management measures should cater for a mix of short-term (e.g. emergency plan) and long-term (e.g. land use planning) activities and a realistic assessment of the resources, capacities and competencies of the actors involved.
- Community-based disaster risk management does not stand alone; it is part of the national system. The only way to ensure maximum effectiveness is for local capabilities to be well interfaced with the national system as the ways and means available to local actors depend in part on national parameters (e.g. laws and standards) and outside assistance.

- It is difficult to introduce planning, monitoring and evaluation instruments for sustainable ongoing development that meets quality standards. The instruments developed in the GTZ-assisted FEMID project need to be developed further.
- The successful introduction of community-based disaster risk management depends heavily on local general conditions such as personal or party-political rivalry, personnel turnover or the occurrence or non-occurrence of extreme natural events. Conflicts can, however, often be averted with the help of information exchange, transparency and integration.
- Due to the high personnel and time input required, the large differences in local risk profiles and the various general conditions are an impediment to the independent transfer of the approach by national institutions, which mostly lack the requisite resources and capacities.
- Moreover, experience gained in the FEMID projects has not been transferred to other municipalities by government institutions to the extent hoped for, also as a result of national factors. A major reason is that most decision-makers still see disaster risk management more as a cost factor than an investment. A contributory factor here, however, is that no informative cost-benefit analyses are available. On top of this, the broad application of community-based disaster risk management depends on progress in decentralization and democratization in the region.

Under these circumstances, the broad dissemination of FEMID experience has been largely effected by the example set by individual project regions or measures. Together with the experience of other projects, they have helped gain recognition for and disseminate disaster risk management at local level. Increasingly, it is being catered for in new projects or municipal authority planning and adopted in national disaster risk management systems. GTZ is supporting this process further by including disaster risk management in community development programmes in Central American countries. There is still a need in Central America to strengthen responsible or suitable institutions at national level and organizations that support the population's self-organization in cooperation with the municipal authorities and other sectors.

GTZ has also begun to introduce community-based disaster risk management in countries outside Central America. The new experience under changed conditions will contribute to the ongoing development of strategies and instruments. This development is particularly necessary in the following thematic areas:

- Integration of disaster risk management in various sectors of development cooperation (e.g. community development, environmental protection and resource conservation)

- The connections between poverty reduction and disaster risk management on the one hand and between crisis prevention and disaster risk reduction on the other
- Accounting for disaster risk management in future emergency aid, rehabilitation and post-disaster reconstruction
- Ongoing development of instruments and methods for risk analysis, cost-benefit assessment as a decision yardstick for investment and of planning, monitoring and evaluation mechanisms for community-based disaster risk management
- Devising instruments to integrate disaster risk management in GTZ-assisted projects in endangered partner countries

Finally, disaster risk management must also adjust to new challenges posed by climate change, which underscores the in-process quality of the work at local level and the need for a sustainable institutionalization of disaster risk management.

1. Introduction

In recent years, there has been a distinct increase in the number and scale of natural disasters. Not all regions of the world are affected to the same degree, however: Earthquakes and volcanic eruptions occur mostly along the fracture lines around the Pacific, climatic processes/events such as heavy rainfall, hurricanes or droughts are more common and severe in the tropical and subtropical regions of the earth. Whereas the risk of disaster due to natural geological and climatic processes/events is comparatively small in Europe, Central America for example is exposed to strong earthquakes and volcanic eruptions as well as hurricanes, heavy downpours and severe aridity with the resultant high risk of forest fires and landslides. The effects of these natural events are much more severe for the poorer countries of the world than for the wealthier ones: For one thing, far more people lose their lives in these countries as a result of extreme natural events.¹ For another, the burden of the physical damage on national budgets and economies – even if it may be smaller in absolute figures than the losses registered in the highly industrialized countries – is several times heavier, so that it takes far more effort and time for developing countries to recover from a natural disaster. A comparison between the impacts of the earthquakes in Japan (1995) and El Salvador (2001) will illustrate this:

Figure 1: Comparison of physical damage caused by earthquakes in Japan (1995) and El Salvador (2001)

	Physical damage	Percentage of annual national GDP
Kobe (Japan) 1995	US\$ 100 billion	2%
El Salvador 2001	US\$ 1.3 billion	10%

Sources: Kobe - Münchner Rück: Topics 2000, Munich 1999, p. 123; El Salvador - CEPAL: El terremoto del 13 de enero de 2001 en El Salvador. Impacto socioeconómico y ambiental, México 2001, p. V + 15-16.

¹ In 2001 for example, about 20,000 people died in countries with a low to medium level of development, while the figure in the advanced countries came to only about 160; figures from Münchner Rück: topics. Jahresrückblick Naturkatastrophen 2001, Munich 2002, appended table of data - 50 major natural disasters by country - UNDP: Human Development Report 2001, New York/Oxford 2001. Compare figures with the previous decade in GTZ/Garatwa/Bollin: Disaster Risk Management. Working Concept, Eschborn 2001.

There are many different reasons for the much higher disaster risk facing the developing countries due to extreme natural processes/events:

- Most developing countries are situated in tropical and subtropical regions, which are particularly vulnerable to climatic processes/events such as heavy rainfall and aridity, with the ensuing floods, landslides, droughts and forest fires. These dangers will be exacerbated further by present and future climate change.² Added to this in many regions are the geological dangers caused by earthquakes and volcanic eruptions.
- Due to population growth and urbanization, settlement density in the developing countries is increasing rapidly, resulting in the overexploitation of natural resources and settlements in particularly endangered areas, such as valleys and slopes threatened by flooding and landslides.
- Governments and administrations in developing countries lack the financial, personnel, organizational and legal capabilities to reduce disaster risk through prevention (drafting and control of land-use and building plans, advance warning systems, environmental protection and resource conservation, etc.) and effective disaster preparedness.
- The poverty of broad parts of the population make them more vulnerable to disaster due to restricted preventive and self-help capabilities and a lack of social and financial security in the case of disaster.

These contributory factors to higher disaster risk in developing countries cannot be viewed separately: They are bound up together in closely interlinked causal chains. They highlight the close connection between disaster risk and the level of development of a country.³

In response to this situation and in view of the repeated setbacks suffered by bilateral or multilateral development efforts due to natural disasters, general agreement has been reached in recent years on the major importance of disaster risk management as a component of development cooperation to ensure sustainability in endangered countries. A pioneering role was first played here by Agenda 21 in 1992, which stressed the link between disaster risk management and sustainable development.⁴ This correlation has been

² On these connections see for example IPCC: Climate Change 2001, Wembley 2001.

³ For current findings and discussion on this see Lavell/Cardona: Considerations on the Economic, Social, Political and Institutional Context and Challenges for Integrated Risk and Disaster Management in Latin America, no loc. 2000. For more details - Lavell: Desastres y Desarrollo, no loc. 2000.

