EL SALVADOR – Lower Lempa River Valley

Copyright 2002-2005, Maps-Of-The-World.com

The maps used do not imply the expression of any opinion on the part of the International Federation of Red Cross and Red Crescent Societies or National Societies or the ProVention Consortium concerning the legal status of a territory or of its authorities

Programme for Prevention and Mitigation of Flood Disasters in the Lower Lempa River Basin

CRA Toolkit
CASE STUDY

This case study is part of a broader ProVention Consortium initiative aimed at collecting and analyzing community risk assessment cases. For more information on this project, see www.proventionconsortium.org.

Bibliographical reference: Government of El Salvador, Ministry of Environment and Natural Resources (MARN), "Programa de Fortalecimiento de las Organizaciones Locales y Comunitarias en el Bajo Lempa: Lecciones Aprendidas", San Salvador: MARN, 2004. See also, Allan Lavell, "The Lower Lempa River Valley, El Salvador: Risk Reduction and Development Project." In: G. Bankoff, G. Frerks, D. Hilhorst, eds., "Mapping Vulnerability: Disasters, Development & People", pp. 67-82. London: Earthscan, 2004.

Click-on reference to the **ReliefWeb country file for El Salvador**:
http://www.reliefweb.int/rw/dbc.nsf/doc104?OpenForm&rc=2&cc=slv .

Note:
A Guidance Note has been developed for this case study. It contains an abstract, analyzes the main findings of the study, provides contextual and strategic notes and highlights the main lessons learned from the case. The guidance note has been developed by Dr. Ben Wisner in close collaboration with the author(s) of the case study and the organization(s) involved.

The Lower Lempa River Valley, El Salvador: Risk reduction and development project.

Allan Lavell.

The Network for the Social Study of Disaster Prevention in Latin America-LA RED; and the Latin American Social Science Faculty-FLACS0

Introduction:

Between July 2000 and April 2001, the author had the opportunity to coordinate a group of consultants working on a project aimed at promoting disaster risk reduction and sustainable development in the Lower Lempa River Valley, El Salvador. This work was undertaken for the Ministry of the Environment and Natural Resources and financed by the Inter American Development Bank-IADB. The project called for the elaboration of an integral diagnosis of the zone and the proposal of an integrated intervention strategy that could lead to substantial flood disaster risk reduction, improvements in human welfare indicators and new opportunities for overall sustainable development.

The principal objective of this chapter is to provide a succinct analysis of some of the major conceptual and methodological tools used in project implementation and a review of some of the major results achieved in the search for risk and vulnerability reduction in the intervention zone.

Particular interest will be paid to the role played by the local population and their organisations in the dimensioning and understanding of risk and in discussion and decisions as regards the proffered risk reduction strategy. The active, participatory role

of the local population was considered a corner stone to project success and was a dominant focus in project concept and methodology.

Risk, or the probability of future damage and loss, has an objective dimension and may be scientifically and technically estimated where adequate information on hazards and vulnerabilities are available. However, this objective dimension of risk must be evaluated socially in order to contribute to decision-making processes regarding the promotion of acceptable and feasible intervention strategies and instruments. This subjective dimensioning of risk may legitimately be undertaken by diverse social actors-outsiders and affected populations. However, success in identifying the need for, and creating the will and opportunity for reduction measures, requires dialogue and, hopefully, consensus between different actors. The attitudes, evaluations and strategic parameters of external actors may, and often will not coincide with those of the local population. Different visions or considerations as regards risk and risk levels, and as to their 'acceptability' or 'unacceptability', will be made according to different social perceptions and contextual factors. Acceptable and unacceptable risk thus cease to be technical dimensions and become socially determined variables influenced by different cultural, economic, social, political, institutional and organisational conditioning factors. Many times the notion of 'acceptable risk' will have to be traded in for the idea of accepted risk or unwillingly accepted risk. This is particularly true amongst poorer, resource-limited populations such as those inhabiting the Lower Lempa River Valley in El Salvador.

In order to fully understand the project concept and intervention strategy, we will begin our discussion with a brief introduction to the Lower Lempa River Valley. This is of

critical importance given that the dimensioning of risk and the design of risk intervention strategies may only be adequately achieved where these activities are fully cognisant of the real social and human context subject to intervention. Experience has shown that despite the apparent similarity in many risk contexts, there is no homogenous way of looking at and designing risk reduction strategies. Rather, these will vary from context to context and must closely take into account the particular social, economic, cultural and political conditions prevailing in different risk zones. Homogeneity or pre-conceived intervention packages tend to be the fodder of risk professionals and technicians and many times deny the social heterogeneity that typifies populations at risk throughout the world. (Maskrey, 1989)

The Lower Lempa River Basin: basic characteristics.

