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Annex 1
Glossary of terms and notions relating to risk management [8]

ACCEPTABLE RISK: The possible social and economic consequences a society or sector of society implicitly or explicitly assumes or tolerates, considering intervention to be unnecessary, untimely or impossible given the existing economic, social, political, cultural and technical context. The notion of acceptable risk is of formal and technical relevance in conditions where sufficient and adequate information exists and when a certain level of formal rationalization in the decision-making process can be exercised.

ADAPTABILITY: The capacity or ability of an individual or social group to adjust to changes in their external, natural and constructed environment in order to guarantee survival and sustainability.

ANTHROPIC OR ANTHROPOGENIC: Of human origin or relating to human activities, including those of a technological nature.

ANTHROPOGENIC OR ANTHROPIC HAZARD: A latent threat associated with economic production, commerce, transport, and consumption of goods and services and the construction and use of infrastructure and buildings. These comprise a wide range of threats including different types of water, air and land pollution, fires, explosions, spills of toxic substances, accidents in transport systems, the rupture of dams, building collapse, etc.

CAPACITIES: A combination of community or organizational attributes and resources that may be positively directed towards risk management.

CHAIN, SERIALIZED, CONCATENATED OR COMPLEX HAZARDS: Two or more dangerous physical phenomena occurring in chain reaction where one triggers off the other, and so on. An example may be seen with the possibility of an earthquake rupturing dams and dykes, leading to flooding, causing fires and the rupture of pipelines carrying volatile substances or pollutants and detonating landslides and severe modifications in the natural environment, all with direct

8 This document is based on an original contribution prepared by Omar Darío Cardona. This contribution, dating from the mid nineties, has been subjected to a recent process of intense debate and discussion and important modifications all within the framework of the Regional Programme for Risk Management in Central America CEPREDENAC-UNDP, the COPASA-GTZ project, Peru, and the Risk Indicators Project of the National University of Colombia,Manizales financed with IADB funds. The debates and exchanges which have led to the drawing up of this glossary were carried out between Lavell, Cardona and Elizabeth Mansilla. It is still in preliminary form and discrepancies still remain to be resolved among the participants in the debate concerning some of the ideas and definitions herein. This version is thus, the exclusive responsibility of Lavell and Mansilla, even though it contains many of Cardona's ideas and notions. The process of putting the glossary together is an example of the efficiency and validity of collaboration between different projects and institutions in achieving congruence and homogeneity and making the most of the scarce resources available for the Risk Management problematic.

and indirect negative repercussions on human beings and other species of fauna and flora.

CORRECTIVE RISK MANAGEMENT: A process aimed at reducing existing levels of risk within society. Examples of corrective management activities or instruments include the construction of dykes to protect population located in hazard prone zones, the seismic retrofitting of buildings, changes in cropping patterns to adapt to adverse environmental conditions, reforestation or watershed recuperation to reduce existing processes of erosion, landslides and floods (see RISK MITIGATION -REDUCTION- below).

DANGEROUS PHENOMENON (EVENT): A natural, socio-natural (see definition below) or humanly generated phenomenon which may cause damage to society. It is the materialization in time and space of a hazard. It is important to distinguish between a potential or latent phenomenon represented by the notion of hazard, and the phenomenon itself, once it occurs.

DIRECT (ECONOMIC) EFFECTS OR IMPACTS: Effects or impacts that maintain a direct and immediate causal link with the occurrence of a physical phenomenon and which are usually represented in loss and damage to infrastructure, productive systems, goods, services and the environment. (see DIRECT AND INDIRECT HUMAN IMPACTS below).

DISASTER: A social crisis situation occurring when a physical phenomenon of natural, socionatural or anthropogenic origin negatively impacts vulnerable populations and their livelihoods, production systems infrastructure and historical heritage, causing intense, serious and widespread disruption of the normal functioning of the affected social unit. The impacts and effects can not be overcome with the resources autonomously available to the affected society. Impacts are expressed in different forms such as the loss of life, health problems, the destruction, loss or rendering useless of the totality or part of private or collective goods and severe impacts on the environment. These negative impacts require an immediate response from the authorities and from the population in order to attend the affected and to re-establish acceptable thresholds of wellbeing and life opportunities.

DISASTER RISK: The probability of losses and damage which exceed the autonomous coping and response capabilities of the affected areas and populations and which lead to a serious disrupting of their routine functioning.

DISASTER RISK MANAGEMENT: A complex social process through which disaster risk is measured and evaluated, understood, reduced or predicted and controlled. It should be considered a dimension of sustainable development plans and actions and recognises different levels of intervention. These range from the global, integral, sectoral and macro-territorial levels through to the local, community and family levels. It also requires the existence of organizational and institutional structures which represent these levels and work as a coordinated and integrated whole.

DISASTER RISK MITIGATION (REDUCTION): Intervention measures aimed at reducing or decreasing existing risk. Mitigation assumes that the total elimination of existing risk is neither possible nor feasible. In other words, it is not possible to totally prevent or avoid all damage and loss. Thus, mitigation must be guided by notions of acceptable risk (see above for definition). Disaster risk mitigation may involve the reduction or elimination of existing primary risks (see definition below) or an acceptance of these and, through preparedness measures, including early warning and evacuation systems, seek to reduce losses and damage resulting with the occurrence of a dangerous phenomenon.

ECOSYSTEM: Spatial unit comprising a group of physical and biotic components and processes which interact in an interdependent manner and which have created characteristic energy flows and cycles or movement of materials.

EMERGENCY: A social crisis context directly related to the imminence or occurrence of a dangerous physical phenomenon and which requires an immediate response by State institutions, the media, civil society and the community in general. When the event is imminent, confusion, disorder, uncertainty and disorientation may exist among the population. The phase immediately after impact is characterized by the intense and serious disturbance of the normal functioning or operation of a community, zone or region and the minimum conditions necessary for the survival and functioning of the affected social unit are not satisfied. It is a phase or a component of disaster but

is not a synonym for disaster, per se. While emergency conditions can exist without a disaster, all disasters experience an emergency phase or stage.

ENVIRONMENTAL DEGRADATION (DETERIORATION): Processes induced by human actions and activities which damage the natural resource base or which adversely affect natural processes and ecosystems, thus reducing their quality and productivity. Potential effects are numerous and include the transformation of resources into socio-natural hazards. Environmental deterioration can be the cause of a loss in the ecosystems' capacity to recuperate following external impacts. This loss of recuperation capacity can in turn generate new hazards of a socio-natural type (see NATURAL ENVIRONMENTAL TRANSFORMATION, below).

EVERY DAY OR CHRONIC RISK: A series of living conditions which characterize (although not exclusively) poverty, under-development and structural human insecurity and which restrict or endanger sustainable human development. Examples of this can be found in poor health conditions, low life expectancy, malnutrition, lack of employment and income, lack of access to potable water, social and family violence, drug addiction/substance abuse, alcoholism and overcrowding of residential areas and individual housing.

EXPOSED ELEMENTS: Persons, resources, production, infrastructure, goods and services which may be directly affected by a physical phenomenon due to their location in its area of influence.

FORECAST: Information regarding the probable future occurrence of a physical phenomenon and based on: the study of the physical generating mechanism, the monitoring of the perturbing system and/or the registering of past events. A forecast can be short term, generally based on the interpretation of precursors of the dangerous phenomenon; medium term, based on statistical parameters indicative of the potential occurrence of the phenomenon; and long term, based on the determination of the maximum probable or credible event likely to occur within a determined period of time.

GOODS AND SERVICES: Tangibles and intangibles that have an economic value and provide benefits to those who possess them. Goods are susceptible to private or public appropriation, whilst services can only be consumed.

HAZARD: A latent threat associated with the probable occurrence of a physical phenomenon of natural, socio-natural or anthropogenic origin that may be expected to have adverse effects on people, production, infrastructure, goods and services. Hazards are risk factors that are external to the exposed social elements and represent the probability that a phenomenon of determined intensity will occur at a specific location and within a defined period of time.

HAZARD ANALYSIS OR EVALUATION: The process by which the possible occurrence, magnitude, location and temporality of a damaging physical event is ascertained.

HUMAN DISASTER IMPACT: Deceased, missing persons, injured or sick resulting from the direct or indirect impact of a physical phenomenon.

INDIRECT (ECONOMIC) EFFECTS OR IMPACTS: Effects or impacts that maintain a causal relationship with direct effects or impacts (see definition above). Quantified indirect impacts are normally those which have adverse affects in social and economic terms, for example, loss of production opportunities and future income, increases in the levels of poverty, increases in transport costs due to the loss of roads and bridges, etc. However, there will be cases of positive impacts when seen from the perspective of those individuals and private enterprises that are able to benefit from the negative impacts on others.

INTENSITY: A quantitative and qualitative measure of the severity of a phenomenon at a specific location.

LIFE LINES (NETWORKS): Basic or essential infrastructure. Energy: dams, substations, electric grid, fuel storage facilities, oil and gas pipelines. Transport: road networks, bridges, transport terminals, airports, river and coastal ports. Water: Treatment plants, water pipelines, sewage systems, irrigation and drainage canals. Communications: telephone networks and exchanges, radio and television stations, postal and public information offices.

LOCAL DISASTER RISK MANAGEMENT: Respecting the logic and characteristics of Disaster Risk Management in general (see definition above), local

management comprises a particular level of territorial intervention requiring full participation, appropriation and ownership by local stakeholders.

NATURAL ENVIRONMENTAL TRANSFORMATION: The process by which nature or the natural environment transforms itself, including processes that have existed since the formation of the earth and which have moulded and changed its surface, its flora and fauna in a continuous manner. Reference is basically made to processes where nature interacts with other unmodified or essentially unmodified natural elements (ecosystems, rivers, mountains, slopes, coastal zones, etc). Examples can be found with the impacts of earthquakes on watersheds and slopes, hurricane impacts on forests and mangroves, or spontaneous fires that regenerate ecosystems. To speak of environmental destruction or environmental loss in these cases would be anti-evolutionary or anti-natural. A more correct use of notions would suggest the idea of transformation, change or regeneration and not destruction or damage. These latter terms are the product of subjective and anthropocentric interpretations. Even when transformations affect society, reducing the quantity and quality of potential resources, these processes are in themselves natural and cannot be considered in the same way as direct event impacts on society, its goods, heritage or material structures. Thus, the frequently used notion of ecological or environmental vulnerability refers to a type of vulnerability which is quite different and in no way comparable with social or human vulnerability. In fact, it is probably more convenient to speak of different levels of environmental resilience or fragility instead of vulnerability, and thus avoid confusions and contradictions. This argument also applies to the use of such notions as environmental disaster instead of more objective statements such as wide or large scale environmental change or transformation associated with the occurrence of large scale, natural physical events. In disaster risk and disaster studies confusions and contradiction are introduced when the same word, disaster, is employed to depict both social and natural scenarios.