⁴ The Agenda 21 plan of action was adopted in 1992 at the United Nations Conference for Environment and Development in Rio de Janeiro. Cf. above all Chapter 7 Section F, but also Chapter 12, 13 and 17 Section G.

discussed a great deal since (cf. above all the Yokohama Message of 1994)⁵ and is now a standard component in the strategies of many development cooperation organizations.⁶

There is now a clear perception that disaster risk management cannot be treated in isolation and implemented solely in cooperation with disaster management agencies. Owing to the diverse factors contributing to disaster risk and the far-reaching impacts of a natural disaster, disaster risk management can only have a sustainable impact as a multisectoral issue in development cooperation, comprising a broad range of sectors (e.g. environmental protection and resource conservation, land registration, health and energy supply) at local, national and international levels.

At local level, the municipalities provide the legal-organizational vehicle for this multi-sectoral work. Their role in disaster risk management has become increasingly clear in recent years. That is why the Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) adopted the approach of community-based disaster risk management some years ago. It has been purposively applied in Central America since 1997, with the main focus on providing advice to the Coordination Centre for the Prevention of Natural Disasters in Central America (CEPRENAC) on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ). Using the practical experience gained, the aim is to develop strategies and know-how for a broad mainstreaming of disaster risk management at local level as part of decentralized national systems. The present discussion paper compiles the approaches implemented by GTZ in this region and the experience gained. The aim is to document strategies and experience for the application of community-based disaster risk management by organizations in development cooperation and promote exchange on the strategies of other organizations and in other regions of the world. The paper thus addresses personnel in development cooperation as well as counterparts and decision-makers in the partner countries who have gained experience themselves in disaster risk management at municipal level or are looking to apply or adjust these approaches in other projects and countries.

First, we shall present the conceptual basis for community-based disaster risk management and its development and mainstreaming in Central America. Then we review GTZ experience: What methods and measures have been applied and proved effective? What are the obstacles to a successful introduction of community-based disaster risk management; what framework conditions need to be taken into account? How far have GTZ-assisted pilot measures been able to contribute to the sustainable and broad mainstreaming of this issue in the region? Following this, looking into the future, we focus on defining the

⁵ Yokohama Strategy and Plan of Action for a Safer World. Guidelines for Natural Disaster Prevention, Preparedness and Mitigation. World Conference on Natural Disaster Reduction, Yokohama, Japan, 23-27 May 1994.

⁶ For GTZ see GTZ/Garatwa/Bollin: Disaster Risk Management. Working Concept, Eschborn 2001.

implications for the way forward in community-based disaster risk management as part of development cooperation.

2. The community-based disaster risk management approach and its adoption in Central America

2.1. The underlying definition of 'disaster risk management'⁷

Particularly since the United Nations declared 1990-1999 to be the International Decade for Natural Disaster Reduction (IDNDR),⁸ there has been much discussion about perceptions and definitions of natural disasters and disaster risk management, but we still have no standard terms.⁹ Nevertheless, there is broad agreement on the following basic elements:

Even an extreme natural event/process does not constitute a disaster, unless it has dramatic effects on human beings. A natural disaster, therefore, can only occur if people or a society suffer so much damage or loss that they cannot recover without outside help. So a disaster risk exists where there is a threat of extreme natural events in a certain area from which or from whose impacts the endangered population cannot protect themselves on their own. When this event/process occurs, it triggers a disaster.

Box 1: Definition of disaster

A disaster is "a serious disruption of the functioning of society, causing widespread human, material or environmental losses which exceed the ability of affected society to cope using only its own resources."

Internationally agreed glossary of basic terms related to disaster management. IDNDR. 1992

Disaster risk consists of both the threat (hazard) of an extreme natural event/process and the vulnerability of the threatened population. Hazards and vulnerability, however, are not always easy to distinguish. Some extreme natural events (e.g. volcanic eruptions, earthquakes, storms) are beyond the influence of humankind. Its vulnerability to these events is a combination of natural living conditions (exposure) and a lack of preventive or protective measures. Appropriate measures can protect it from the effects of these natural forces. Other hazards can, however, come about or be aggravated through human action (e.g. wildfires, floods, avalanches). Their occurrence/scale can be prevented/contained by taking precautions. Effective disaster reduction thus calls for a number of different measures.

⁷ For more details, see GTZ/Garatwa/Bollin: Disaster Risk Management. Working Concept, Eschborn 2001.

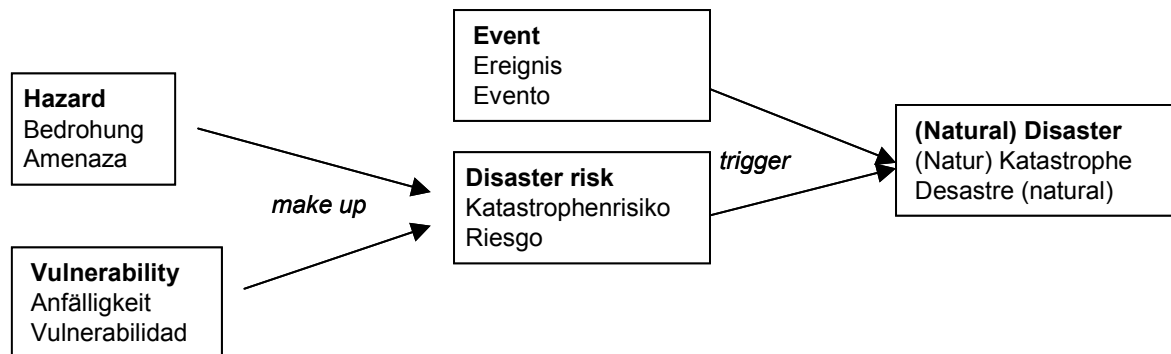
⁸ International Decade for Natural Disaster Reduction. The decade was inaugurated in 1989 by the General Assembly of the United Nations with the aim of mitigating the adverse consequences of disasters particularly in developing countries (Resolution 44/236).

⁹ Cf. ISDR: Updated and Expanded Terminology on Disaster Reduction, Geneva 2001.

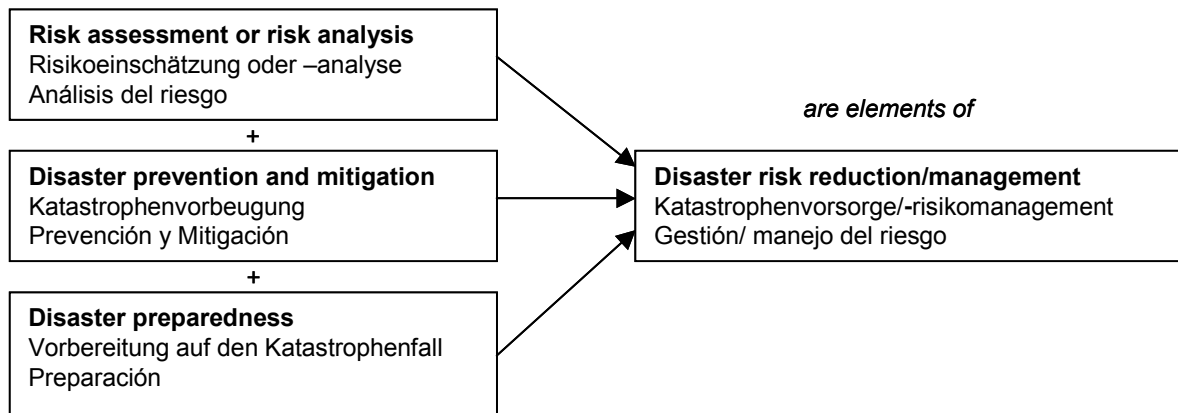
The present discussion paper employs the terms used by GTZ, which corresponds with the German and international (here English and Spanish) vocabulary largely used in disaster risk management (see Figure 2).