The Lempa River Basin is a multinational hydrological unit covering parts of Guatemala, Honduras and El Salvador.

The Lower Lempa River Valley covers some 850-sq. km. and is located between the Salvadoran coastline and the Littoral Highway that runs from San Salvador to the Honduran border, crossing the Lempa River using the Golden Bridge (el Puente de Oro) at the town of San Marcos Lempa. According to estimates carried out during field work undertaken by the consultancy team, the area has an estimated total population of between 30 and 40000 persons (without a census it is impossible to accurately report the real population of the zone), distributed in nearly 90 villages and small towns.

The area is in good part a highly fertile alluvial plain and nowhere does the area rise much above 200 metres. The coastal limit comprises a bay-land area populated by the countries principal mangrove swamps and other saline plant types. And, a portion of the river's left bank is occupied by the Nancunchiname Forest, one of the very few areas of lowland tropical woodland left in the country. Covering some 1000 hectares, this woodland was severely deteriorated in the 1980s during the country's civil war due to deforestation and burning by woodcutters, croppers, and illegal hunters. This process has continued since, although major attempts have been made to control degradation of this unique resource.

Up until the end of the 1970s the area was commonly referred to as the 'breadbasket' of El Salvador. Historically occupied by large-scale land holdings, the area produced añil, basic grains and cotton for the export market. These products occupied part of the flood plain, but settlements and housing were generally located out of the major flood areas. Although seasonal flooding was a regular feature of the zone, few reports of *disastrous* flooding were recorded in the area up until the 1990s. The large land-holders had achieved a reasonable balance between production, settlement and flood amelioration, using adequate land use practices and the selective use of well built and maintained dykes

During the early 1980s, the area was subject to an agrarian reform program that led to the break-up and redistribution of many of the large land holdings. Then, with the advent of the newest phase of the country's civil war the area became a natural route for arms movements to the guerrilla forces of the Farabundo Marti National Liberation Front-FMLN- and a zone of conflict between the guerrilla forces and government

troops. This inevitably led to large-scale population migration from the zone. By the end of the 1980s very few persons permanently occupied the area.

With the end of hostilities in 1992 and the signing of the peace agreement between the FMLN and the government, the area was included in the so-called Programme for Land Transference-PLT. By means of this programme, land was allocated to combatants from both warring factions and poor and very poor families were relocated in the area in previously established and newly created population centres. Many of these persons came from urban centres and had little previous history of agricultural work or fishing and shell collection, the principle activities of the zone. Even in the case of agricultural populations many came from highland zones and had little experience of lowland tropical agriculture. Given the absence of other alternatives the newly located population dedicated itself primarily to agriculture and fishing. Grains, particularly maize, plantain, root crops and fruits were produced for basic sustenance. Coastal communities attempt to eke out a living fishing and extracting shellfish for commerce.

Many of the new communities were located in areas that are highly prone to flooding due to extreme periods of river flow and the effect of coastal tidal movements, or a combination of both. This was simply the result of a lack of concern or consideration for flood hazards and a product of the celerity in assigning land and decisions on the location of infrastructure and villages. With this, and the flood plain location of cropping and rural settlement, the area started to make the headlines more and more often when affected by regular flooding incidents that severely affected a predominantly poor population with little resilience and few opportunities for self-protection.

In October 1999, the area was severely affected by flooding associated with Tropical Storm Mitch. The flooding to be expected with a storm of this magnitude was complicated due to the opening of the sluice gates at the 15th of September hydroelectric facility upstream from the area with little previous warning to the down-stream population. Although few deaths were reported, the damage suffered marked new heights and led to increased demands from the population and interest by government and international intervention in flood risk reduction.

Non-governmental organisations and population associations in the zone articulated a good part of the demand for protection from flooding. In particular, the Corporation for Economic and Social Development- CORDES- a development NGO predominantly working on the right bank of the river, and the Coordinator of Communities in the Lower Lempa Valley-*the Cordinadora*- working on the left bank, played a dominant role. CORDES was particularly vociferous in searching for levee construction whilst the Coordinadora had traditionally favoured early warning and evacuation systems, accompanied by improvements in agricultural productive capacity and the welfare of the population. In fact, both organisations had promoted different schemes for improved agricultural production over the last years. CORDES had successfully promoted agricultural diversification into new commercial products and industrial processing of some of these (cashew nuts, milk and honey). It also promoted increased use of irrigation and organic growing methods. The Coordinadora had favoured diversified agricultural plots for home consumption with limited commerce of crop surpluses, and the increased use of dispersion type irrigation schemes.

These two organisations are representative of the highly organised population base to be found in the area. Almost all organisations in the area are of FMLN affiliation and linked to the different factions that compose this now formally established political party. In fact, these FMLN origins help explain the present highly developed level of organisation in the zone. Various communities comprise persons who lived together in other parts of the country or abroad during the war and had already developed strong organisational links.