Natural phenomena which modify or transform other natural scenarios are inevitable and have occurred since the origins of the Earth. With very large scale phenomena society can do nothing to impede or change these. Intervention is thus essentially reduced to prediction adaptation and, eventually, response.

On the other hand, with lower scale natural or environmental processes society frequently intervenes in order to modify them. This is the case, for example, with the control of the natural flooding of rivers, the control of spontaneous- natural fires, the modification of slopes in order to permit agriculture or construction and deforestation permitting expansion of the agricultural frontier. Here, the possibility of future negative impacts always exists as is the case where dykes and dams break, construction on land fill areas is subjected to greater seismic intensities or deforested areas generate increased flooding, landslide and drought patterns. Environmental change and transformation which takes place in highly intervened, modified or weakened ecosystems and environments constitutes a very distinct context and problem to that associated with purely natural transformations of the environment. In the case of direct social losses in modified natural environments, intervention processes have many times generated new socio-natural hazards or rendered the scale of natural physical events more powerful thus generating increasing losses once the event occurs.

NATURAL HAZARD: A latent threat associated with the probable occurrence of a phenomenon of natural origin – for example, an earthquake, a volcanic eruption, a tsunami or a hurricane. The origins of such phenomenon may be found in the natural processes by which the Earth and the environment are transformed and changed. Natural hazards are often classified according to their origins in the biosphere, allowing the identification of geological, geomorphologic, climatologic, hydro-meteorological, oceanic and biotic threats, among others.

PRIMARY OR STRUCTURAL RISK: Risk conditions which exist in society under normal conditions, the product of skewed development processes fuelled and re-shaped to some extent by the accumulative impacts of prior disaster triggering physical phenomena and economic and social crises.

PROSPECTIVE RISK MANAGEMENT: A process by which future risk is foreseen and intervened or controlled. Prospective management should be seen as an integral component of development planning and the planning cycle of new projects, whether these are promoted by the government, the private sector or civil society. The final aim of this type of management is to avoid new risks, guarantee adequate levels of

sustainability of investments, and avoid having to take expensive corrective management measures in the future. (See RISK PREVENTION, below.)

RECUPERATION: Process of re-establishing acceptable and sustainable living conditions through the rehabilitation, repair and reconstruction of destroyed, interrupted or deteriorated infrastructure, goods and services and the reactivation or promotion of economic and social development in affected areas.

RESILIENCE: The capacity of an ecosystem, society or community to assimilate a negative impact or to recuperate once it has been affected by a physical phenomenon.

RISK ANALYSIS: A projection of the probable social, economic and environmental impacts of future physical phenomenon on particular social and economic groups, areas or territories. This is achieved through an analysis of the hazards and vulnerabilities of exposed social and economic units. Changes in one or more of these parameters modify the levels of risk, the total expected losses and the consequences for a given area.

RISK CONTINUUM: An expression of the dynamic and changing nature of risk within defined territorial, social and temporal circumstances (see PRIMARY RISK above and SECONDARY OR DERIVED RISK, below).

RISK MANAGEMENT PLAN: A coherent and organized series of strategies, programmes and plans drawn up to guide risk reduction and control and recuperation in the case of disaster. By guaranteeing appropriate levels of security in the face of a variety of existing risks and by reducing material loss and the social consequences of disasters, the quality of life of the population is maintained and sustainability is increased.

RISK PREVENTION: Anticipatory measures and actions which seek to avoid future risks. This means working with probable future hazards and vulnerabilities. Seen from this perspective, risk prevention is a facet of Prospective Risk Management, while risk mitigation or reduction relates to Corrective Management. Given that total prevention is rarely possible, prevention has a semi-utopian connotation and should be seen in the light of considerations as regards socially determined acceptable risk levels. (See ACCEPTABLE RISK, above)

RISK REDUCTION: see RISK MITIGATION above.

RISK SCENARIOS: An analysis of the dimensions and types of risk that affect defined territories or social groups and presented in written, mapped or other graphic forms using quantitative and qualitative techniques and based on participatory methods. This implies a detailed analysis of hazards and vulnerabilities. Risk scenarios provide a basis for decision making on risk reduction, preparedness and control. Recent developments of the notion of risk scenarios include a parallel understanding of causal social processes and of the social actors that contribute to existing risk conditions. A risk scenario is the result of an integral risk analysis process.

SECONDARY OR DERIVED RISK: Specific risk conditions that arise more or less abruptly with the impact of a dangerous physical phenomenon on society. Examples are the risk of illness and death, malnutrition and severe food insecurity, the lack of access to drinking water, rape and mistreatment of women and children in shelters. These risks are built on primary risk conditions and vulnerabilities that exist prior to impact, allowing us to refer to a disaster risk process or continuum. If secondary or derived risks are not adequately resolved through disaster response mechanisms they will contribute in accumulative fashion to future primary risks.

SOCIAL APPROPRIATION: The process by which organizations and institutions that represent development and risk stake holders assume the challenges of management, guaranteeing continuity and sustainability.

SOCIAL PARTICIPATION: The process by which the subjects of development and risk take an active and decisive part in decision making and activities designed to improve their living conditions and reduce or prevent risk. Participation is the basis of empowerment and the development of social capital.

SOCIO-NATURAL HAZARD: Latent threat associated with the probable occurrence of physical phenomena, the existence and intensity of which is related to processes of environmental deterioration or human intervention in natural ecosystems. Examples of these

can be found in floods and landslides related to deforestation and the degradation or deterioration of watersheds; coastal erosion due to mangrove logging; urban flooding due to the lack of adequate fluvial drainage systems. Socio-natural hazards are generated at the interface between nature and human activity and are the product of a process by which natural resources are converted into hazards. The new hazards associated with Global Climate Change represent the most extreme example of socionatural hazards.

SUSTAINABLE DEVELOPMENT: Natural, economic-social, cultural and institutional processes and changes that lead to an accumulative and durable increase in the quantity and quality of goods, services and resources, accompanied by social changes which tend to improve human security and quality of life. This must occur without excessive deterioration of the natural environment or a reduction in the possibilities for a similar level and type of development accessible to future generations.

VULNERABILITY: The propensity of human beings and their livelihoods to suffer damage and loss when impacted by external physical phenomenon. Distinct levels of human and livelihood vulnerability may be explained by the incidence of diverse processes and conditions relating, amongst others, to the presence of insecure buildings and infrastructure, limited economic resources and incomes, lack of social protection, insecure livelihoods, poverty, inadequate educational, organizational and institutional arrangements and lack of well developed social and political capital.

VULNERABILITY EVALUATION: The process by which the susceptibility and predisposition to damage or loss is determined when faced with the possible occurrence of a dangerous physical phenomenon. This also includes an analysis of the factors and contexts which can substantially impede or render difficult the subsequent recuperation, rehabilitation and reconstruction of the affected social unit using the resources autonomously available to it.

WARNING (EARLY): An announcement or declaration, emitted by previously identified and responsible institutions, organizations and individuals, which allows the provision of adequate, precise and effective information prior to the manifestation of a dangerous phenomenon. This allows emergency organisations or groups to activate preestablished security procedures and the population to take specific precautions. In addition to informing the population of the hazard, early warnings are declared with the objective of permitting the population and institutions to adopt specific actions when faced with imminent danger.

Annex 2

Examples of metodologies, intervention methods and modes of conducting local level risk reduction projects

The present case studies were elaborated by Luis Romano, Alice Brenes, Luis Gamarra and Horacio Somarriba and are based on the systematizations of intervention experiences undertaken as part of the local risk management project in Central America. These cases have been selected for publication in order to demonstrate certain aspects and experiences with the adherence to one or more of the fundamental parameters that, according to our analysis and criteria, define the practice of local risk management. These parameters are-

- The relationship of risk reduction to development planning.
- Risk management seen as a process and not as a product.
- The need for participation, appropriation and sustainability.
- The transverse and integral nature of risk management.
- The need to work with territorial levels that go beyond the local level

Local Risk Management within the framework of Development Processes: the case of Barranca and Chacarita, Costa Rica (Proyecto Alforja)

Initially, the Community Emergency Committees of Barranca and Chacarita operated when disaster conditions existed or when there was a need for specific emergency prevention actions. This was the case, for example, with the dengue and malaria prevention and mitigation campaigns coordinated with the respective public health authorities at the end of the 1990s. Once the crises were over, the Community Emergency Committee ceased to function as such until a new emergency arose or preventive action was required. However, a change in attitude that widened the role of the Barranca Community Emergency Committee led to it filing the first legal complaint made by a group of grass roots organisations in the Barranca basin over the issue of river mining operations in the area. These were creating new risk conditions for the communities.

This case illustrates how an institutional structure, conceived and created by the State primarily to deal with disasters (and to a lesser extent, prevent imminent risks) can evolve into a more ambitious and comprehensive organization. Through training processes and self empowerment, the Committee found that it could continue to handle emergencies and, at the same time, also play a role in the local management of disaster and other more recurrent, every day risks, such as those associated with waste management or river mining. The Barranca Community Emergency Committee evolved from being primarily an emergency-oriented organisation to having an influence on the community's quality of life, attempting to wield greater control over a wide range of risk factors.

From 1999 onwards, the Non-Governmental Organisation, ALFORJA, played an important role in building and strengthening the analytical, action design, conflict management and negotiation capacities of the Barranca and Chacarita Community Emergency Committees. Later, ALFORJA played a similar role with the Community Health Networks of both settlements.

Their analysis of the situation revealed that the river provided an ideal habitat for the reproduction of disease vectors. The puddles left by the tractors that excavate materials provide a suitable niche for the reproduction of dengue and malaria carrying mosquitoes. Therefore, a concern for the preservation and conservation of the river was not only motivated by the role it played as a source of water, flora and fauna, but also because of the need to control improper exploitation practices that could lead to increases in public health problems.

This recognition and dimensioning of the risk construction process has helped to guide the struggle to recover and conserve the river and, also, to promote prospective risk control mechanisms. An example of this can be seen in the recognition that water resources are approaching a high-risk situation and that the Barranca River will some day become the main source of freshwater for the province of Puntarenas. This demands actions, control and management today.