Figure 2: Terms in disaster risk management

A) How a (natural) disaster arises



B) Sets of activities in disaster risk management¹⁰



These sets of activities in disaster risk management can be taken up at any time in endangered areas, but it is particularly important to assimilate disaster risk management in reconstruction after a population has experienced a disaster in order to take advantage of this phase when there is also a heightened awareness of the need for preventive measures to make structural improvements. This includes reconstructing housing, roads, bridges, etc. to make them less vulnerable to future disasters. The training measures,

¹⁰ For the allocation of individual measures to these fields of activity, see below Chapter 3.1.5.

standards or reforms in organization needed for disaster prevention/reduction can, however, also be implemented more easily and have a broader effect.¹¹

As the thematic range of the necessary disaster reduction measures and the close connection between natural disaster and development indicate, actors from many different sectors (including agriculture, environmental protection and resource conservation, infrastructure, disaster preparedness, education and health) need to cooperate for effective disaster risk management. Substrategies and measures in disaster risk management can be integrated accordingly into the areas of responsibility and fields of activity of these sectors and actors. This is why a multilateral, integral approach is being increasingly adopted in the endangered countries as part of development cooperation. This applies for the emerging national disaster risk management systems and for efforts at municipal level alike.

2.2. Role and positioning of community-based disaster risk management

Role of the local level in disaster risk management

For several reasons, actors at local or municipal level play a major role in disaster risk management in developing countries:

- Natural disasters rarely engulf entire countries. Disaster risk frequently varies significantly even by microregion. This is why use must be made of local knowledge and measures tailored to local hazards and vulnerabilities for effective disaster risk management and this is the best way to gear it to the specific disaster risk.
- National disaster management authorities in most developing countries are centrally organized and not able to provide rapid and effective help in an emergency, particularly to rural populations. Even national early warning systems (e.g. information on whirlwinds) often fail to reach the endangered population or reach them too late. So endangered areas must rely on their own capabilities to prepare and protect their populations.
- In several respects, society often increases the disaster risk itself (e.g. soil degradation through deforestation, unsafe settlements on dangerous slopes). It should therefore be

¹¹ On the possibilities of sustainable reconstruction see for example IFRC: World Disaster Report 2001. Focus on recovery, Geneva 2001. There is already a wide range of literature available on (re)constructing low-cost buildings to withstand earthquakes. We cite here GTZ/Minke: Construction manual for earthquake-resistant houses built of earth, Eschborn 2002, and CTAR/GTZ: Terremoto?... ¡Mi casa sí resiste!, Arequipa (Perú) 2002.

made more aware of the dangers and made accountable for disaster risk management. Everyone can do something to reduce disaster risk and should also be given the opportunity to do so. This can increase the sense of responsibility amongst the endangered population and improve the sustainability of disaster risk management measures.

The role of the local or municipal level in disaster risk management is being increasingly recognized and stressed in international discussion. After the declarations of Rio de Janeiro (1992) and Yokohama (1994) already cited, the final document of the Habitat Conference held in Istanbul in 1996 in particular sets out ways of reducing vulnerability in the long term and putting effective preparedness capabilities in place to deal with extreme natural events by including the population, the municipal authority and other local actors. This is the reason for demanding the thoroughgoing decentralization of disaster risk management, because: "The reduction of vulnerability, as well as the capacity to respond to disasters is directly related to the degree of decentralized access to information, communication and decision-making and the control of resources."¹²

Disaster risk management and decentralization

Decentralization of disaster risk management does not, however, imply delegating competencies and resources to any local actors. Rather, the best allocation of competencies and responsibilities must be found for the specific setting.¹³ Helpful here is the subsidiarity principle, which accords operative precedence to smaller units (local, regional) over larger ones (national). The criteria applied for allocating competencies is necessity (Who should undertake this task?) and performance capability (Who is best suited to undertake this task?). In decentralization, necessity should be the paramount concern and the local actors supported in exercising their functions as well as possible.

After this basic approach has been adopted, the following aspects still need to be taken into account:

- A disaster risk management system decentralized in this way must ensure that the measures of the various actors complement each other. Despite a certain autonomy

¹² Habitat Agenda. Istanbul Declaration on Human Settlements, United Nations Conference on Human Settlements (Habitat II) in Istanbul, 3-14 June 1996; Chapter 11: Disaster prevention, mitigation and preparedness, and post-disaster rehabilitation capabilities. In the final declaration of the World Summit on Sustainable Development in Johannesburg stress is repeatedly placed on the need for different levels in disaster risk management. See: Draft plan of implementation of the World Summit on Sustainable Development, 2 September 2002.

¹³ On decentralization requirements, particularly in rural areas, see for example Rauch/Bartels/Engel: Regional Rural Development, Wiesbaden 2001, pp. 59-85.

exercised by the various stakeholders, mutual consultation is essential for an effective and sustainable system.

- It is not enough to assign powers to local actors. They also need the personnel, sectoral and financial resources to be able to put them to effective use. Training and access to own funds are therefore elementary components of decentralization. Allocating competencies to local actors must thus go hand in hand with providing the necessary resources.
- When allocating new powers and resources it is also important to set up suitable mechanisms for their control and use. This improves the supervision and transparency of strategies and their practical implementation in disaster risk management, for instance, and, in the case of control mechanisms at local level, raises the degree of responsibility borne by the population.

Allocating competencies in a decentralized disaster risk management system

With these conditions met, an effective national disaster risk management system can be built up incorporating actors from different sectors at local, regional and national level.

The ideal arrangements for allocating competencies in disaster risk management can vary by country. In principle though, the job of the national level is to manage the overall system, pass the requisite legislation, sponsor the necessary research at institutes and universities and link national efforts with international arrangements (conventions and agreements, aid supplies, knowledge management).

At local level a variety of measures can help reduce the specific disaster risk (see Chapter 3.1.5. below). These are implemented on the basis of national and/or regional framework conditions (environmental legislation, construction standards, disaster preparedness standards, etc.) and have a reciprocal effect on these.