However, despite the common FMLN base of the dominant organisations in the zone, this had not guaranteed cohesion and collaboration. In fact, the more important organisations had many times been at loggerheads as regards strategy, philosophy and ideology. The principle left and right-bank organisations had very little previous history of mutual collaboration. The river divided rather than united this natural geo-ecological zone.

At present (2001) the four municipalities with a presence in the Lower Lempa Valley are also controlled by the FMLN, whilst the right wing ARENA party controls the national government. The combination of FMLN oriented organisations and municipal governments in the zone, along with an ARENA run national government made it very difficult for central government ministries to play an active, peaceful and visible role in the zone during the 1990s.

Finally, it is important to point out that the zone is symbolic of many of the outstanding conflicts in Salvadoran post war society. Ex combatants are to be found living in poverty in one of the most potentially productive areas of Central America. The area is

dominated by left wing opposition political forces in a country governed by the right wing and tied to neo-liberal principles and tenets.

In many ways, the existence of these conflicts and contradictions may help explain why the zone has received so much attention from national and international agencies and organisations. This had occurred despite its relatively small population and a flooding problem that is no more severe than in many other areas of the country that have received much less attention. During the post Mitch period the area has been the recipient of relatively large-scale finance executed particularly by numerous national and international NGOs, in coordination or liaison with local organisations. Little coherence and coordination could be found with much of this investment.

The Conceptual Framework for the Lower Lempa River Project: **Risk, Development and Sustainability.**

Perhaps the most critical aspect of project implementation relates to the conceptual and methodological framework employed and its unquestioned acceptance by the project stake holders—the major local organisations, the government and the Inter American Development Bank. The conceptual framework was developed by the consulting team following notions and ideas developed over the last ten years by the Latin American Network for the Social Study of Disaster Prevention in Latin America-LA RED. This network was established in 1992 to promote multi-disciplinary and trans-national research and debate on risk and disaster topics in the region and has had considerable influence on the way risk management has developed in Latina America over the last

ten years (access to many of the publications produced by LA RED and its members may be found on the web site www.desenredando.org.

The framework may be synthesised taking into account a limited number of central concerns and ideas. In the present section we will briefly introduce the reader to the essential components of this framework. The real importance and relevance of the concepts presented will be taken up or become apparent in the discussion offered in the main body of this chapter.

Disaster risk, the probability of future loss and damage associated with adverse physical events, was one central conceptual and practical issue informing the planned strategy intervention. Hazard (the probability of the occurrence of a damaging physical event) and vulnerability (the propensity to suffer loss and find difficulties in recovering from this) were considered dependant concepts or categories in achieving an understanding of risk. Interaction between these two types of factor leads to the existence of varied levels of disaster risk.

Specific 'disaster risk' (which can be defined in terms of 'exceptional' losses) was seen, however, to be but one component of global societal risk. The other major component introduced into the project concept relates to what may be called 'life-style' or 'every-day risk'.

In this case, we are essentially referring to the more or less permanent living conditions of poor populations that constitute a permanent threat to their physical and psychological security. These include health problems, malnutrition, unemployment and

income deficits, illiteracy, social and domestic violence, drug addiction and alcoholism. In other words, we are dealing with a series of conditions that in many ways define poverty and limit development conditions and opportunities. Some have stated that the sum of these conditions signify that the poor or destitute live under permanent conditions of 'disaster' and that disaster related to environmental extremes is only one impermanent and irregular component of this. (see Maskrey, 1989, Wilches Chaux, 1998, Blaikie et al, 1994). Given this context, exceptional losses associated with environmental extremes attain the category of disaster precisely because the population is in a previous state of near destitution and not necessarily because of the absolute size of the losses incurred. Disaster risk was thus seen to be conditioned and determined by the every day risk faced by the population in the zone, over 70 per cent of which live in conditions of poverty or extreme poverty. The perceptions, interpretations and prioritisation given to disaster risk by such population groups are inevitably conditioned by their levels of every day risk and the constant struggle to deal with this.