Management Viewed as a Process, not as a Product:

Based on an initial systematic situational analysis, the Barranca Community Emergency Committee redefined its scope of action and evolved from an emergency committee into one that prioritises risks it is capable of correcting or transforming, using its own capacities. This entailed a transformation process within the organisational structure itself.

The Committee had already begun work through the Community Health Network uniting the efforts of many different entities and basing its work on experience with the prevention and mitigation of dengue fever and malaria. From the outset, a substantial organisational structure had been created which was gradually consolidated. This structure would later lend support to and encompass the collective proposals of many other organisations. Institutional backing provided by the Ministry of Health and the Costa Rican Social Security Administration (Caja Costarricense de Seguro Social - CCSS) was achieved through a separate agenda managed by the Community Health Network.

The support given by Alforja, the Ministry of Health and the CCSS to the Community Emergency Committee and in the consolidation of the Community Health Networks has been achieved by implementing methodologies that carefully avoid debilitating the "process of the process" that they proposed in order to develop, consolidate and strengthen the organization. Letting them work at their own pace and giving them room to set their own agendas was an assertive way of doing this; another way was to discourage dependent, paternalistic relationships.

The analytical and purposive capacity acquired has yielded its first fruits. With the implementation of the strategy, it was realised that analysis and action must be extended to cover a broader geographical unit, i.e., the Barranca River basin.

The struggle to recover and preserve the Barranca River basin was strengthened by incorporating other organisations and communities located in the rivers area of influence. Clearly, capacity exists for the transformation of proposals through a new reading of the context.

Other actors are involved in the strategy. The children of Barranca are seen to be a social actor that should be sensitized from early on in life as to what is happening to the river. The Ministry of Public Education has thus become another actor in the Community Health Network. A specific project was mapped out to continually raise awareness among school children: a permanent festival is promoted throughout the school year by which awareness is raised and people are educated as to how much the river means to the population of Barranca and how to live in a healthier way. This process gave birth to a specific project proposal.

Consolidation of the efforts at correcting and preventing future risks has led to the legalization of the Community Health Network. This process has produced a further initiative: a radio station to provide greater coverage for its educational/ awareness-raising campaigns. The maturity of this process has allowed the community to reach a new stage searching to verify the factors that have given sustainability to the process to date.

Participation, Appropriation and Sustainability of the Management process on the part of Local Actors

In the case of the Barranca Community Emergency Committee, appropriation or ownership tends to be defined by several issues:

- The methodological approach proposed the Committee by Alforja in order for it to appropriate its own local reality and, later on, manage issues and practice required when faced with specific risk circumstances.

- Clarity as to the role played by Alforja (an external actor) with regard to the Community Emergency Committee.

- The incorporation of the Community Emergency Committee into the Community Health Network

The above-mentioned aspects are equally essential when it comes to sustaining the process and getting it to where it is today. Let us examine these three aspects in more detail:

- **Methodological proposal:** Alforja uses a participatory methodology following the principle that it is the members of the Community Emergency Committee who must take on a role as active subjects, identifying and constructing the local risk scenario (causes and effects) using a methodology that is guided and facilitated by Alforja.

The diagnostic process made it possible to delimit the local risk scenario, the relationship between causes and effects and the everyday problems faced by the community. Alforja uses this analytical framework because it believes it facilitates the identification of the causes and effects deriving from the existing political, economic, social, cultural and ecological context. The analytical tool also facilitates decision- making in the short, medium and long term.

This analytical and diagnostic process culminates in an action plan or a proposed solution. This is nothing more or less than the actions and strategies to be implemented in order to transform identified problems and prevent additional risks in the future. Moreover, the role of each civil society actor is analysed and clarified in order to determine the challenges that can and should be assumed by them as members of the Committee. Thus, for example, with the presence of municipal actors at a Committee meeting, they determined that the Municipality of Puntarenas, instead of being an ally in seeking solutions to daily problems, was in fact confrontational and, to a certain extent, behaved in an antagonistic manner with respect to the solutions proposed by the Committee and the Health Networks.

Having understood the risk construction process and its relationship to disaster, both Alforja and the Community Emergency Committee could then redefine their temporal and spatial scope of action vis-à-vis potential future disasters. In this way, they concluded that besides attending disasters, they also wished to prevent disaster risk in their area and wield an influence as regards the quality of life and every day risks, all within a local development framework.

- **The role played by Alforja**: From the outset, Alforja was clear about its role as an external agent vis-à-vis the Community Emergency Committees. It encouraged an autono- mous relationship, whilst at the same time struggling to overcome the dependent relationship established between local community groups and the State.

The relationship developed to the point that the groups became aware that although Alforja was present in their process when they required it, they must not expect more of it than its presence and facilitation of the risk management process. The weight of organising, implementing and conducting the operational plan or proposed solution was placed where it belongs: firmly on the shoulders of the Barranca and Chacarita Community Emergency Committees.

Maintaining and strengthening the autonomy of the group (the Community Emergency Committee) was crucial not only as regards appropriation of the process, but also as regards sustainability.

- **The Barranca Community Health Network** becomes the most important formal, organic structure associated with the Community Emergency Committee. It is here that proposals for local improvement (and later on in the Barranca River basin as a whole) make an impact and are accepted and supported.

The support given to the Barranca Community Health Network by the Ministry of Health and the CCSS and the legal status it achieves are both important factors in explaining the sustainability of the process. However, more importance can be assigned to the way in which diverse civil society and public sector organisations made their presence felt and joined forces (Ministry of Public Education and the Water and Sewer Authority). In the absence of such unity, the organisation's official status could have become a mere shell that would have jeopardised the sustainability of the process. Each actor may resort to the umbrella structure (the Community Health Network) to develop actions that improve the quality of life and safety. However, each actor preserves their own autonomy and legal status.

Local Management within a Regional and National framework.

At the outset, the Barranca Community Committee applied a framework of analysis to the problems of the Barranca River in the area immediately around the towns of Barranca and Chacarita. Subsequently, it prepared an operational plan aimed at saving and preserving the river in this area. However, once these actions had been implemented, Committee members realised that the actions they proposed must go beyond the area of Barranca and Chacarita. Riverside communities along the whole of the Barranca River all faced different risk factors, and risk in Barranca and Chacarita was influenced by processes occurring in the upper and middle river basin. Given this awareness, the Committee realised that its proposal had to be broadened as much as possible to include the entire river basin.

Hence, its work strategy currently consists in coordinating riverside communities along the entire length of the river. This is done through environmental organisations, pro-development associations, public health authorities and other organisations interested in saving the Barranca River. This change of strategy allowed the Committee to realize that a garbage dump in San Ramón in the province of Alajuela was polluting the river, adversely impacting their community of Barranca, kilometres downstream. Deforestation is another situation that must be dealt with.

Acknowledging the interrelationships between the upper and lower river basin has led to an extended geographical coverage, not only in the analysis of risk scenarios (causes-effects), but also as regards proposals for action, where various actors along the entire river basin are included and participate. In this way, solutions are proposed with a (comprehensive) basin-wide view, where participants act according to a global vision but within their own local (micro-basin) context. The idea is that impacts should affect the entire river basin and not just a portion of it. From their viewpoint, there is no use making efforts to save and protect the lower or middle basin if causes of degradation and destruction persist in the upper river basin, or in other spots downstream that are likewise endangering other communities, water resources, flora and fauna.

Vulnerability analysis: experiences in settlements near San Miguel Volcano in El Salvador. (Geólogos del Mundo)

Very few attempts have been made to design an index reflecting the state of a society with regards to the satisfaction of its basic needs or the stability of its relationships with the environment. An admirable exception to this is the Human Development Index devised by the United Nations to reflect differences in the per capita distribution of GDP and, hence, in the levels of satisfaction of basic needs. Nevertheless, in the area of the social study of disasters, such elaborate efforts have not been made, although vulnerability indexes have been produced.

Very few efforts to analyse and map vulnerability have been documented. Given the importance of information for diagnostic and decision-making purposes, vulnerability analysis is a valuable tool, implementation of which promotes a higher level of awareness and knowledge as regards risk among exposed populations and amongst those involved in risk reduction activities. Thus, within the context of the project entitled “Comprehensive Risk and Vulnerability Management in the municipality of San Miguel,” implemented by Geologists of the World in El Salvador, a vulnerability analysis exercise was carried out. This is concisely presented below.

General issues affecting the vulnerability analysis.

The following three basic methodological steps must be taken when conducting vulnerability analysis: first, a definition of the levels of vulnerability; second, the definition of a numerical scale to facilitate the quantification of vulnerability levels; and, third, the establishment of a list of parameters/criteria that allow us to define a level and a numerical scale value for vulnerability.

Concerning the first element, the decision was made to define three levels of vulnerability and two sublevels:

- Low
- Intermediate
- High: - moderately high - exceedingly high

The following numerical values were assigned to each of these levels:

- 0 - 1: low vulnerability
- 1.01 - 2: intermediate vulnerability

- 2.01 - 3: high vulnerability
  - 2.01 - 2.5: moderately high vulnerability
  - 2.51 - 3: exceedingly high vulnerability

With regard to the third basic element, the definition of vulnerability parameters/criteria, it should be noted that these were chosen in order to guarantee adequate levels of objectivity. Hence, quantitative, objectively verifiable indicators were adopted, such as the availability of basic services, percentage of housing built with hybrid construction methods and/or enhanced adobe, percentage of area sown with staple grains, percentage distribution of different attitudes as regards the causes of disasters, and so on. The following section contains a more detailed list and a justification of the parameters assumed in this vulnerability analysis.

Parameters/criteria used in defining (quantitative and qualitative) vulnerability levels

Indisputably, the most important contribution to this area has been made by Gustavo Wilchez-Chaux, namely his global vulnerability approach.[9] This was devised in the late 1980s and revised in a more recently published methodological guide[10].

Basically, the concept of vulnerability suggests that human conglomerations (and individuals) have different levels of resistance and resilience vis-à-vis potential external hazard factors and processes. In addition to global vulnerability, different vulnerability factors and sub-factors may be defined that help explain in a much more detailed and clear fashion why some groups, social sectors or countries are more "vulnerable" than others. Basically, for didactic purposes, four major groups of vulnerability factors are considered: physical, economic, environmental and social. Moreover, in the case of social factors, there are various sub-factors that markedly expand the list of vulnerabilities.

The classification of four basic vulnerability factors was developed for the purpose of identifying and grouping criteria to be used in the vulnerability analysis of seven communities located on the slopes of the volcano known as Chaparrastique or San Miguel. The defined parameters, grouped according to vulnerability factors, are listed below.