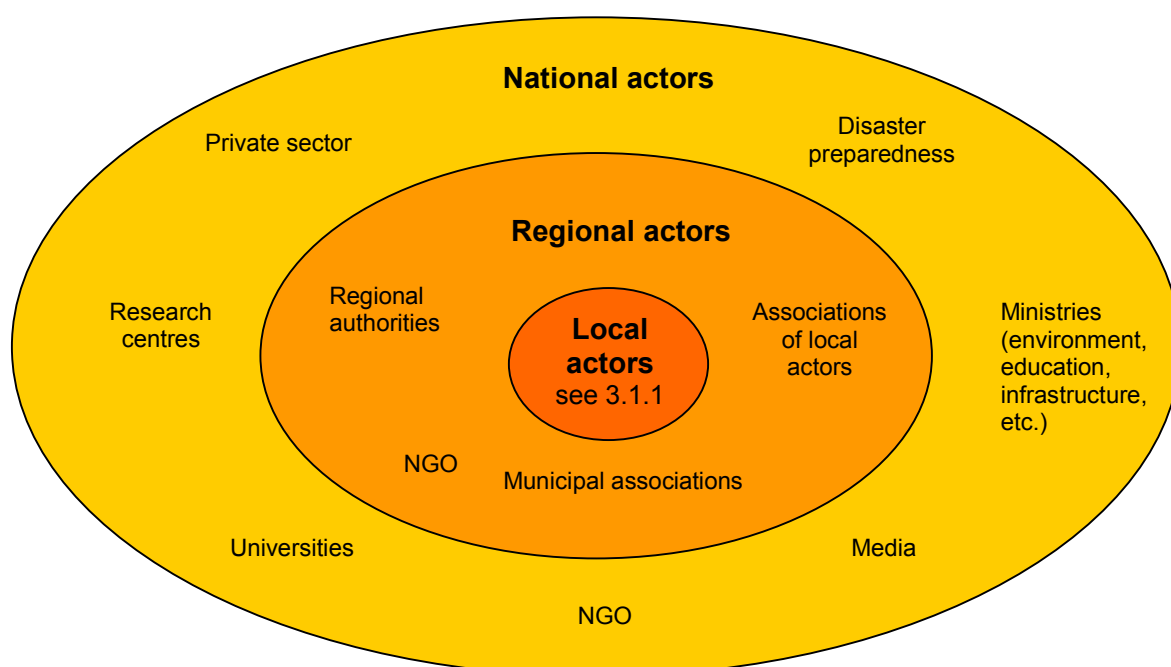
The term 'community-based disaster risk management' stresses the special role attached to the local level of municipal administration as the interface with the necessary legal powers (above all land use and settlement planning, declaration of state of emergency). The municipality also bears responsibility for assimilating disaster risk management firmly in long-term community development (development plans).

The regional level is also relevant for disaster risk management. This can involve transferring competencies from national authorities to regional bodies (e.g. provinces or departments), but also associations of several municipalities or cooperation amongst different local actors in a key region for disaster risk management that goes beyond municipal boundaries, such as a watershed or the population around an active volcano.

Based on the above, we can define community-based disaster risk management as follows:¹⁴

Community-based disaster risk management denotes the application of measures in risk analysis, disaster prevention and mitigation and disaster preparedness by local actors as part of a national disaster risk management system. A key feature is multisectoral cooperation with special responsibility borne by the municipal authority.

Figure 3: National and regional actors in disaster risk management



2.3. Mainstreaming the approach in Central America

In the 90s, Central America played a spearheading role in efforts at natural disaster reduction worldwide. Many government and non-governmental local, national, regional and international actors sought to introduce the notion of disaster risk management and develop suitable strategies and instruments.

Founded in 1993, the Coordination Centre for the Prevention of Natural Disasters in Central America (CEPREDENAC) has since 1995 been working on behalf of the governments

¹⁴ English: Community-based disaster risk management, Spanish: Gestión local de riesgo.

of Guatemala, El Salvador, Honduras, Nicaragua, Costa Rica and Panama to coordinate the many different efforts and strengthen disaster risk management in a region which is striving in new directions towards a peaceable future following a decade marked by civil war in the 90s.

Since then, major conceptual groundwork has been done or is underway to mainstream disaster risk management. Key above all is the new perception of the following:

- Need for preventive measures: Disaster response retains its role but is increasingly flanked by efforts in risk management at national and subnational levels. This shift is evidenced in the establishment of national multisectoral disaster risk management systems (see Box 2).
- Role of the local level in disaster reduction: Initial cautious steps are discernible in the direction of sharing or delegating competency from national institutions to the municipalities. They are tied up closely with general decentralization in the region, where progress is very slow and diffident due to political opposition and vested interests in many quarters.¹⁵ Many local individual projects can provide a pool of experience and set an example.
- Close connection between disasters and development: At all levels, isolated efforts by disaster management institutions are flanked by cooperation amongst sectors for disaster risk management and this theme is accessing projects in other areas (e.g. resource conservation or migration).¹⁶

Box 2: SNPMAD - the Nicaraguan System for Disaster Prevention, Mitigation and Response

The Sistema Nacional para la Prevención, Mitigación y Atención de Desastres - National System for Disaster Prevention, Mitigation and Response (SNPMAD) was founded in 2000 with the aim of coordinating the capabilities and resources of the various state and non-governmental actors with clearly allocated tasks and responsibilities for disaster risk management, emergency aid and reconstruction. The necessary capabilities for tasks such as drafting and implementing plans, reducing vulnerability or evaluating damage are being built up under the oversight of a national committee. Aside from the president, this committee also includes the ministers for health, environment and education as well as the director of INETER. There are also plans to found local and multisectoral committees at municipal level.

See Ley 337 creadora del SNPMAD, Nicaragua

¹⁵ Cf. for example: Umaña Cerna, Carlos: Tendencias y Actores del Desarrollo Local en Centroamérica, San Salvador 2002.

¹⁶ See below Annexes 1 and 2.

All three developments are at a very early stage in terms of their practical impacts but make for significant advances towards a conceptual and structural realignment, which could culminate in the medium term in a broad assimilation of disaster risk management in Central American society. There have been and are multiple initiatives for these changes in Central America, stemming both from local and external actors. Special mention must, however, be made of Hurricane Mitch and its devastating impact, because it was this regional disaster that first made all social classes aware of the risks and prompted the international community to provide broad, vigorous support to and press for disaster risk management in the region. This change of attitude found explicit political expression in the joint declaration of the six presidents in October 1999, stressing the importance of disaster risk management and proclaiming 2000-2004 as a five-year period for stepping up disaster reduction efforts. One of five fields of activity explicitly cited is strengthening local capabilities for disaster risk management.¹⁷

¹⁷ Marco Estratégico para la Reducción de Vulnerabilidades y Desastres en Centroamérica, 1999. EIRD provides an overall picture of developments in recent years in Latin America: Repaso de las Tendencias en la Reducción de los Desastres en las Américas, San José Costa Rica 2001. CEPREDENAC provides regular information on current trends in Central America in, CEPREDENAC informa (www.cepredenac.org).