The linking of disaster and every day risk in a single, integrated, holistic framework helps us to understand why the project considered 'risk' the central concept and not vulnerability (or hazard) as such. Disaster risk reduction can only convincingly and permanently be achieved where intervention not only deals with the particular components which contribute to exceptional loss, but also with those that explain and feed every day risk. Vulnerability is a concept that can be used with regard to both of these linked risk contexts, although it assumes different connotations and characteristics with regard to each of them. And, although the major argument put forward over the last decade is that reduction of disaster vulnerability and risk must be achieved in order to prevent the constant erosion of development gains and the spiralling of poverty in many

developing nations, the project argument worked from the opposite premise. That is to say, only be reducing every-day risk and vulnerability may we expect significant advances in the reduction of disaster risk. The roots of this risk lie in poverty, social exclusion and inadequate development practices. (Blaikie et al., 1994; Hewitt, 1997)

Despite the insistence on placing risk in the centre of analysis it is also true that vulnerability inevitably ends up being the principle topic of analysis and concern. Attempts to reduce risk will almost inevitably privilege the reduction of the diverse forms of social and environmental vulnerability that contribute to the overall risk equation. This is so because there is little really to be done with the natural physical extremes that contribute to a good part of disaster risk. Furthermore, many of the pseudo or 'socio-natural' hazards that result from inadequate environmental and resource use practices derive from distinct forms of every-day vulnerability of poor populations. This is the case for example with increased flooding and drought related to deforestation by the poor, shoreline instability due to mangrove cutting, and unstable slopes due to different destabilising and mining activities. Other socio natural hazards such as the flooding associated with the opening of dam sluice gates are more related to competing interests and inadequate planning and institutional processes. (Lavell, 1996). Vulnerability to disasters and life style vulnerability are part of the same package and must be tackled together in the search to reduce overall human insecurity or risk.

A practical corollary of the notion of global risk can be seen with regard to the objective of "disaster risk reduction". Where we consider the idea of disaster risk in a restricted fashion, risk reduction activities may be seen to basically include those that reduce the possibility of loss during times of disaster with no explicit consideration of how this

loss relates to the overall social conditions of the population. Loss is seen in absolute terms. However, if we consider risk from a holistic perspective, linking and analysing this in every day and disaster contexts, we arrive at other conclusions.

Thus, for example, it is possible to conceive of important reductions in risk where nothing is done to reduce the physical hazard per se via direct actions. This could be achieved where policies, strategies and actions foster overall development and increases in local productivity, incomes and welfare which in turn, increase population resilience, capacities and local economic reserves. Under such circumstances, if loss is suffered during sporadic or intermittent damaging events (deliberately we do not use the term disaster here), this will not assume the same significance and importance as under previous conditions, where loss may constitute total loss and real disaster. Adequate development will automatically reduce the levels of relative or total risk.

The more holistic the approaches we use the less likely we are to run into problems that ensue from a false fragmentation of reality. Separating disaster and every day risk is one of these false divisions. Continuity more adequately captures the notion of every day life and disaster than discontinuity (Hewitt, 1997)

A final consideration as regards the conceptual framework relates to the territorial dimensions of risk construction processes. As is very obvious, risk is most precisely manifested at a micro social or territorial scale. As we aggregate and work at more macro scales, precision is lost. Risk is expressed and can be best measured at the local level or below on the geographical and social scales.

However, a good part of risk is not constructed at the local level, although certain local processes will add to it and help define its final form or expression. Models such as the pressure and release or access models of vulnerability described by Blaikie et al (1994) reveal the complex nature of the social processes that lead to risk or insecure conditions at a local level. Many of these processes are macro level processes, the product of social actors that see the world as their action scenario. Others are more circumscribed but none the less not local. So, populations under risk are many times divorced in time and space from the social actors that are helping mould their local risk scenarios. One result of this is that although disasters are experienced and attended at the local level, risk reduction as such requires changes in processes and policies that emanate from the regional, national and international levels. This signifies a major problem for local actors due to the problem of actor identification and the inability to subject these actors to control due to jurisdictional limits for action. The causal space of risk and the territories where loss is suffered are rarely the same. (Lavell, 1996)

The Project Process and Methodology

A translation of the fore-mentioned conceptual framework into methodological dictates signified the establishment of certain basic criteria for the development of the Lower Lempa River Valley project activities. Six basic criteria or premises were established at the very beginning of the process:

a. Disaster risk must be analysed and dealt with in the light of the every-day risk and life style insecurity experienced by the over 70% of the population that live below the poverty line.

b. The diagnosis of risk conditions in the zone must take into account local perceptions, and variation in these between different areas, population groups and organisational representations.
c. Local risk conditions and notions on intervention strategies must be analysed taking into account external causal factors and social actors.
d. Strategic interventions must simultaneously take on the challenges of every day and disaster risk.
e. The project process should actively involve local population and organisations in the diagnostic, strategy formulation and decision making process, along-side government and project personnel.
f. Project personnel should maintain their status as external agents and adhere to clear principles of impartiality when dealing with different local organisations and competing interpretations and demands.

Let us now succinctly examine some of the major defining characteristics of the methodology in view of the fact that this was a critical facet of the project and the applicability of project results rested on the success of this process.