Physical/technical parameters

- Materials used in the walls of housing: 70% or more composed of hybrid materials and/or enhanced adobe: 1 point; 40% - 69%: 2 points; and less than 40%: 3 points.
- Availability of basic services, such as potable water, a sewerage system, telephone system and electricity. Availability of all four elements: 1 point; of two or three elements: 2 points; of one or none: 3 points[11]
- Presence of agricultural technology, machinery, irrigation and drainage systems. Presence of all four elements: 1 point; of two or three: 2 points; of one or none: 3 points[12]

Economic parameters

- Levels of extreme poverty: 45% or more of households living in extreme poverty: 3 points; 20 - 44%: 2 points, under 20%: 1 point.
- Ownership of the land: Over 70% are owners of their land: 1 point; 40% – 69%: 2 points; under 40%: 3 points

Environmental parameters

- Cooking fuel: 60% or more use wood: 3 points; 25 - 59% use wood: 2 points; under 25% use wood; 1 point
- Land use: Over 70% of the farmland area used to produce seasonal crops: 3 points; 40 - 69%: 2 points; under 40%: 1 point

Social parameters

- Educational: Under 40% completed primary school: 3 points; 40% - 69%: 2 points; 70%: 1 point
- Organisational: No organisations: 3 points; Community Development Associations (ADESCO) or other development organisations: 2 points; Risk/Disaster Committees 1 point
- Ideological/cultural: 50% or more believe in punishment by God or by natural phenomena: 3 points, 20% - 49%: 2 points; under 20%: 1 point
- Political: No development proposals: 3 points; history of mobilisations/negotiations with local/national authorities: 2 points; presence of development proposals: 1 point
- Institutional (official): No municipal risk/emergency management plans: 3 points; municipal development plans: 2 points; municipal development plans including risk prevention: 1 point
- Institutional (civil society): Presence of 3 or more development institutions: 1 point; presence of 1 or 2 development institutions: 2 points; No development institutions: 3 points

9 Wilchez-Chaux, G. 1988. "La Vulnerabilidad Global" (Global Vulnerability) in Desastres, Ecologismo y Desarrollo Profesional. (Disasters, Environmentalism and Professional Development) SENA, Colombia.

10 Wilchez-Chaux, G. 1998. Auge, Caída y Levantada de Felipe Pinillo, Mecánico y Soldador: O, yo voy a correr el riesgo (The rise, fall and recovery of Felipe Pinillo, Mechanic/Welder: Or, I'll take my chances). Local Risk Management Guide for LA RED. LA RED. Lima, Peru.

11 AS Project. -ECHO-Inundaciones

12 Ibid.

Considerations

One of the principle contributions of vulnerability analysis has been the broadening of knowledge on the local situation and the generation of more and better information which could support future development assistance processes in the study areas. Moreover, it allows the identification of potential thematic areas and sub-areas of intervention.

The study also revealed that the territorial scale of analysis can, at times, minimise differences among the populations studied. This signifies that more detailed and precise information may only be gained at micro territorial and micro analytical levels. Thus, for example, a study made at the canton level (political division immediately below that of the municipality) reveals that differences are not so pronounced at the global vulnerability level, but in the analysis of specific factors and sub-factors significant differentials can be detected. Identification of these facilitates the design of specific intervention measures for different cantons. Based on this experience, it may be argued that the devising and distribution of methodological tools that facilitate a deeper analysis and understanding of local vulnerability and of the options for reducing it, enhances the suitability and effectiveness of risk reduction interventions.

Concerning the synergies between local development and risk reduction: the IADB and Ministry of the Environment and Natural Resources initiative in the Lower Lempa Valley, El Salvador.

The Programme for the Strengthening of the Local and Community Organisations of the Lower Lempa Valley was promoted as a preliminary step in the creation of conditions for the future implementation of a medium size investment programme using funds from the Inter-American Development Bank (IDB) and the government of El Salvador. The Programme itself was recommended in a prior in-depth study undertaken in the lower Lempa area (Tecoluca and Jiquilisco municipalities), also promoted by the IADB and Ministry of the Environment and undertaken by a group of external consultants. This study included a risk and development diagnosis in the area, identifying its different sub zones, and a phase of surveys and participatory consultation meetings made with local actors to define intervention strategies that promote risk management-based sustainable development. This study resulted in an ambitious plan entitled The Lempa River Vulnerability Programme-Disaster Prevention and Mitigation which, despite its name, is aimed at promoting sustainable development in the area.

Thus, the Programme for the Strengthening of Lower Lempa local and community Organisations emerged from a broader more integrative vision regarding the types of intervention required to minimise losses and damage caused by historically recurrent flooding and promote more permanent sustainable development initiatives. The overall initiative derived in good part from local demands negotiated with external actors, inspired by a constant reflection as regards the losses occurring with each successive flooding incident.

Beyond the formulation of the intervention objectives of the Programme, three aspects of the process may be highlighted: first, the introduction of the notion of “local risk management,” second, the connection sought between disaster risk management and the pursuit of sustainable development; and, third, the promotion of the Disaster Prevention and Mitigation Programme in the Lower Lempa. With regard to the introduction of local management notions, this approach is especially relevant in the case of the lower Lempa, where the characteristics of the conceptual approach open up the possibility of conscious, relevant and sustainable intervention. This is so because it promotes a process of awareness raising, risk analysis, prioritisation of alternatives and decision-making that leads to final decisions as regards the optimal intervention strategy.

From the local standpoint, the Programme essentially responds to the most urgent needs. This is not only because it deals with the problems involved with recurrent flooding (a constant concern voiced by settlers) but also because it involves a wide scale consultative process with the local community and institutional actors who have stated their views on the problem and as regards possible solutions. These were then taken well into account in the preparation of the list of suggested investment projects.

The overall programme, and its organisational strengthening component, was conceived from the very beginning as an answer to local demands. It was designed in a way such that all actors involved would learn in the process. An external consultancy team surveyed and made real efforts to understand the imaginaries and views of local actors, whilst at the same time providing technical contributions and scientific data that could facilitate a broader understanding of the problem situation faced by local actors.

Second, the connection between development/ risks and disasters is an essential element in the initiative that should be included in any intervention attempting to lower the occurrence or impact of disasters. In this particular case, awareness of the connection was heightened through the introduction of notions regarding the transformation of production systems, territorial organisation, sustainable management of natural resources, improvement of the quality of life and the creation of local capacities. This includes topics that go well beyond those relating to the building of dykes or the establishment of early warning systems, which are in the end conservative approaches that do little to improve local living and life style conditions or in reducing poverty and every day life risk factors.

The fact that the initiative emerged from the framework of a disaster prevention and mitigation effort could have limited the efforts to the formation of emergency committees, disaster response drills or early warning systems. However, the novelty of this intervention is that it transcended its immediate subject area, influencing other interventions that go way beyond dealing with the apparent causes of disasters, reaching out to wrestle with the relationships that can be found between these and different forms of economic and social organisation.

Third, it must be stressed that the aim of the Strengthening component is to socialise the Prevention and Mitigation Programme and not necessarily seek its unconditional implementation. The idea is to adopt the programme as a springboard for discussion and the pursuit of a consensus on forms of intervention.

As regards the sustainability of the process, this is clearly positive when seen from the standpoint of the creation of organisational capacities for the management of local development and risk. The initiative promotes the empowerment of the local population and intervention in issues that can improve the area's living conditions and levels of development.

It is also important to mention that one of the project's most significant contributions was its involvement in social organisational approaches that go well beyond "structural", material-based types of intervention. The organisational strengthening proposal and the more global proposal for intervention favouring local development have unleashed processes that will surely enhance local development projects which, until recently, were primarily focussed on building physical structures. Furthermore, we should mention that the lower Lempa experience is a clear example of how chronic disaster situations can be transformed into dynamic situations, characterised by the constant pursuit of improvements in local economic, social and environmental conditions.

Disaster Risk and Prevention Management Project 1999 – 2004 (Centro Humboldt – Nicaragua)

The Centro Humboldt (CH) risk management initiative in 10 Nicaraguan municipalities seeks to dimension and appropriate problems involving several types of risk. The project stimulates cooperation and negotiation among different actors in promoting the sustainable development of the municipalities. The intervention process is summarised below:

Preliminary negotiations with the municipality: Presentation of the projects general emphasis. Negotiation of conditions for implementing the project in the municipality.

Presentation of the initiative to promote risk management in the municipalities: Formal presentation to local actors; elements of motivation, concertation of actions among actors, stimulus for reflection on risk situations and risk reduction approaches – strengthening of local agendas, and the like.

Work agreements between the CH and the municipalities: Responsibilities are established for the two parties regarding the execution of project activities.

Participatory diagnoses of vulnerability reduction capacities as a development and disaster response requirement. In addition to processing and analysing information from diverse sources, the roles and interaction of key actors in Local Risk Management are established. The technique of auto-mapping is implemented.

Elaboration of disaster preparedness and response plans and the introduction of risk-reduction projects into municipal investment plans. Local authorities are trained in the use of round table work sessions involving local leaders and aimed at the formulation of local plans.

Emphasis is placed on the stimulation of local risk management processes and appropriation and sustainability or continuity of the Local Risk Management process by key local actors.

The diagnostic phase of the project is of major relevance. This is important not only because of the specific results it may yield, but also because of the opportunity it presents for involving four basic actors in the process -community leaders, territorial development and prevention committee members, municipal technicians and authorities and municipal development and prevention committee members. The perception of these actors is gradually transformed (using workshop exercises) towards a new and wider view of the interrelationship between disasters and development. An image of a desired future is built up. This is a key element in the strengthening of the development planning strategy at both community and municipal levels.

The diagnosis helps define and promote the roles of the actors involved in the process of Local Risk Management. This is achieved using awareness- raising techniques and by strengthening the local and municipal organisational capacity to reduce development vulnerabilities and promote opportune and efficient responses to disaster situations. Municipal technicians are trained as facilitators in the process of risk sensitisation and elaboration of risk reduction proposals.

With the development of **municipal investment plans**, these technicians join with community leaders in a process that begins with self-mapping exercises. This permits the development of management, negotiation and coordination capabilities. This has facilitated legally established social auditing processes with the municipal government relating to the rights and obligations of municipal residents. In short, the diagnosis not only provides a great amount of important information, but it also strengthens bonds between the community and municipal authorities, State and civil society organisations, establishing a channel of communication between them.