3. Implementing community-based disaster risk management – GTZ experience in Central America

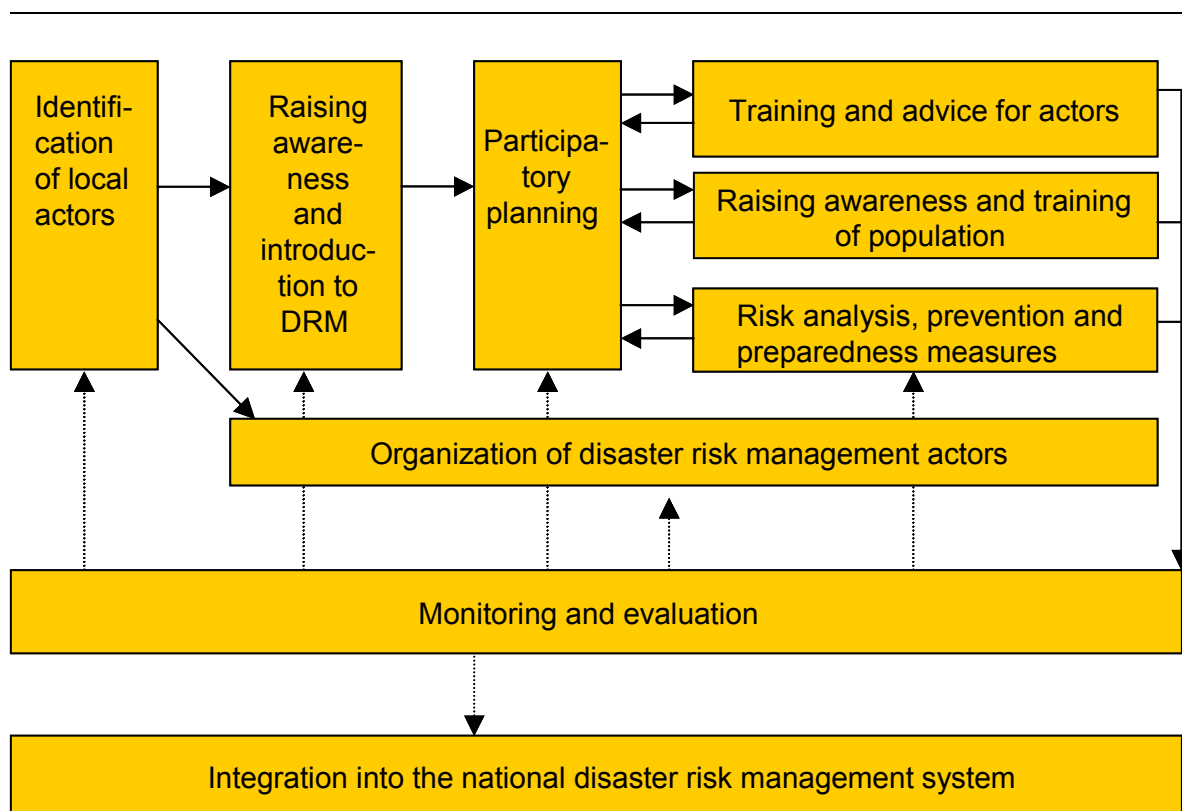
On behalf of the German Federal Government, GTZ has been assisting CEPREDENAC and other local, national and Central American actors in disaster risk management since 1997 in establishing disaster risk management. The main focus is the project FEMID (Strengthening Local Capabilities for Disaster Risk Management), in which GTZ is collaborating with CEPREDENAC to introduce community-based disaster risk management into the national systems. This approach is being applied in pilot zones in all Central American countries with the aim of developing models and gaining experience for broad implementation by the national agencies.¹⁸ The project is flanked by shorter individual measures on behalf of EU/ECHO, the German Federal Foreign Office, BMZ or run by GTZ itself (see project list in Annex 1).

3.1. Methods and measures

The procedures and avenues of development in community-based disaster risk management vary in the selected municipalities with the respective general local and national conditions. The outcome is an interesting pool of experience based on a common conceptual strategy, comprising the following elements:

- Identification of the major actors and organization of local disaster risk management networks
- Participatory planning of disaster risk management measures
- Raising awareness and training
- Integration into the national disaster risk management system
- Implementing and monitoring the planned measures
- Process monitoring

¹⁸ Experience is systematically compiled for this. See Sánchez del Valle: Lecciones Aprendidas en la Gestión Local de Riesgo, Proyecto FEMID, Guatemala 2002.

Figure 4: Process of introducing community-based disaster risk management

This figure shows the process of introducing community-based disaster risk management. It only provides a rough chronological guide, however, because new major actors may be identified, briefed and brought in during planning and implementation activities, for instance.

All municipalities where GTZ supports the introduction of disaster risk management in Central America are vulnerable to a specific local hazard, above all flooding, avalanches and/or forest fires. Their specific disaster risk stems largely from local causes, so that local actors can do a lot to reduce it. Aside from one exception (MIRUN),¹⁹ these hazard zones are in rural or small-town areas.

The choice of municipalities is based on the proposals of various actors, both local and national. The initiators decide on the first local contacts and steps, particularly the question of whether disaster risk management should be taken over directly by the municipal authority, should be started up with heavy reliance on it or set in motion by a group from the population independent of the government apparatus. There are arguments in favour of all these approaches and they can help establish disaster risk management in the municipalities, so there is no need to set priorities. In general it is an advantage if there is a

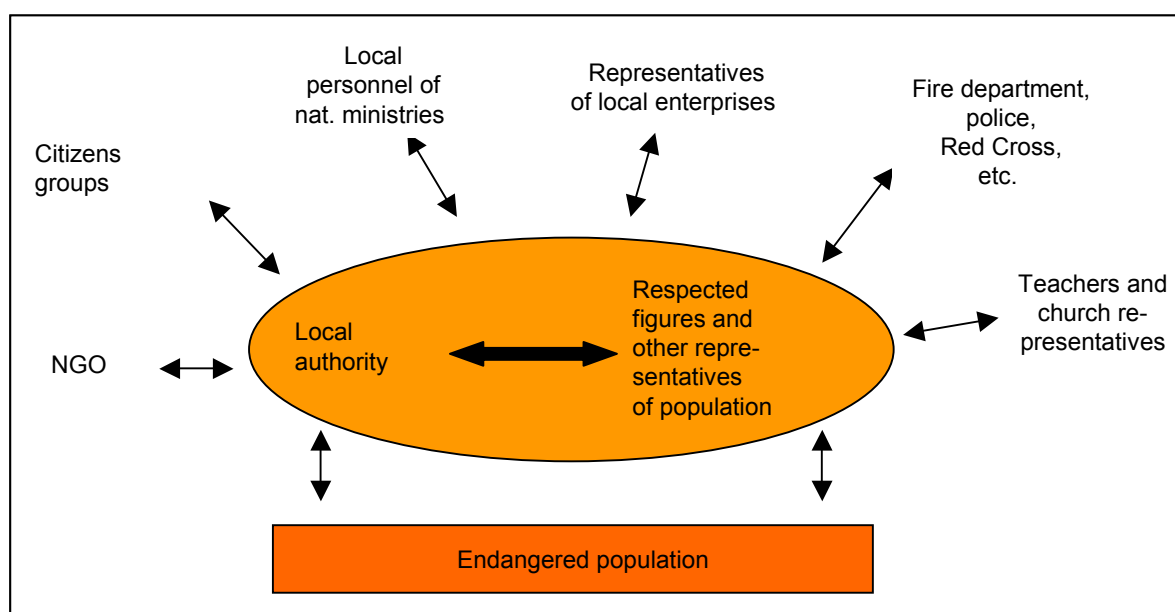
¹⁹ Mitigación de Riesgos Urbanos en Nicaragua, urban disaster risk management in flood-prone districts of Managua.

demand in the municipality. This facilitates implementation and increases the chances of the population actually identifying with the process and seeing it as its own contribution.