The Diagnostic Phase

Utilising existing published information sources, extended interviews with local organisations, NGOs, government ministries and local population, and direct observation in situ, a preliminary diagnosis was elaborated during the first 6 weeks of the project. This preliminary diagnosis was intended to:

- outline the major problems and challenges in the zone,

- help identify significant information gaps in order to complete an integral diagnosis,
- provide an approximation to an internal socio-economic and environmental sub-zoning of the area, and
- provide a preliminary organisational 'map' of the zone identifying allegiances and conflicts; different attitudes as regards development, risk reduction and popular participation; the strengths, opportunities and weaknesses of organisations; and the territorial affiliations or presence of organisations.

With the preliminary diagnosis in hand, a justification was presented to the Environmental Ministry and IADB authorities as to the need for an extensive highly participatory, full-scale diagnosis, utilising specialised consultants, work shop training sessions on local level risk management, group consultation sessions and in-depth interview and observation techniques. Originally, little support had been forthcoming from government for an extensive diagnostic phase given the dominant notion that diagnoses abounded on the area, that these normally got shelved away on completion and that what was important was to get on with the job and design the intervention strategy. Moreover, certain government sectors, outside of the Environment Ministry and the IADB, were not overly enchanted with the postulates as regards full popular participation in the process. This could be explained by the conflictive nature of the zone and conservative, right wing notions held by some influential government sectors.

But, as a result of discussions between the project stake-holders total support was finally given for extending the diagnostic phase beyond the originally conceived time frame and for extensive popular participation and consultation. Ministry and IADB authorities fully supported the work team’s notion that any well-conceived intervention

strategy should be based on a thorough diagnosis, where local ideas, opinions, needs and capacities were considered of prime importance. Moreover, somewhat surprisingly, and never really explained, was a central government dictate emitted at this time insisting on popular participation in the project process. The positions adopted by the different stake-holders and an understanding of these should be the objective of a separate study, as the team never completely understood the route by which government finally came to fully support the project concept and methodology. Hypotheses as regards this could include the notion that the consultant team was seen to be facilitating a process by which government gained more legitimate access to a zone that was previously 'out of bounds', but, at the same time, of significant political currency.

Following on from the preliminary diagnosis, three months were dedicated to achieving an integral diagnosis of the zone. This was undertaken using a combination of technical studies and various popular consultation methods.

On the technical side, studies were contracted on:

- the hydro-geomorphology of the river, potential flooding patterns, and the strengths and pit falls of existing and projected flood control levees;
- the ecological and woodland status of the area;
- the agricultural, mangrove and salt water production systems, including existing industrialisation and commercial practices;
- basic infrastructure and housing and territorial organisation of the zone;
- the legislative and organisational framework for development promotion in the zone;

- the organisational and planning structures for early warning, alert and emergency management systems.

As regards popular participation and consultation procedures, discussion sessions were held with different organisations, and interviews were undertaken with leaders throughout the zone. Care was always taken to consult all competing or confronted groups and organisations and not to be seen as partial in this process. This was of fundamental importance in a zone where confidence and impartiality were among the key pillars of any successful intervention. As far as possible, smaller and less influential organisations were given an equal hearing. Project members were present in the zone as long as possible throughout the process thus avoiding the idea that the project was being run by consultants who live in the capital city and just visit the zone on occasions. This procedure, in addition to being absolutely necessary, also permitted the forging of confidence between the principal local organisations and the project group. Here it should be pointed out that consultants are always external agents and 'intruders' and total impartiality is never possible. However, the group always attempted to maintain the maximum possible level of impartiality and not succumb to the particular wishes or pressures of the different organisational groups when these flowered on occasions. In general this was successfully achieved and the local organisations were highly collaborative in the process. At no time did they make their own internal differences a problem for the implementation of the project methodology.

The level of confidence in the consultant group could be corroborated when the local organisations requested they also run the second stage of the project, once the diagnostic and strategic stages had been completed.

Two, 3 day workshops on local level risk management were organised for organisational representatives from the different communities and sub-zones as part of the popular consultation procedures. Members of LA RED ran these workshops, using the training methodology developed by the organisation between 1996 and 2001, and implemented in more than 15 countries throughout Latin America and the Caribbean. (Wilches-Chaux, 1998)

The workshops allowed for conceptual clarification and a firmer understanding of risk construction processes, knowledge on methods for constructing local risk scenarios, the development of notions on strategic intervention and the construction of sustainable local development scenarios, and basic expertise in techniques for putting together and implementing local plans. Over 70 local community representatives participated in the workshops. None of the local representatives dropped out of the sessions during the three days. And, this occurred in an area where many persons had to get up at four in the morning, walk relatively long distances to the bus collection point, journey up to an hour to the workshop venue, and return home at six in the afternoon to domestic and agricultural labouring tasks. This was a tribute to the organisational base in the zone, the social appropriation of the risk and development problematic and the commitment of the population. No attempt was made at this time to mix population from different sides of the river, or from competing organisations from left bank communities due to the still existing levels of antagonism between different areas and organisations, features that have been discussed earlier in this chapter. Here it should be emphasised that at the same time that the consultancy group made it clear to local organisations that the existing divisions could not be taken as a valid reason for pressures as regards

segregation of groups, respect for the arguments in favour of this and apprehension as regards the possible outcomes of ignoring the segregation principle led to the conclusion that caution was the best possible course to take.