Availability of various sources of information (including the perception of the population exposed to risk, and technical and scientific

studies) is a basic principle of sustainability, given that the data from different sources may be compared and evaluated. In many cases, not only is technical/scientific quality and rigor important, but also the fact that the process of diagnosis and plan preparation involves the dwellers exposed to risk in a process of self-management, cooperation and negotiation.

The role of Centro Humboldt technicians is crucial in that it establishes the criteria for assigning adequate roles to all involved. In other words, the attitude and skills of CH technicians greatly affects the appropriation process and the bases for sustainability in the Local Risk Management process, and in the definition of day-to-day responsibilities. That is to say, it promotes the adequate application of relevant risk-reducing measures.

Communities will appropriate leadership in development to the extent that they define and assess progress over the medium term –this is a general principle in CH intervention work promoting the culture of risk reduction and disaster prevention.

Risk Management Commission (RMC) of the Children's Rights Coordinating Committee (CODENI) – Nicaragua

The Commission comprises 13 Civil Society organisations, a number of State institutions, such as Civil Defence, and Save the Children. The major interest is the promotion of the rights of children and adolescents in local risk management. Intervention generally favours the municipal level and includes a large number of municipalities in the Pacific, Central and Caribbean regions of Nicaragua.

The actors of the RMC underwent an ongoing two-year process of reflection as regards performance, work content and methodologies. This generated basic conclusions regarding its identification with the issue of Children and Adolescents in normal and disaster situations. This required engagement in a set of actions that facilitated new approaches to the handling of disaster situations, focussing on the rights of Children and Adolescents and other new partners. A basic outcome of the two-year period of work was an instrument that marked the conclusion of one stage and the beginning of another-The Prevention and Care Manual for Boys, Girls and Adolescents in Disaster Situations.

An important fact driven home by the Manual related experience is that the process of preparing this document helped NGOs involved in CODENI to reaffirm their original identity. That is to say, for each of them, their work with children and adolescents is implicit (ensuring respect for the rights of children and adolescents, particularly in disaster situations), although they had only been carrying this out in a very general fashion previously.

The actors that make up the Commission engaged in a two-year training (self-reflection) process. This activity began with practical-theoretical efforts in areas and regions where the organisations coincide. The sharing of actions and results was an enriching experience throughout the entire process.

The process of reflection resulted from the impact of Hurricane Mitch. This event revealed that children and adolescents are vulnerable groups whose needs go well beyond those related to nutrition, shelter, health, etc. (traditional conception), to also include emotional care (psycho-social care, involving processes of reflection amongst vulnerable groups, etc.). The absence of a comprehensive approach whereby boys and girls are considered subjects and not just objects in disaster situations, particularly with respect to immediate post-emergency recovery measures, was revealed.

In the first year of training, the need for a Manual was quickly perceived. This would primarily become an instrument for facilitating work in the field by technicians from NGOs and

municipalities. The basic notions and topics to be included in the Manual were as follows:

a. Hazards and vulnerability in the country.

b. Basic information on the organisation of the population in preparing Community Emergency plans.

c. How to ensure the rights to protection of boys and girls using an approach in which they are not only objects of protection, but also responsible subjects and actors participating in emergency care work.

The stages followed in the elaboration of the Manual strengthened the partnership among members of the RMC. This included information gathering (consensus among actors), reflections and discussion in workshops and, finally, the drafting of the final document (the manual). The educational elements that could be seen in the elaboration of the Manual should be present wherever one searches to develop partnerships to strengthen Local Risk Management processes. Moreover, it provides elements which promote sustainable interventions by the NGOs, members of the Risk Management Commission.

The aforementioned Manual is the principle basis for the strengthening of current and future capacities. The sustainability of the actions undertaken by the RMC and by the beneficiary groups depends on this Manual once the external NGOs conclude their participation in the current Risk Commission.

A challenge associated with the Manual relates to the fact that the facilitators/multipliers from the NGOs and local actors must first go through a process of assimilation, based on the Manual contents in order to later promote discussion and improvement. Furthermore, it is used to promote a widening of the knowledge base and synergic awareness raising and training of other Municipal actors (teachers, municipal authorities, parents, community leaders, different groups comprised of boys, girls and young people and delegates from governmental and non-governmental entities).

Local Support for Natural Hazard Assessment and Management (ALARN) promoted by the Swiss Agency for Development Cooperation (COSUDE) – Nicaragua

ALARN is a project that searches to strengthen professional capacities for the rigorous technical/ scientific preparation of hazard studies in municipalities. It was devised to provide support to local governments (over 26 municipalities) in Risk Management by means of instruments generated during the work process (maps, municipal disaster prevention and mitigation plans, vulnerability reports etc.)

Two major areas of work were promoted:

a. Scientific training of national level professionals (theory-practise) in the assessment of natural hazards at the municipal level.

b. Direct support to municipalities in conduct ing hazard studies, drawing on national capacities previously developed in specialised training courses provided by ALARN.

The process followed by ALARN has created very important levels of risk management expertise in Nicaragua. This will be utilised in education centres (an intrinsic aspect of sustainability over time) and will establish criteria for the future. An example of the positive impact made by ALARN is the development of the Master's Degree Program now offered at the National University.

Tangible results of this process may be seen with the development of municipal hazard maps. These demonstrate the substantial contribution to be made by technically and scientifically thorough studies which are in themselves necessary for analysis and for the postulation of recommendations as regards risk reduction projects. They establish a crucial milestone in

the transition from past to present analyses at the municipal level. In particular, the work has allowed municipalities to take account of hazard phenomena and factors that have traditionally been assigned little importance in terms of their impact on development (flooding and landslides).

Municipal Disaster Prevention and Mitigation Plans using cartographic analysis are one of the Local Risk Management tools that have been produced. These serve as aids to municipal authorities and as essential reference materials for organisations and institutions willing to invest in municipal development where the studies have been carried out.

The zoning proposals resulting from the studies are very helpful for decision-making by municipal authorities. This relates to the implementation of judicial/legal instruments at the municipal level, i.e., the drafting and issuance of municipal ordinances based on studies made by ALARN-trained specialists. Such legal instruments give continuity to the management process.

One of the principle aspects that should be reproduced in other contexts is that the project successfully established a working relationship with the Association of Nicaraguan Municipalities, a key Local Risk Management promoting organisation. This will permit COSUDE, or whoever continues their work, to have a platform for influencing Nicaraguan mayors and for raising their awareness as to the need to conduct scientifically and technically sound hazard studies in the municipalities.

ALARN sets precedents for types/styles of interinstitutional collaboration, which contribute to a form of PARTNERSHIP for Local Risk Management. The relationships developed between groups of specialists and various other actors (NGOs, government entities, external cooperation agencies, and municipalities) create a demand for skilled services in risk assessment at the municipal level. This has a positive impact (sustainability) on the awareness levels of actors with regard to the problems involved with risk and as regards the need for a technical/scientific approach.

The training of municipal technicians is a line of work now being developed. In other words, observation techniques and methods for gathering and analysing information (risk assessment) are being transferred to the municipal Technical Units. This is an essential factor as regards the sustainability and appropriation of ALARN's general proposal for local development. This line of work is currently being promoted in partnership with the Association of Nicaraguan Municipalities. Guidelines and materials developed by the project support the appropriation of the process by which hazard studies are elaborated.

The availability of guides and other materials for the assessment of natural hazards at the municipal level strengthens the training process implemented to date and promotes its constant improvement and dissemination.

Professionals trained in the ALARN process represent a social capital with enormous multiplication potential amongst other municipal professionals and technicians, thus setting new standards for sustainability.

The Polochic Basin Cooperation and Negotiating Committee, Guatemala

Currently, river basins are generally accepted to be an appropriate geographical unit for development analysis, planning and management. This is due to the existence of a natural interdependence among communities, their economic activities, organisations and environment. However, genuine political will does not as yet exist to strengthen this option for collaboration. To the contrary, most of the experiences that have been encouraged to date have failed due to the creation of vertical external technical structures that fail to take into account existing capacities at the river basin level.

The different sectors or segments of a single river basin acquire particular importance as regards

the issue of risk. Here, the impact of land use and occupation models can be clearly observed, as well as the manner in which they not only influence the risk and vulnerability conditions in the community itself, but also that of up and down stream communities. Hence, deforestation in the upper basin accelerates soil erosion and changes in water flows and channels, and pollution caused by industrial and domestic waste from cities affects agricultural production and direct consumption of water in the lower basin. The crops produced in these areas are then used to supply the urban population.

The Polochic Committee is both interesting and innovative in that it first acknowledges the interdependence of the different parts of the basin and the shared responsibility for the construction of risk conditions; and, second, because it came into being through the integration, almost by osmosis, of institutions and organisations that were already intervening in the region with similar or complementary projects. These gradually began to coordinate in order to increase the efficiency of their interventions. Later, they discovered opportunities for negotiating joint projects.

The Polochic river basin:

The Polochic river basin covers part of eight municipalities in the departments of Alta Verapaz and Izabal. Historically, this region has been typified by conditions of exclusion that are characteristic of rural communities throughout the country, especially those of Mayan origin. Divested of their best irrigated lands in the lower river valley, Kekchi and Pokomchi communities of the Alta Verapaz region were forced to occupy steeper and higher altitude lands in the middle and upper Polochic basin, best suited for forestland. Large rice-producing or cattle-raising estates or coffee plantations on moderately steep hillsides, replaced these communities on the better lower lying lands The ensuing deforestation of the upper Polochic river basin and its main tributaries, and the deforestation of the lower basin riverbanks has intensified the erosion process and increased landslide and flooding hazards.

The entire river basin suffered from this process (though, of course, population vulnerability levels vary among different social sectors). This was made very clear with the rains during Hurricane Mitch, where hillsides suffered a marked process of erosion, lower basin communities and agricultural areas were flooded, transportation lines were cut (highways, roads and bridges) and social and production infrastructure was adversely affected.

The Cooperation and Negotiation Committee.

The creation of the Polochic Basin Committee began during the post-Hurricane Mitch reconstruction process. First promoted by the Regional Office of CARE in Cobán, as part of its project entitled Municipal and Community Strengthening for Disaster Preparation, the Committee has become a relevant experience in inter-institutional coordination. It has also greatly helped the project evolve from its early restricted nature into a more ambitious development oriented project.

The project was designed with two fundamental spatial levels in mind: the community and municipal levels. Twenty-five communities and five municipalities were prioritised in the Polochic river basin[13] and these were to serve as pilot areas for the validation of the intervention strategy. The original idea was to strengthen the different local, community or municipal organisational levels of the governmental Disaster Reduction Coordinating Committees, thus strengthening coordination efforts in the event of an emergency. In other words, according to the disaster intervention plan, immediate response would be handled by the community itself. If the intensity of the disaster exceeded the local intervention capacity, it would then efficiently coordinate support at the municipal level.