3.1.1. Identification of major actors and organization of local disaster risk management networks

Regardless of who instigates the process in the community, FEMID experience shows that it is imperative for the main actors in community-based disaster risk management, i.e. the municipal authority and volunteer representatives of the population, to get actively involved in these efforts. These two need to cooperate in these activities in order to ensure their effectiveness, stability, and broad assimilation by the population and hence, in turn, their sustainability.

Figure 5: Relevant actors in disaster risk management at local level



The role the **municipal authority** can vary from passive assistance to active collaboration to taking initiatives. It is important that it is informed about local disaster risk management activities, approves of them and includes them in its own planning. The more actively a municipal authority supports disaster risk management, the more effective it can be, because:

- the municipal authority usually constitutes the formal link with the national government apparatus (also disaster management and disaster risk management institutions);

- at local level it alone usually wields the authority to decide on evacuation and coordinate all the main actors in an emergency (emergency committee);
- many risk reducing measures such as settlement and land use planning, the zoning and equipment of emergency accommodation or adequate waste disposal need its backing and active assistance;
- disaster risk management should be an integral component of local development policy; the responsible and official democratically-elected coordination body of the different sectors for this is the municipal authority;
- disaster risk management needs a sound financial base to guarantee at least the necessary materials (e.g. batteries for radiotelephones as part of an early warning system), repairs and recurrent costs (e.g. telephone bills); the best way to secure these basic finances is to earmark them in the municipal budget;
- it is also frequently the local contact for internationally supported projects of importance for disaster risk management (e.g. community development, water management, rural regional development).

Efforts by a municipal authority to implement disaster risk management alone can, however, only lead to limited success; a broad effect can only be achieved with the participation of the population at risk. The first practical connection is made via the participation of **respected figures (líderes) and other representatives of the population**, who

- channel the interests and knowledge of the population into disaster risk management;
- as multipliers can educate the population on the need for and opportunities afforded by risk management and motivate them to cooperate and change their minds and
- greatly enlarge the operational scope of the local disaster risk management system through their voluntary input.

In keeping with the multisectoral, integral disaster risk management approach, the maximum possible range of local organizations and institutions (e.g. education and health service, private sector, non-governmental organizations, churches) in the FEMID pilot zones have also been enlisted to cooperate in disaster risk management. Their participation at the local level is important for the following reasons:

- Information on national sectoral strategies relevant to disaster risk management implemented at local level
- Influence on local and national sectoral strategies relevant to disaster risk management
- Involvement of the broadest possible areas of society in disaster risk management (multiplier function of sectoral representatives)

- Broadening their own conceptual horizon
- Expanding the scope of action through joint implementation of sectoral disaster risk management measures at local level

Box 3: Composition of FEMID disaster risk management networks – examples from Nicaragua and Panama (1999)

	Local offices of government institutions	Aid organizations	Community organizations	Local leaders	Other
Corinto, Nicaragua	Water authority (Enacal) Institute for Territorial Studies (Ineter) Telephone company Army Navy Port authority Health ministry	Civil defence (Defensa Civil) Red Cross Fire department		Representatives of El Humito Representatives of Los Cocales	Esso Standard Oil Corinto municipal authority Corinto customs office
Chepo, Panamá	Education ministry Water authority Environmental authority Health ministry	Police Fire department Civil defence (Sinaproc)	Las Margaritas village community School FENOSA	Rolando Camargo - coordinator	Chepo municipal authority

Other interested parties and broad parts of the endangered population are involved in phases of activities (cf. Chapter 3.1.3. below). It has also proved worthwhile to include from the outset persons and organized groups not initially concerned with disaster risk management. Women's groups in particular can make a considerable contribution to consolidating disaster risk management at community level. The group should also be open to new actors in the course of the project.

Traditionally, dealing with disaster is seen as a task for men as the 'stronger sex' with women and children considered only as prospective or real victims. From the outset, however, care was taken in the GTZ-assisted pilot zones in Central America to include women as disaster risk management actors in decision-making processes and measures to guarantee that these catered for the partly differing perceptions and interests of women and men and to put women's hitherto unappreciated strengths to use before, during and after a natural disaster.

The active participation of women has developed particularly well in awareness/training, environmental protection and resource conservation as well as in local advance warning systems. Women have also encouraged cooperation by children and teenagers.²⁰

Besides the predominant Spanish-speaking mestizo culture, there are indigenous populations in all countries of Central America (above all Maya, Garífuna) that also make up the majority in some regions (particularly Guatemala). Some speak no Spanish (especially the women) and are largely excluded from national political life. Most live in rural regions and most of those in poverty.²¹ FEMID works in various regions of Guatemala with the Maya population, particularly in the forest fire prevention project PRECLIF in the north of the country, and caters for the special needs and concerns of the population.

Box 4: Experience with disaster risk management in Q'eqchi communities in Guatemala (Petén, Senahú, Polochic)

The population is not easily accessible. Close involvement is necessary (participatory approach) to gain acceptance for disaster risk management. The traditional community leaders play a major role here.

Communication with the non-Spanish-speaking parts of the population (above all women) is possible via radio programmes and bilingual mediators and multipliers, who frequently take on a leadership role (e.g. in hazard mapping). Due to the high illiteracy rates, written material, for example, is of very little use in raising awareness.

Owing to their traditional role and their inability to speak Spanish, the participation of women is particularly difficult.

The language differences can be a cause of conflict (e.g. in a participatory early warning system in the Q'eqchi language combined with national, Spanish radio links).

Based on the experience gained in the assisted municipalities in Central America, organizational arrangements range from loose groups meeting in private houses to organizations integrated into the municipal authority apparatus with some paid staff and their own premises (La Masica, Honduras). Altogether, there is a discernible trend towards institutionalization. Cooperation between the municipal authority and volunteers from the population is not always smooth. Personal and (party-)political affiliations and rivalries often decide on how close the cooperation is.²² Cooperation can range from informal assistance

²⁰ For a detailed treatment of this topic see Sánchez del Valle: *Dimensión de Género en la Gestión Local de Riesgo*, Guatemala 2002. Also CEPRODE/Larios: *Género y Desastres*, San Salvador 1999, and GTZ/Osterhaus: *Gender und Projektmanagement*, Eschborn 1999.