On completion of the draft diagnostic document, a series of three, two-day popular consultation meetings were organised for local representatives. During these meetings participants were presented with a summary of the major preliminary findings of the diagnosis. Using talks on key risk and development issues, game playing and work group discussions, the participants analysed the formal conclusions of the diagnosis and modifications and additions were made incorporating the results of their deliberations and discussions. Following on from this, a similar exercise was undertaken, but this time considering and prioritising a series of postulated solutions for the major risk and development problems identified in the diagnosis. These solutions had been put together by the consultants taking into consideration the technical studies undertaken and the expressed priority needs of the local population.

The results of this exercise were incorporated into the formal diagnosis document and offered an important basis for the elaboration of the final intervention scenario presented to the Ministry and the IADB in the final project report.

Putting the Intervention Scenario Together.

Once the diagnostic phase and the popular consultation process had been completed, the team put together an integrated intervention scenario. This took closely into account the series of problems identified in the diagnosis and evaluated in the consultation meetings

with local population, NGOs and government. This scenario went well beyond the possible investment opportunity offered by the IADB as a follow-up to the project. This was done deliberately as a need was seen for a fully integrated scenario that could guide any other future investments beyond the Bank's particular short-term commitment, which at the time had been estimated in some 8-10 million dollars. Projects identified as possible IADB fodder should be of a strategic nature and facilitate subsequent linked investments. The projects presented as part of the strategy sought a balance between territorial integration and sectorial development goals.

Adjustments were made to the project portfolio and consensus arrived at as to those projects to be further elaborated for potential IADB financing. The project portfolio sought to cover projects of general relevance to the whole zone, whilst at the same time satisfying needs, priorities and requirements of the different organisations and sub-zones. A mix of broadly based development projects along with more precisely defined disaster risk projects was achieved. The final project portfolio included the following projects, developed at a logical framework level:

- A proposal for the development and management of riverside and coastal bay woodlands. The prime objective would be to develop a socio-productive culture in harmony with the flooding and drought environments that typify the zone. And, to utilise the woodlands as a natural buffer to flooding. Community participation in the development of product diversification schemes and natural regeneration of woodlands, accompanied by the strengthening of local organisations and schemes for natural resource conservation would offer natural protection from the river and

new research, ecotourist and production opportunities. Employment creation and increased welfare levels would be expected to follow

- A training programme on local level risk management for local organisations and population, and the strengthening of the local early warning systems**.**
- Territorial planning and community reorganisation schemes, leading to an increase in the density, territorial concentration and interconnectivity of communities and basic services. Improvements in the access to public services and in the efficiency of links between housing and work, as well as improved road access for commercial and emergency operations were proposed.
- Housing construction including the provision of environmentally adequate housing to disaster populations, others in areas of high risk and the destitute. Relocation of certain high risk communities was proposed, including those affected by liquefaction in the coastal areas during the January and February 2001 earthquakes,
- Potable water supply systems and environmental hygiene projects.
- Monitoring, improvement and renovation of existing dykes**.** The extension of existing dykes towards the coastal area would be followed up on by national governmental institutions using other funds.

Some Major Transitions in Ideas Emanating from the Diagnostic Process.

The project diagnosis and associated problem prioritisation exercises provided extensive information and analysis on diverse topics and contexts relating to the risk and vulnerability problematic and their relationships to the overall objective of identifying lower risk, sustainable development options. This included considerations regarding

attitudes, perceptions and the social "reading" of risk and vulnerability. Below, we will provide a summary of a number of the more important issues diagnosed and debated in the dynamic process established between external actors and local individuals and organisations. In particular we will concentrate on the transitions achieved in terms of the understanding of the risk problematic and as to conceptions on intervention and change. This is so because we became increasingly convinced as the project proceded that local self-awareness and consciousness, empowerment, organisational strength and the ability to construct integrated options and strategies were key factors in reducing vulnerability and in promoting project sustainability.

a. **Disaster and Ever Day Risk**. The notion that disaster risk can not be separated from the ongoing contexts of daily risk associated with the extremely high levels of poverty and social deprivation prevalent in the area was fully supported by local groups. This permitted an easy understanding that disaster risk reduction was a facet of development planning and not an autonomous goal with its own independent set of strategies and instruments. When faced with the task of prioritising diagnosed problems, the vast majority of the representatives present in the consultation meetings proffered a varied gamut of projects that broached diverse aspects of every day and disaster risk and vulnerability. These included:

- improvements in, and extension of potable water systems in order to reduce the incidence of disease vectors such as mosquitoes and water borne bacteria;
- expansion of the lateral, secondary road systems allowing the movement of products and people under normal environmental conditions and also when flooding required evacuation and temporary housing in refuges;

- environmental sanitation measures in order to reduce the problems associated with stagnant flood water and inadequate control of animal populations;
- housing adapted to the local physical and ecological conditions;
- permanent monitoring and repairs to the existing dykes, and extension of dykes to the southern-most coastal area;
- increased opportunities for agricultural production using irrigation systems, including the possible inversion of the planting and harvesting seasons allowing cropping in the dry season and not at the time of maximum flood risk;
- provision of commercial infrastructure and services thus allowing the elimination of commercial entrepreneurs who take advantage of the limited commercial options of the population in order to buy at low prices (locally known in Spanish as coyotes or prairie dogs);
- increased surveillance and security in the area;
- environmental conservation and planning, including the preservation and extension of existing woodlands and increases in their productive potential;
- selective relocation of very high risk communities; and
- improvements to the existing community based early warning and evacuation schemes.

Of these projects, maximum priority was finally given to potable water systems, housing with selective relocation of certain high-risk communities, ecological management and recovery, alternative production options and commercial practices and local level risk management expertise, including up-grading of early warning systems. These priorities were translated in good part into the short-term intervention scenario presented for IADB and government consideration, and outlined in the previous section.

b. **The Diverse Components of Vulnerability** An increased understanding of the varied components of vulnerability allowed the identification of priority actions and an awareness of the need for linking external resources with local capacities and opportunities, in the search to reduce the different manifestations of risk and vulnerability. A consideration of the different components of vulnerability allowed the local population to comprehend the diversity of different, complimentary approaches that could help reduce overall risk. More easily understood notions relating to economic, social and ecological vulnerability was accompanied by an increased awareness of more subtle, but no less important facets. In particular, this included an increased awareness of the dangers of unilateral views of disaster risk reduction based solely on technological interventions, as opposed to broader based interventions using land use planning, agricultural diversification and adaptation, ecosystem management, increases in life style resilience. Moreover, discussion and analysis allowed participants to clearly perceive the fundamental importance of organisational development and cooperation and the creation of social capital in providing a basis for risk reduction.

c. **Organisational Development and Organisational Harmony: Keys to the Development of Social Capital.** Although the zone had been the object of numerous previous interventions by external actors, and important efforts in terms of infrastructure, housing and production opportunities, many schemes implemented post Mitch were ecologically, structurally and socially flawed. The lack of a unified or harmonious organisational base depleted the negotiating capacity of local actors and left the zone prey to the decisions and criteria of many external actors, as well

intentioned as these may have been. During the local level risk management workshops many local actors in fact identified external actors as a major ´hazard´, whilst the incapacity to negotiate and demand adequate solutions was seen to be a major vulnerability in the zone. Many insisted that on a number of occasions the population had been obliged to take or leave what was offered. The immense demand for housing, water and sanitation systems and new production options in the zone made this possible. Various external actors simply sought out other demand sectors if those approached showed dissatisfaction with what was offered. Commonly agreed on development criteria, parameters and goals was perceived to be a prerequisite for increasing the negotiating strength of local organisations and in helping guarantee adequate and co-ordinated solutions problems and needs. This conclusion, reached by the major organisational actors during discussions, was pivotal in achieving an acceptance of the virtues and needs for a single integrated strategy document for the zone.

Moreover, as a result of the project and the wide ranging opportunity for discussion and negotiation it offered, the levels of confidence between the project team, local leaders and government personnel, and between local organisations themselves, allowed the formation of an embryonic Local Development Committee. This was established with representatives from the two competing umbrella organisations, municipalities and national government. Never previously had the two major umbrella organisations sat down together to discuss and arrive at common agreements. The formation of this committee was of great importance due to the confidence it generated in terms of the real possibility of future local participation in the implementation of new projects financed by the IADB or others. Decentralisation

with local participation was considered a keystone to future success with risk reduction and sustainable development.

d. **Understanding Environment and Reducing Risk**. Transformation in consciousness levels on risk and risk reduction, and a fuller understanding of risk construction processes were of particular importance in the Lempa Valley where many people are recent migrants to the zone and have little experience with tropical lowland environments and agriculture. This aspect is relevant in many different contexts where migration places people in unfamiliar environments. Technological solutions are far more palpable to population groups with little experience of lowland agricultural environments and the opportunities offered in terms of environmental management, land use planning and alternative agricultural schemes and practices are not immediately obvious. This aspect of vulnerability, discussed above, led to discussions as to alternative non structural methods of risk reduction and the creation of a flood zone 'culture' as opposed to a disaster prevention culture per se.