However, considering the number of reconstruction programmes and disaster management projects concentrated in the Polochic river basin, CARE decided to include some activities aimed at strengthening

13 Cahabón, Senahú, Panzós, Tucurú and Tamahú

interinstitutional coordination, with the objective of improving response in the event of future emergencies. With this purpose in mind, the Polochic Basin Emergency Preparation Coordinating Committee was formed. Initially, institutions with reconstruction projects in the area, and public institutions and local governments called on to respond in the event of emergencies joined the Committee.

At first, training activities were sponsored by CARE in areas demanded by local actors from

POLOCHIC RIVER BASIN AND THE LOWER PART OF THE CAHABÓN RIVER:

RISK ASSESSMENT AND PREVENTION PLAN

In the study, a thorough analysis is made of hazards, vulnerability factors and risk levels associated with flooding, erosion and mass extraction of materials in the Polochic and lower Cahabón river basins. Based on the results, recommendations are made for the preparation of a Prevention Plan. Policy proposals for river basins, sub-regions and prevention strategies are made for the short, medium and long term.

Lithological, edaphic, seismic, rainfall and vegetation characteristics were analysed using the IDRISI- GIS hazard mapping system. By comparing data, hazard indexes for floods and mass material extraction processes were developed. In the study, vulnerability was defined as "the probability that the occurrence of a hazard will substantially affect the social system, leading to a disaster situation. This associates the concept of vulnerability with weaknesses in the community that prevent quick and effective action to address hazard occurrence. Consequently, vulnerability is an inverse function of socio-economic development levels and of the community's organisational status."

The socio-economic vulnerability of the community was analysed adhering to the UNDP methodology used to calculate the Human Development Index. This was then compared with the levels of organisational vulnerability, calculated according to the number of grassroots organisations present. Physical vulnerability was calculated by comparing data on types of construction materials used and levels of access to basic services. Finally, an approximation of global vulnerability was calculated by comparing the indexes. Risks due to floods and erosion caused by instances of mass material extraction were derived by combining hazard and vulnerability indexes.

The Prevention Plan has been another crucial outcome for promoting river basin-wide inter-institutional participation. Through it, risk reduction proposals are related to ecological (comprehensive resource management, orderly land use, etc.), economic (diversification of production, introduction of added value, etc.), social (educational, organisational and political issues) and financial policies.

The river basin is then subdivided into six regions, broken down according to their basic biophysical conditions. Permanent, short, medium and long term strategies are then proposed.

As can be appreciated, both the study and the Prevention Plan are an integral part of a comprehensive approach to risk and they attempt to influence hazards and vulnerability in the river basin. The Plan has become an essential document for the Committee and is the basis for the preparation of the current year action plan.

the river basin. These mainly included preparedness and emergency management activities: Early Warning Systems, Hazard Analysis, Disaster Cycle and Emergency Plans (in coordination with CONRED), Hydrometeorological Hazards (Northern University Centre) and Geological Hazards (USGS).

Gradually and under its own volition, this institutional space began to be utilised by the actors themselves for coordinating the implementation of their programmes and projects. Later on, the Committee began to delineate development-oriented actions aimed at a more definitive reduction of risks. Gradually, realising the potential of this platform for negotiating activities, other actors joined in and finally the municipalities also began to take note and participate[14].

Thus, the post-Hurricane Mitch period became an opportunity for negotiation and planning aimed at the transformation of the causes of risk, and the Committee then became more development oriented. The disaster had raised awareness concerning the risk issue at all levels, whilst the process of reconstruction led to the deployment of considerable economic, human and institutional resources in the Polochic river basin. Nevertheless, a venue for dialogue was needed in order to promote the coordination of activities and provide a more general framework than that offered by individual projects. The Polochic Basin Emergency Committee (still basically preparing for emergencies) provided such an opportunity.

Finally, members of the Committee acknowledged the true nature that this platform was taking on and decided: 1) to change the name to The Polochic Basin Pro-Development Cooperation and Negotiating Committee and 2) prepare a Basin Development Plan. This plan sets out to organise ongoing institutional and organisational proposals, providing an overall framework for systematising projects according to views and interests at all levels of the river basin. This plan is currently being prepared.

One of the key instruments in this process has been the preparation of a study entitled “Risk assessment related to the mass extraction of materials and processes of erosion and flooding in the Polochic and lower Cahabón river Basins”. This study, which was not originally envisaged, has served as a basis for negotiations among social actors present in the river basin, i.e., public and private institutions, cooperation agencies and NGOs.

In the final part of the study, a series of strategic guidelines are proposed for the reduction of identified risks. General policies on ecological, economic, social and institutional issues are proposed. The river basin is subdivided into six regions, and prevention proposals are defined for each of these in the short and medium term. Permanent actions are also proposed.

A major activity is the preparation of the River Basin Development Plan, including the strategic areas to be promoted in the Prevention Plan. Based on this Plan, various infrastructure projects are in process of design and management. These will be presented to the Office of the President. Environmental projects will be presented to the Environment and Natural Resources Ministry (among them the drafting of a territorial organisation proposal). Drafting of a housing construction code for the municipalities in the river basin is also contemplated.

The German Agency for Technical Cooperation, GTZ, has acknowledged this inter institutional effort. Through its Decentralisation and Municipal Development project of the Alta and Baja Verapaz Programme, it has envisaged the strengthening of this Coordination Committee. This institution has consistently lent its support to the drafting of the Development Plan.

Initiatives of this sort encourage us to believe in the feasibility of promoting alternative concerted development modes that bring together different local and external actors, unifying criteria, interests and efforts in favour of a common objective.

14 The municipalities that had resisted involvement in the forming of their Municipal Coordinating Committees began to participate actively in the Committee. In the Committee, they found greater opportunities for discussion and the running of their projects, through partnerships with other municipalities, with public institutions or directly with International Cooperation Agencies. Conversely, these actors are not present at the municipal level, and the motivation to organise and promote an intermunicipal coordination initiative is still far-off.

Some ecological aspects of risk management: the experience of World Neighbours in southeastern Honduras.

Notes and reflections are presented below on the experience generated by the project entitled "Sustainable Agricultural Development in the Communities of Jamastrán", municipality of Danlí, department of El Paraíso. This project has been promoted by World Neighbours-WN- with funding from Diakonia (Germany) for the period 2000 to 2001.

The project emerged out of post-Hurricane Mitch reconstruction plans and, more specifically, out of the programme funded by Diakonia. In 2000, this agency began to select partners from the four countries most adversely affected by Hurricane Mitch (Honduras, Nicaragua, El Salvador and Guatemala), stressing the most affected population and areas, in the form of disaster prevention initiatives.

WN had been carrying out work in the area of sustainable agriculture and public health in various rural communities in northern, southern and western Honduras for some time now. It also gradually began to join in community strengthening efforts as a third component of its institutional work, though not limiting it strictly to work dealing with risk and disaster.

Because of this, the project involved a type of organisation that did not coincide with the emergency committee scheme or that of the risk management committees traditionally adopted by organisations directly advocating risk reduction. Rather, the issues of sustainable agriculture and recovery/preservation of health were introduced as the most important project objectives and for the participating community organisations as well.

It is also evident that river basin management assumed a very important place in the project. Without denying the great importance of integrated basin management for hydrometeorological risk and disaster impactreduction strategies, this does present the drawback that other types of risk, particularly those of geological origin (particularly earthquakes), are relegated. Close attention is thus focussed on natural resources themselves and the issue of emergency attention or risk management organisation as such is given a lower level of priority.

Emphasis on the preservation and restoration of natural resources largely arises from the institutional conviction that disaster risk reduction is an issue that has a substantial ecological component. Hence, in WN publications reference is made to the fact that Hurricane Mitch demonstrated that agricultural land under ecologically sound management suffered less than traditionally managed land.

This view is evident in the project where the goal of effecting a reduction in the vulnerability of biophysical resources is included amongst the principle objectives. However, it does not overlook the fact that the ultimate goal is to improve the quality of life of the participating population. Furthermore, other issues are included in the specific project objectives. Although their risk-reduction intentions are not made explicit, they will ultimately contribute to mitigating vulnerability (sustainable agriculture, food security, organisational strengthening and the improvement of health conditions).

Consistently, the project emphasises the creation and strengthening of local capacities and the promotion and development of management capacities in the target population. Training, technical assistance and organisation around the local committee model are an explicit component of the project.

It is important to stress that this project is run by WN during a period of transition from a work ethic focused on the farm property level to a view focused more on the micro-basin/micro-region. This has tended to reinforce the trend towards adopting a basin-wide approach in the selection of geographical areas for projects. For the same reason, it is no wonder that the project was conceived as being closely associated with basin management.

In this way, the project shifted from a broad intervention-based strategy, with no significant criteria as to geographical scope and relatively scattered efforts over an extensive area (the El Águila zone), to a more concentrated type of intervention in which the micro-basin is the basic geographical criterion for intervention. This focus clearly offers advantages since it involves "reducing the vulnerability of the biophysical resources of small farmers". Here, the basin-wide approach offers the advantage of promoting specific measures in each of the micro-basins and, overall, provides excellent options for promoting the sustainable use of natural resources and reducing the threat of floods, droughts and mass movements.

It also stresses that the project has envisaged an important process of inclusion of local views and expectations through the formulation of participatory diagnoses and, primarily, through the El Águila Micro-basin Development Plan, covering part of the area of influence of the Jamastrán valley. Components of the plan were identified using survey methods. They thus reflect the situation as seen through the eyes of the local actors themselves.

The majority of the project's results relate to the field of sustainable development and, to a lesser degree, to organisational strengthening. This is consistent with the design of the project outlined above. Hence, practically half of the results deal with the introduction to, or training in the sustainable use of natural resources and the other half deals with organisational strengthening (including the establishment of a federation of agricultural cooperatives) and improvement in conditions for environmental reorganisation.

Some noteworthy practices that helped to raise the quality of the project's impact are: focusing the intervention on the pursuit of local sustainable development and not exclusively on limiting or reducing risks; focusing interventions on reducing technical, economic and environmental vulnerability through sustainable agriculture and environmental reorganisation; promoting flexible design to allow adoption of a basin management approach; and, finally, not closing out from the beginning the issues/problems to be dealt with, opening them up for analysis and proposals from the target population.