²¹ See the relevant country analyses in Nohlen/Nuscheler: *Mittelamerika und Karibik*, Bonn 1995. Cf. Also Maihold/Córdova: *Democracia y ciudadanía en Centroamérica: Perspectivas hacia el 2020*, Hamburg 2000, pp. 52-55.

²² On this see Chapter 3.2. below with Box 10.

from the mayor with regular information exchange to an integrated disaster risk management group in the municipal administration. A major step a municipal authority can take to stabilize relations is to provide a room for the participants to work in.

The experience gained so far is not enough to determine with certainty what level and form of organization is necessary and adequate for the local groups in the long term. We can only conjecture that tighter forms of organization with clear affiliations and responsibilities could raise effectiveness and stability. In the specific case, account should be taken of any experience gained in the municipality with forms of organization in other areas.²³ In some regions of Central America, pronounced forms of indigenous organization supplement or coexist with municipal structures. Catering for these structures or including the respective relevant actors can be of key importance for involving the whole of the endangered population in disaster risk management.²⁴

3.1.2. Participatory planning of disaster risk management measures

Participatory planning is a well-established cornerstone of GTZ's operations in partner countries. Its strengths, but also its limits and difficulties in implementation have already been examined and described at length (see Box 5). By facilitating the inclusion of all major actors – and hence interests and capabilities – in the process from the beginning, it aims to confer responsibility on and enlist the commitment of the partners and the target group.

Box 5: Introductory literature on participatory planning

Schönhuth/ Kievelitz: Participatory Learning Approaches, Rossdorf 1994.

Forster (ed.): ZOPP marries PRA? Eschborn 1996.

Gaßner-Keita/ Forster: PRA-Fortbildungen und Praxiserfahrungen, 1996.

GTZ/ RMSH: Förderung von Beteiligung und Selbsthilfe im Ressourcenmanagement, Bonn 1997.

GTZ: Ziel Orientierte Projekt Planung – ZOPP, Eschborn 1997.

AKA Arbeitsgruppe Partizipation: Empfehlungen der AKA zum Thema „Partizipation auf der Projektebene“, 1998.

GTZ/ Leonhardt: Konfliktanalyse für die Projektplanung und –steuerung, Eschborn 2001.

For the same reasons – and for all the difficulties entailed – participatory project planning is also key to successful community-based disaster risk management: Some very diverse actors and interests can coalesce in planning and common objectives can be identified.

²³ Cf. below Annexe 3: Indicators for an operational disaster risk management system at municipal level (August 2000).

²⁴ On the chances and problems, see for example Rauch/Bartels/Engel: Regional Rural Development, Wiesbaden 2001, pp. 84-85.

Disaster risk management approaches must also be tailored to local needs and conditions within the actual national parameters. Participatory planning can help furnish the most realistic foundation and scale of reference for subsequent activities.

The initial FEMID project plans were not able to chart the future project course as intended: They allowed the local actors in the framework planning at regional and national level too little scope for decision-making and they envisaged measures that did not fall under the competencies and exceeded the resources of those involved so that these were thus unable to implement them (e.g. amending laws, dyke building). This has resulted in disappointment and demotivation and deterred participants from feeling responsible for implementation.

In response to this experience, more leeway was made in planning during later phases of FEMID as well as in new project areas. Thanks to the corrections made, the actors feel more strongly that the projects stem from their own initiative and responsibility and are more motivated to go on with them. Based on FEMID experience, then, it is important when planning new initiatives for introducing disaster risk management at municipal level to pay attention to the following steps and elements which should be facilitated by the application of the instruments shown in Table 1:

- Local operations should be integrated in the national structure, while leaving maximum possible scope for decisions by local actors (subsidiarity principle). It is useful to analyze major external processes for a better understanding of this.
- Planning results depend heavily on the familiarity of those involved with the issue. They should therefore be informed about approaches and possibilities in disaster risk management prior to actual planning and as far as possible familiarize themselves with their own disaster risk, the causes and their own capabilities for reducing it.
- In regions as in Central America where the population has gained little experience with participatory processes, planning takes a long time. It therefore makes sense to pre-assess prior experience with self-organization processes (often political). This analysis should already be conducted using participatory methods.
- It is important in planning to make a realistic appraisal of the available resources, capabilities and competencies of those involved and take that as a basis. Even if the initial plan of operations envisaged is confined to bare essentials in municipalities that completely or largely lack experience with participatory planning methods, these aspects should be catered for in the interests of a stable project base.
- The participation of many different actors at local level in planning alone is not enough to ensure that differing interests are actually adequately met. Particular attention must therefore be paid to catering for these interests. Some instruments developed for conflict analysis can be of assistance here.
- The planning should include effective micro measures that the population can conduct on its own with the help of the local disaster risk management group at no additional

costs (e.g. diagnostic activities, cleaning rainwater drains, preparation of possible emergency shelter).

- When compiling activities, mechanisms for planning revision and project monitoring (iterative planning process) should not be overlooked. They can determine whether the planning actually serves its purpose or has degenerated into a paper tiger. With a view to sustainable planning competency at local level, we also recommend imparting the instruments of participatory planning to the participants in such a way as to ensure that they can use them on their own in future.

Table 1: Examples of applying PRA²⁵ instruments in introducing community-based disaster risk management

Instrument	Recommended applications
Timelines	Raising awareness of disaster risk, hazard analysis
Actor mapping	Grasp of external processes, accounting for interests
Problem trees and ranking Impact and Venn diagrams	Raising awareness of disaster risk, its causes and possible approaches for reduction, grasp of external processes
Vulnerability and capability analyses	Accounting for interests of different groups, e.g. women/men
Social/Wellbeing ranking Semi-structured interviews Participatory observation	Catering for interests and conflict analysis

Long-term participation cannot be ensured through applying and imparting PRA instruments in a standardized way. The instruments, however, serve as rough directions, which if put together and practically applied in a flexible way to suit the given content and local conditions can bring about improvements in the self-organization of the target group and a less defensive relationship amongst the different actors. If measures are also taken to have the approach adopted by local and national organizations and institutions, the participation can establish itself as part of social life beyond the specific planning process.

²⁵ Participatory Rural/Rapid Appraisal. Cf. literature from Box 5.

3.1.3. Raising awareness and training

Raising awareness and training are vital in disaster risk management for broad effect, quality and long-term strengthening of capabilities at municipal level. Central here are:

- Raising awareness of hazards and vulnerabilities (above all through risk analyses)
- Assessing costs and benefits of disaster risk management for individuals and communities
- Imparting know-how on specific disaster risk management measures, from intermunicipal land use plans to personal response in earthquakes.

The awareness-raising and further training measures conducted by FEMID are principally addressed to the organized disaster risk management group, the people, groups and institutions involved. Depending on needs, these measures will then be made available to broader sections of the population and/or additional, more specialized measures developed for specific groups, courses for promoters to raise public awareness, for example. This procedure in training has proved effective, because it brings about an initial common basic agreement amongst those involved and then affords scope for individual arrangements to suit needs in the pilot zone. It is also advisable to train the instructors, who can pass on what they have learnt to new members and the population and thus make the system less dependent on outside further training.