d. **The Fallacy of Relocation**. Despite prevailing attitudes in governmental circles that massive relocation of population was the only real solution for the zone, this was increasingly seen to be neither a real or viable proposition. The generalised opposition found to relocation by local groups and organisations comprised a fundamental part of local ideology and reflected diverse interpretations, fears and reticence as regards government motivations for such a policy. These included the idea that government wanted to relocate in order to reoccupy the area with higher productivity, large-scale agriculture. Any idea of massive relocation would be

strongly resisted by the population who saw the land they now occupied as a prize for their struggles and sacrifice during the civil war years.

The Current Status of the Project:

Perhaps the single most important indicator of project success is not its immediate short-term results, but rather what it leaves in place and its sustainability in the medium and long term. The immediate results of this project can be gleaned from the discussion offered above: an integral, consciousness and awareness raising diagnostic elaborated with wide scale participation of local organisations and interest groups; a single, commonly agreed upon intervention scenario and local development strategy document; and the formation of an embryonic local development committee.

As regards continuity and consolidation, the project has had an encouraging outcome.

On the basis of the positive results and the level of cohesion and collaboration achieved within the zone, the IADB made a bridging loan available to the Environment Ministry to further carry project aims and goals forward. This consisted of a near half million-dollar finance package provided by the British and Japanese governments in order to consolidate project results and finalise the preparation of the investment strategy.

In particular, British funds have been channelled to strengthen the local organisational base and to promote local-level risk management strategies. Through this finance the embryonic local development committee has been formally institutionalised and strengthened, incorporating new representatives from other local organisations. This

committee plays a joint role with government in the running of the project extension phase and is being prepared to fully participate in the future implementation of new development and risk reduction projects. Japanese funds are being used to undertake the fully-fledged feasibility studies for the projects identified in the intervention scenario and strategy document elaborated during the first stage of the project. IADB, in agreement with the Salvadoran government, is committed to providing a minimum 8 million-dollar loan to commence implementation of the projects once the feasibility studies are successfully completed.

On another front, the strategy document elaborated during the first stage has been firmly appropriated by the local organisations and was reproduced in summary form and distributed and discussed throughout the zone in community and zonal based meetings. Agreement exists that this document will be used by the major local organisations in the negotiation and determination of future investments in the area. Moreover, the Environment and Housing and Public Works Ministries have also agreed that future projects and investments in the area will take the strategy dictates included in the document closely into account.

Final Reflections.

The present document has attempted to illustrate the importance of concept and method in achieving positive results as regards risk reduction. Moreover, it has highlighted certain issues as regards vulnerability that may be considered fundamental in terms of intervention and change.

The overall components or facets identified with regards to risk and vulnerability in the zone are remarkably in agreement with those identified by Cannon in his contribution to the present book: initial well being, strength and resilience; livelihood resilience; self-protection; societal protection; and social capital. Moreover, the intervention scenario components developed in the strategy document also showed a balanced mix of projects attacking these varied levels of vulnerability. Here, there is a clear sign that where the population are cognisant of the relationships between the differing facets of ever day and disaster risk, the obvious thing to do is to simultaneously attack these apparently different problems. Cognisance of the fact that both disaster and every day risk have similar origins is a starting point for promoting integrated sustainable and environmentally secure development schemes. Whilst disaster is seen as externally imposed, little advance will be achieved. The appropriation of the idea of social risk construction and risk as an unresolved development problem are critical factors in increasing awareness and empowering communities. Empowerment and increased and strengthened social capital are major factors in reducing vulnerability and an unavoidable starting point for risk reduction.

BIBLIOGRAPHY

Blaikie, Piers et al. 1994**.** *At Risk. Natural Hazards, Peoples Vulnerability and Disasters***.** Routledge. London, England**.**

Hewitt, Kenneth. 1997**.** *Regions of Risk***.** Longman. Harlow.

Lavell, Allan. 1996**. '**Degradacion Ambiental, Riesgo y Desastre Urbano**.** Problemas y Conceptos-. In M. A. Fernandez**.** *Ciudades en Riesgo***.** LA RED. Lima, Peru

Maskrey, Andrew. 1989**.** *Disaster Mitigation. A Community Based Approach***.** Development Guidelines No 3. Oxford. Oxfam.

Wilches Chaux, Gustavo. 1998**.** *Auge, Caida y Levantada de Felipe Pinillo***,** *Mecanico y Soldador. Guia de LA RED para la Gestion Local del Riesgo***.** LA RED. ITPeru. Lima.