From disaster preparation to vulnerability reduction: a regional PAHO initiative

PAHO has played an important role in post-disaster recovery and in preparation for vulnerability reduction in the public health sector for many years. An example of this is the Disaster Preparedness Programme developed in the 1980s and 1990s with the intention of raising the capacity of public health systems to resist and respond to the impact and demands of disasters.

PAHO's association with public health matters, along with the crude impacts of disasters on this sector, have merged in a way such that at different stages they have contributed to the evolution of ideas on disaster impact reduction. DPP programmes were the first of their kind in Central America, and they lent support to the development of disaster units in the Ministries of Health of the Central American countries. Moreover, they actively promoted improvement of disaster management capacities by means of publications, the setting up of a regional disaster documentation centre, specialised courses and support for the reduction of vulnerability in water systems and hospital infrastructure.

Gradually, this programme evolved due to the demands placed on it and lessons learned through tragic events such as those associated with Hurricanes Georges and Mitch, and changing PAHO policies concerning risk and disaster-related matters. Thus, the disaster preparation programme began to be accompanied by an increasing emphasis on vulnerability reduction, where preparedness in the public health area has remained important, but ceases to be a unique objective.

It is within this framework that the project entitled "Preparedness for Disasters and the Reduction of Vulnerability of the Public Health Sector" is promoted in countries affected by Hurricane Mitch, particularly Honduras, Nicaragua, El Salvador and Guatemala. In the case of Honduras, this project has aided communities in the departments of Valle and Choluteca, in addition to the government-run public health sector. The purpose of the project is to "contribute toward the reduction of social and health-related impacts of disasters on communities". Its objectives denote an interest in strengthening health institutions, introducing measures to reduce vulnerability in rehabilitation and reconstruction projects involving basic sanitation infrastructure and in promoting a pro-disaster prevention culture among the population.

Since the initiative is regional in scope, it also envisages proposals supporting regional actions dealing with disaster protection and advocates a strategy of regional cooperation that pursues three objectives: to maximize the current capacities of countries in the region; to strengthen commissions, reunions and other mechanisms for regional integration; and to disseminate experience acquired from pilot projects in mitigation and reconstruction planning. A final objective relates to the maximising of financing from national funds or from funds obtained through banks and consultancy promoted by the specialised programmes of intergovernmental organisations.

One of the most important aspects of this project (especially considering its past record) is that it has carried out actions with the population at risk, including those directly affected by the disasters. This was made viable by PAHO's acceptance that the impact of disasters could be significantly reduced. This was demonstrated by the fact that assessment of the impact of the disaster brought on by Hurricane Mitch led to an acknowledgment that the risk could have been reduced by adopting prevention and mitigation strategies in health facilities, establishing early warning strategies, and strengthening regional, national and community coordination mechanisms.

Though the project preserves its traditional emphasis on health, it is not only centred on strengthening government health-related institutions, but also on reducing impacts on communities. The methodological principles of the project are geared up to both local and nationwide capacity building. This can be seen in its efforts to modernise the organisational structure and legal bases of the Permanent Contingencies Committee, a governmental civil defence entity, as well as in providing technical advice and financial cooperation to the Health Secretariat.

The project is devised to improve social conditions by facilitating reduction in levels of vulnerability to disaster in target areas. Here, it is making a noteworthy impact on the health system, basic sanitation conditions in the communities and with the strengthening of local organisation.

As regards this latter point, the project's options for sustainability are very good in that it deals with the day-to-day problems of water and sanitation. This is borne out by the fact that community health emergency committees supported by the project have taken on day-to-day emergency prevention tasks such as work involving cleaning, sanitation and drainage maintenance. The latter activity paves the way for greater permanence in organised community action and actions that go far beyond strict emergency attention.

In summary, the PAHO project suggests that the inclusion of risk reduction criteria in the health sector, support for local organisations and the promotion of information and training in risk and disaster control are key elements in creating conditions for preventing the impact of disasters on health conditions (and social conditions overall), and from producing greater deficits in the meeting of the basic needs of more disadvantaged people.

Management and Local Power: The case of the Municipality of Senahú, Alta Verapaz –CARE Project[15]

The scarcity of resources available to local governments, centralisation of decision - making, economic dependence on external actors and the short-term views held by many authorities are some of the factors that impede an organised and planned process of risk reduction, and, consequently, community development. However, despite these difficulties, isolated and dispersed experiences can be found in different municipalities that have successfully coordinated their capacities to conduct processes that go beyond specific investments, emergency attention or partisan political priorities. Senahú is one of these cases in which the local government became involved in the risk issue and began to go beyond emergency preparedness, searching to reduce risk conditions to the point that it has participated in initiatives affecting the entire Polochic river basin.

The Municipality of Senahú is a high landslide risk area. Increased deforestation of the calcareous hillsides has accelerated erosion processes and the unsuitable location of housing and production has raised the probability of adverse effects during periods of rainy weather. On several occasions, clusters of housing structures have been damaged. The latest of these, in 2000, left a death toll of 13 individuals, destroyed 30 homes in the Chulac Cooperative and in Barrio El Calvario, and damaged a water storage tank.

The first actions aimed at preparedness for new emergency situations: formation of the Municipal Disaster Reduction Coordinating Committee, drafting of the Municipal Emergency Plan, an inventory of emergency attention resources and the provision of preparedness training. These actions were conducted by the Post-Mitch CARE Project, which facilitated negotiation with other local actors, and intensified community-level work, strengthening relationships between the communities and the administrative seat of the municipality.

During this process, training seminars were developed to produce inputs for the drafting of Emergency Plans, as listed below:

- Hazard Analysis
- Community Organisation and Participatory Planning
- Meteorological Risks
- Disaster Cycle and Emergency Plans
- Hydrometeorological Risks

Support was provided to each of these areas by specialised institutions (CONRED, CUNOR, and USGS) that had helped prepare the CARE team, municipal technicians and regional level institutions. Later, the CARE team reproduced this training at the municipal level and finally the municipal technicians adapted it to the community level. Some of the institutions involved in this emergency preparedness are: municipalities, teachers, the National Civil Police, Health Centres, the Social Investment Fund, The Department of Justice, Public Health, the Catholic, Evangelical and Mormon churches, among others.

Intervention, however, gradually went beyond these emergency preparedness activities. Aware of the fact that the risk situation persisted and continued to deteriorate, Mayor Francisco Javier Teni Chiquín involved the municipal council in the promotion of processes to reduce conditions that cause disasters. They have assessed neighbourhoods and basic infrastructure and have taken on the difficult task of relocating families living in the highest risk homes. With

15 The intervention carried out by CARE-Guatemala involving the issue of risks began during the Post-Hurricane Mitch reconstruction process, with the Project entitled Municipal and Community Strengthening in Preparation for Disasters (Fortalecimiento Municipal y Comunitario para la Preparación en caso de Desastres). It gradually acquired an approach that was more closely associated with development and comprehensive risk reduction and which has already culminated in the Project entitled Risk Management for Sustainable Development (Gestión del Riesgo para el Desarrollo Sostenible). Senahú is one of seven municipalities that benefit from the intervention of CARE in the Polochic river basin.

funds from the reconstruction process following the disaster in 2000, they have been building a new neighbourhood in which to settle these families, while the hillsides have been declared uninhabitable and reforestation projects are now being developed.

Currently, with support from the CAMI project (the second phase of the CARE intervention) a process of development promotion has begun, along with the elaboration of a comprehensive diagnosis for the risk and development management plan. The creation of the Polochic Basin Coordination Committee is another achievement and the Municipality of Senahú has become one of its enthusiastic members. This Committee has been identified as the ideal venue for the joint drafting of inter-municipal proposals, negotiation with actors from the regional and national spheres and for implementing development strategies that would be impossible to execute separately.

The journey has only just begun and a long process of concertation will be required by all local, regional and national actors. However, the presence of this dynamic, conciliatory mayor who is fully committed to his community has been a key factor in the successful implementation of the project in this municipality. Likewise, the leadership of the mayor's office has facilitated the participation of other social actors, public and private institutions, and grassroots organisations.

The experience of CARE, the Municipality of Senahú and the Polochic Basin Coordination Committee reinforces the idea that inter-territorial coordination is necessary for reducing risk. This process encourages three levels of inter-institutional coordination, i.e., the basin, the municipality and the community. The first two generate the policies, programmes and projects to be implemented locally, but organisational processes promoting the implementation of risk reduction measures and facilitating the intervention of regional and municipal actors are also generated locally.

Natural/Epidemic-related Disaster Prevention and Mitigation Project – Doctors without Borders[16]

The experience of DWB has been one of the most successful of its kind in the field of disaster risk reduction in a socially complex area such as urban Guatemala. It has successfully involved participant communities, harmonising emergency preparation actions with risk reduction strategies. In this intervention, the population, the DWB and other participant institutions have understood the complexity and comprehensiveness of the factors involved in the make-up of risk and the need to promote coordinated work in the transformation of these processes.

The overall objective of the Doctors without Borders project was to "reduce the level of vulnerability of the community vis-à-vis emergency situations caused by epidemic-related/natural disasters." Specifically, the purposes of the project are as follows:

- To reduce the extent of a disaster's impact by implementing preventive, educational and training activities.
- To improve the quality of emergency attention through inter-institutional coordination and collaboration.

As the executors of the project point out, "the idea is to directly involve members of each community and proper authorities in the process of preparing and implementing the contingency plan." Nonetheless, this plan "must not concentrate strictly on response to an emergency situation, but also… on preventive and mitigation actions limiting the extent of a disaster's impact."

Throughout the project's implementation process, the institution grew in conceptual and practical terms, from a view focused on emergency attention, to a more comprehensive approach that would contribute towards reducing

16 Excerpt from the document Comparative studies on Local Risk Management in Central America: The case of Guatemala (Gisela Gellert and Luis Gamarra, FLACSO, 2003).

risk conditions in the communities. In fact, the executors of the project designed the activities of the project so that a comprehensive analysis would be made of risk conditions and strategies for their reduction promoted.

Consequently, without neglecting the specific donor goals -elaboration of a contingency plan, shelter identification, logistical preparation and community training and organisation- which clearly exhibit an emergency preparedness orientation, they stated in conversations with the executors of the project that the greatest budgetary and temporal emphasis was to be made on activities termed "preventive". These focused on:

Reducing the risk of landslides: Construction, cleaning and rehabilitation of existing drainage systems, slope stabilisation works, reinforcement of existing structures, reforestation of critical public areas, cleaning of roads and evacuation routes, solid waste management in critical sectors and raising community awareness.