Table 2: Summary of the FEMID two-stage awareness and training approach

Stage	Target group	Contents	Aim
1	<u>Local disaster risk management network</u>	• agreement • awareness • work • measures • evaluation	Reaching basic common conceptual and sectoral agreement Strengthening organization

Stage	Target group	Contents	Aim
2	Depending on local conditions: ➤ <u>Population</u> • • - abilities of disaster risk management • • - and/or ➤ <u>Definite groups, for example</u> • • • - thority • • - system committee • - emergency shelter	• • - abilities of disaster risk management • • • - training • - land use planning • - plans • - and appropriate agricultural production • - water levels • • • - shelter	Raising the population's readiness for cooperation Imparting specialist know-how Strengthening local abilities, self-confidence and responsible conduct

To raise awareness amongst decision-makers, but above all the population, there are many methods beyond information and training. Heightened awareness of disaster risk and know-how about risk management can be disseminated in information campaigns in (local) radio stations or via posters and booklets. The latter are of great importance particularly for practical preparations for imminent seasonal events or for the acceptance of planned measures such as vaccination campaigns. The best way to instil in people the

notion of prevention in dealing with natural disasters and influence their behaviour in the long term, however, is to involve them as far as possible in identifying disaster risk and its causes and then in planning and implementing pre-emptive measures.²⁶

Box 6: Training contents for introducing disaster risk management. Example from Ahuachapán (El Salvador) and Petén (Guatemala)

In two new project regions, volunteer multipliers spent half a year (2000) learning about disaster risk management for the first time in a training course. The five units combining theory and practice dealt with the following contents and aimed at the following specific results:

Training contents	Outputs
Introduction to disaster risk management	Hazard and resource map of the villages involved
Planning and evaluation	Project planning for every village
Organization	Emergency plan for every village
Management and cooperation	Analysis of strengths and weaknesses
Summary	Plan for cooperation at community level
	Project profiles

The project proposals drafted by the groups provided the basis for risk reduction projects (forest fires, avalanches, flooding) in cooperation with many local and national actors.

3.1.4. Integration into the national disaster risk management system

Local disaster risk management actors cannot do everything on their own; they must set up and maintain certain supportive links to ensure their own success. We have already pointed above to the broad range of possible contacts to other social groups and sectors that can support work at the local level.

Beyond this, though, it is essential to position local disaster risk management capabilities within the national system, because many legal provisions (e.g. land registration, environmental protection and resource conservation, construction standards) are set at national level and in extreme emergencies municipal disaster risk management operations may also need national assistance to cope with the disaster and for subsequent reconstruction. Moreover, sectoral and in part also integral regional planning are decided at re-

²⁶ See also Steurer/Bollin: Mobilisierung der Zivilgesellschaft für die Katastrophenvorsorge, 2001.

gional and national level. This is also where national and international investments are usually conduited. So cooperation is necessary above all for

- conceptual and sectoral assistance (training, methods and instruments, studies, etc.) of local capabilities,
- participation by local actors in regional and national planning and decision-making processes,
- efficient integration of municipalities in national early warning systems and higher-level disaster risk management measures (watershed management, etc.),
- and an operational information exchange for rapid and adequate help in the case of disaster by national disaster preparedness agencies.

Conversely, cooperation also affords the opportunity to harness specific local experience at national level to improve conditions for operations at local level.

Relations between national institutions and the new local groups are one of the most difficult aspects of community-based disaster risk management. One reason for this is that Central American countries have only recently started out along the path of decentralization and that disaster preparedness above all is traditionally organized along centralist lines involving interventionist methods. As part of the GTZ-assisted projects in community-based disaster risk management a new actor has been introduced at local level that calls for a departure from centralist-interventionist mechanisms towards cooperative relations. Despite some difficulties caused by the new setup, general decentralization policy and growing recognition of the role of local measures in disaster risk management have contributed to the present view on the part of representatives of both levels that relations are both fruitful and helpful. Appointing a person to liaise for the municipality with national institutions has proved useful in building a relationship of trust. Although personnel turnover has been frequent in some cases, most municipalities have thus been able to maintain a certain continuity in their ties with the national level.

For a long time, FEMID attached priority to relations between local actors and national disaster control authorities which are increasingly incorporating disaster risk management into their fields of activity. Following the conceptual shift to a multisectoral approach at national level, attention has focussed more in recent years on the role of other institutions (above all environmental protection and resource conservation, agriculture and forestry) and contacts between local and national stakeholders have been stepped up accordingly.

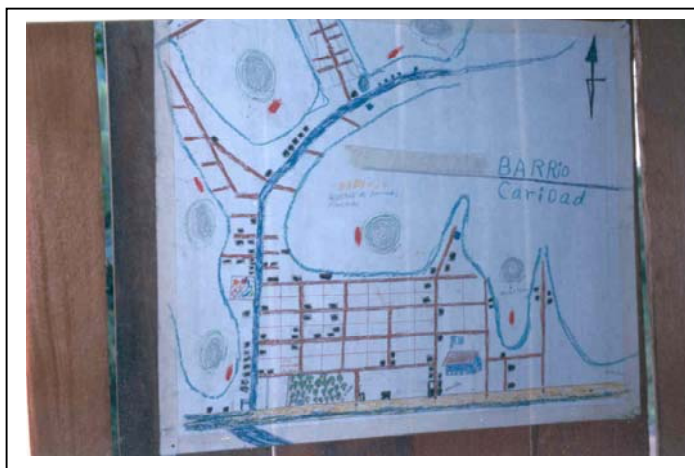
Box 7: Cooperation with the environment ministry. Project case study TRIFINIO – El Salvador

An example for the multisectoral approach is the planned project TRIFINIO in northwestern El Salvador. The focus here is on the long-term integral prevention of landslides, drought, forest fires and flooding through sustainable environmental protection and resource conservation coupled with preparedness for forest fire fighting, for example. At municipal level, the environmental networks already partially in existence (Unidad Ambiental Municipal, UAM) will be strengthened for disaster risk management, for which the main national partner is the Ministry of Environment and Natural Resources (MARN). The disaster management authority (COEN), the Ministry of Agriculture (MAG) as well as other national and regional actors complete the picture.

3.1.5. Implementing and monitoring planned measures

The measures adopted and implemented can vary greatly by municipality. Besides some common measures such as risk assessment, further training and raising awareness, they depend first of all on the dangers facing the population. In the GTZ-assisted municipalities, the primary concern was flooding, but recently forest fires, avalanches, volcanic eruptions and earthquakes have been added to the list. The measures taken also depend on financial resources, decision-making capabilities and the priorities set by those involved. The implementation of the measures is based on project planning, which should, however, also provide for changes in response to new findings or experience.

For these reasons, it is not possible to draw up an exhaustive list of possible disaster risk management measures at municipal level. Here are just some examples from the GTZ-assisted municipalities.²⁷ The sequence of headings follows the GTZ disaster risk management strategy described above:



Hazard map San Benito, Guatemala

²⁷ Cf. project list in Annex 1.