Reducing the risk of epidemics: Introducing potable water, inspection and repair of the water distribution network, control over the handling of food, control and cleanliness in public latrines, handling of solid waste in public areas and control of disease vectors (especially through scrap metal removal programmes).

In order to understand the needed long-term coordination of medium and shorter-term strategies (possibly including emergency attention capacity-strengthening) we must understand the processes by which the risk conditions of marginal urban neighbourhoods have developed in Guatemala City. These communities have evolved under conditions of exclusion. Without the economic capacity to acquire a safe place to live, the dwellers of these communities had no option other than to settle in ravine areas. The difficult living conditions (inexistent or inefficient water supply or sewerage systems, the high cost of construction, poor access to good quality education and health services, etc.) have progressively led to the development of risk conditions that affect health and infrastructure. These add to the difficult every day risk situations experienced by these communities (family support, lack of law and order, child care, and the like).

The DWB project, based on the comprehensive understanding of the risks faced by these communities, became directly involved in this problem situation, attempting to harmonise short-term proposals that help resolve specific problems in the face of urgent needs, with strategies designed for the longer term (strengthening community organisation, leadership training, development planning, etc.). They concentrated their intervention on seven communities in Zones 3 and 18 of Guatemala City. This covers a population upwards of 11,000 living in conditions of risk from epidemics and landslides due to their precarious socio-environmental situation, overcrowding, lack of piped water systems and inadequate services for environmental clean-up. The following process was implemented with these communities:

Phase one:

- Identification of the sectors most vulnerable to landslides.
- A pessimistic estimate of the potential number of victims per community.
- Identification and assessment of potential shelters in terms of water, latrines, access, size and drainage.
- Identification of the entities or support groups present locally and their activities.
- Identification of the preventive measures that can be taken in each community.

Phase two:

- Implementation of an education and information campaign.
- Monitoring and follow-up.

- Implementation of preventive actions.
- Preparation of shelters.
- Drafting and signing of agreements.
- Logistic preparation.

One of the essential aspects of the process was the direct involvement of public and private institutions in all of the activities: CONRED, Ministry of Health and Social Assistance (through the health centres), the municipalities (through EMPAGUA, the Secretariat of Social Matters, Department of Sanitation and Municipal Firemen), The Guatemalan Red Cross, Pastoral Social Ministry of the Archbishopric of Guatemala, local NGOs and Community Committee Associations.

To strengthen the participation of the population, a series of participatory methodologies were devised for risk analysis that would allow the postulation of solutions and the raising of community awareness. Through workshops, risk scenarios (Guatemalan Red Cross, CONRED) and situational diagnoses (Pastoral Social Ministry) were elaborated; a series of educational talks were given on basic sanitation (Ministry of Health), disaster prevention and mitigation (Pastoral Social Ministry, Guatemalan Red Cross), and on emergency preparedness (Pastoral Social Ministry, Guatemalan Red Cross); community awareness-raising campaigns were conducted on the issue of disaster risks, which included games, contests and sports events associated with the problem situation. Another important theme was the organizational strengthening, carried out with the support of community committees and associations and local NGOs.

Considerations:

We can highlight the following important aspects from the DWB experience in marginal urban zones:

1) It is not only a good example of the strengthening of community participation in the reduction of risk conditions, but also of interinstitutional coordination and of comprehensive intervention. It demonstrates that contact with the community makes it difficult to establish a thematic differentiation in terms of intervention. The local situation is exceedingly complex and palpable, thus, in order to gain sustainable achievements in the project itself, it is necessary to take into account the other more permanent and pervasive problems of the community. This requires the forming of strategic partnerships with other institutions working in the same area, or attracting other actors that complement the programme and specific goals.

2) The evolution of the institutional approach traditionally focused on emergency attention, to- ward a more comprehensive view of inter- vention looking at more global risk reduction. Thus, although the project presented specific objectives and goals aimed at strengthening disaster preparedness capacities, it included specific strategies for reducing vulnerability conditions in infrastructure when faced with landslides, and for the population, when faced with possible epidemics. The channelling of storm waters, protection for the foundations of homes, community cleanliness cam- paigns, permanent health care and particu- larly awareness raising and organisation of the population, are clear examples of this.

3) In this sense, it is also important to highlight the capacity of the institution to harmonise short and long-term strategies. Many times with the urgency to solve highly sensitive short term problems we lose perspective of the processes that have been shaping thesituation at hand. Thus, although urgent prob- lems may be effectively solved, non- interven- tion in causal processes may lead to a reit- eration of the problem once the project draws to a close. Or, new risk situations may arise. It is important, therefore, through short-term strategies, to widen active participation, to develop organisational foundations and to build local

capacities in order to provide a sustainable solution to risk construction pro- cesses. This may make the project more drawn out and tedious. But support to pro- cesses must be a major component of projects, and this must accompany the search for concrete solutions such as the building of infrastructure.

From famine emergency measures, to comprehensive risk reduction: the experience of Jocotán - EPSUM

In the second half of 2001, high-risk conditions in communities located in the eastern region of the country led to an acute famine emergency in the municipalities of Jocotán, Camotán and Olopa. The United Nations Volunteer Programme – University of San Carlos, through the project "Risk Prevention and Disaster Management[17]" was involved in the first of these municipalities with an emphasis on community-level work in risk diagnosis, emergency preparedness actions and implementation of environmental risk reduction strategies. The emergency modified the approach of the work team and directed it towards promoting development processes at the municipal level, contributing to a transformation in the structural conditions that led to the famine.

According to World Food Programme (WFP) data, 2,310 families were directly affected in the department of Chiquimula, 542 of which were in Jocotán, 542 in Camotán and 805 in Olopa. These families were unable to meet their basic nutritional needs. Among the immediate causes cited were the loss of over 5,000 temporary jobs due to a drop in coffee prices and the loss of at least 50% of the staple grain crop harvest, due to the impact of the drought. Structural causes are the result of a long process however. The diagnosis of risk conditions prepared by the EPSUM project and the United Nations Volunteers points to the following factors:

- Social, political, economic and environmental exclusion of the Chorti population, which has historically been displaced from more fertile land toward the mountains due to discrimi- natory land use policies (coffee arbitrarily assigned to the mestizo population or ac- quired by individuals wielding economic power)
- Settlement and agricultural use of land suited for forests, leading to constant erosion and loss of fertile topsoil, lowering the capacity of the soil to recover, and increasing river sedimentation.
- A lowered capacity to cultivate and accumulate wealth creates economic dependence on seasonal crops, particularly coffee.
- Poverty, especially in rural communities, which comprises 85% of the population
- The unplanned location of communities leaves them without basic services such as education, health care, water, electricity, roads, etc. This leads to high rates of illiteracy, low vaccination coverage, chronic malnutrition, improper handling of refuse and excrement, pollution of the environment, etc.
- Residual effects of Hurricane Mitch: a highly vulnerable population that has yet to recover from the impact of this event which caused losses to harvested but poorly stored crops, serious deterioration of the soil and soil erosion, landslides and loss of infrastructure.
- The lack of programmes to deal with the rural ethnic problem (involving access to technology and credit, low productivity and few employment alternatives), creates conditions of vulnerability that are compounded by the drought.

A series of problems arose while emergency attention was being dispensed: weak community organisation impeded organised social response to the event; inadequate municipal management

17 A project conducted from 2000 to 2002, under an agreement between the United Nations Volunteer Programme and the EPSUM Programme (Supervised Multidisciplinary Professional Practise) of the University of San Carlos-Guatemala. The intervention was implemented in four municipalities in the eastern region: Los Amates, Morales, Jocotán and Camotán (recently included after suffering food insecurity problems).

or distribution structures; no census was taken to properly locate families; distribution costs were exceedingly high; political divisiveness and urban - rural confrontation assigned priority to one sector to the detriment of the other; institutional leadership was not conducive to achieving a unified emergency attention strategy; the low credibility of the government and political manipulation of the crisis impeded local negotiations.

At this point, the EPSUM Project team in Jocotán[18] intervened. Despite the main objective of the project being the reduction of social and environmental risks at the local level, the project also provided support during emergencies. Hence, the team members organised aid in the distribution of food, analysed the problem situation, helped strengthen inter-institutional coordination and, later on, proposed long, medium and short-term strategies to help the Municipality of Jocotán solve its food insecurity problem.

Beginning with this intervention, the emphasis of the team's work changed considerably. The focus of the intervention, originally aimed at the community level, began to prioritise work at the municipal level. Moreover, the emergency preparedness approach shifted toward visualising and attempting to influence processes of development. New actors became involved, among them NGOs, cooperation agencies, and public institutions. Very importantly, the type of relationship established with the Municipality changed. Instead of being considered volunteers from the University of San Carlos who had to collaborate with local government initiatives, the students were now seen to be an actor with the capacity to make proposals. This led them to introduce the following important proposals into the second year of project:

- Organisation of a platform for inter-institutional coordination
- Strengthening of local government regarding the issue of food security
- Promotion of a municipal level development planning process

The EPSUM experience leads to a number of relevant conclusions as regards risk management processes. First, university training of professionals is extremely important in stimulating a comprehensive view of disaster risk. In this sense, the participation of higher education centres is exceedingly important for research and professional training in the different disciplines (social sciences, engineering, education, architecture, the physical sciences, etc.). This latter encourage the inclusion of the risk theme in subsequent professional work. This requires preparation and validation of risk analysis methodologies and the elaboration of intervention proposals that facilitate coordinated multidisciplinary work. Although this is a long-term goal, it is important to start as soon as possible with the preparation of human resources.

Secondly, experience with the project allows us to arrive at the following aspects that are relevant to the local risk management process:

1) the acknowledgement that risks develop in processes involving unsustainable social, economic and political relationships that affect the environmental conditions of a community or region;

2) faced with this situation, comprehensive intervention to promote structural transformations in development are required. Coordination of political/institutional, economic/ production-related, educational, organisationaland ecological strategies is required in order to accompany investment in infrastructure. Construction of infrastructure must not become an end in itself;

3) the need to coordinate both local and external efforts in order to compensate and strengthen the potentially limited capacities of independent social actors; and,

4) the mandatory involvement and leadership of local governments in the promotion of inter-institutional coordination at the municipal levels, aimed at concerted development and, therefore, reduction in existing and future risk conditions.

18 The team was comprised of seven volunteers from the faculties of agronomy, psychology, nutrition, social work, education and geology, all graduates of the University of San Carlos, Guatemala.