

## 5.5.- Financial and economic tools

In view of the exorbitant economic and social costs of recurring disasters, development assistance and financial tools and instruments for risk-sharing and risk-transfer are important for the application of measures for disaster risk reduction. The increasing involvement of international development banks and agencies in this area supports the strengthening of national and corporate commitment to engage in risk and vulnerability reduction. Insurance and reinsurance are essential instruments for recovering losses and supporting post-disaster recovery. Insurance schemes need to be complemented by other low-cost risk sharing mechanisms in poorer communities, such as kinship networks, microfinance and public works programmes to increase coping capacities. Additional tools and financial incentives are necessary to promote proactive disaster risk reduction investment. It is also important that all development projects include a critical consideration of disaster risks and vulnerability, and the policies and programs meant for reducing disasters risks are included in poverty reduction programs.

The first part of this section shows how some of the international development banks have already adopted policies and instruments to include risk reduction in their normal lending operations. In the subsequent part, a brief overview of specific financial instruments, such as insurance, microfinance and public works programmes, has been provided.

### Development banks promoting investment in disaster risk reduction

The World Bank and regional development banks have emerged as one of the main sources of funding for recovery and reconstruction following a major disaster. A large number of governments in the developing world find themselves fiscally constrained to reallocate their resources for emergent needs following a large-scale disaster and turn to these financial institutions for immediate assistance. All these banks have therefore developed a sizeable portfolio of post-disaster recovery and reconstruction programs over a number of years. The World Bank has provided US\$14 billion in the last two decades for post-disaster recovery and reconstruction. These institutions through their large-scale lending are also in a stronger situation to support sustainable disaster risk reduction strategies. In the last few years, these financial institutions have come to recognize the strategic importance of these projects for implementing disaster preparedness, mitigation and emergency response programs.

#### *Latin America and the Caribbean*

While work related to the economic and financial aspects of disaster reduction is proceeding

at different paces reflecting different levels of interest throughout the world, Latin American and Caribbean countries have taken the lead.

Disaster vulnerability and economic development have been encouraged by influential regional institutions such as the *UN Economic Commission for Latin America and the Caribbean (ECLAC)*, the *Central American Bank for Economic Integration (CABEI)*, the *Caribbean Development Bank (CDB)*, the *Andean Development Corporation (CAF)* and the *Inter-American Development Bank (IADB)* as well as by the World Bank's *Disaster Management Facility (DMF)*. These organizations have recognised the value of disaster reduction measures in reducing and alleviating serious economic disruptions and thus in determining a country's path towards economic growth.

IADB is a very active lending institution in the field of disaster reduction with well-defined policies and activities, while other regional and international banks are still less focused in this area. IADB strategies to incorporate disaster reduction in development are outlined in *Facing the Challenge of Natural Disasters in Latin America and the Caribbean: An IADB Action Plan* (March 2000).



The following table summarises the plan of action and activities that IADB is implementing to fulfil its plan.

Instrument/activity	Example/description
Plan of action	<p><i>National systems for disaster prevention and response:</i> Building national legal and regulatory frameworks and programmes that bring together planning agencies, local governments and civil society organizations. Developing national strategies for risk reduction, and assessing intersectoral priorities, backed by separate budgets.</p> <p><i>Building prevention into the culture:</i> Developing and disseminating risk information and empowering citizens and other stakeholders to take risk reduction measures.</p> <p><i>Reducing the vulnerability of the poor:</i> Supporting poor households and communities in reducing their vulnerability to natural hazards and recovering from disasters through reconstruction assistance.</p> <p><i>Involving the private sector:</i> Creating conditions for the development of insurance markets. Encouraging the use of other risk-spreading financial instruments, and designing economic and regulatory incentives for risk reduction behaviour.</p> <p><i>Risk information for decision-making:</i> Evaluating existing risk assessment methodologies. Developing indicators of vulnerability and stimulating wide dissemination of risk information.</p> <p><i>Fostering leadership and cooperation in the region:</i> Stimulating coordinated actions to mobilise regional resources for investments in risk mitigation.</p>
Sector facility for disaster prevention (March 2001)	Strengthen disaster prevention and risk management systems through vulnerability reduction and improved preparedness to natural disasters. Help countries meet risk reduction objectives for development through consensus building on intersectoral priorities, strengthened institutions and launch of larger scale national programmes. The Dominican Republic and Bolivia are the first countries to benefit from the first operations.
Regular loans	Finance prevention and mitigation measures, such as through watershed management programmes, urban development projects and social development programmes, especially in hurricane or El Niño-prone countries.
Technical cooperation projects	Improvement of decision making in risk management (pilot countries are Barbados, Chile, Guatemala and Mexico). Development of vulnerability assessment methodology and measure performance of management tools for vulnerability reduction. Study of socio-economic impacts of El Niño. Sharing experience on climate change and severe weather events in Asia and the Caribbean.
Studies/papers	Study of financial market aspects of natural catastrophes, viability of new insurance, capital market and risk management techniques in the global and regional financial markets that may help mitigate the negative economic effects of natural disasters. A document exploring the variety of financial instruments and techniques that could be incorporated into the overall IADB strategy for managing risks associated with natural disasters is awaiting publication.
Disaster focal points and training	Identified at headquarters and in offices of borrowing countries. Disaster risk management training provided to staff, special briefings for executive directors on instruments for disaster risk mitigation.
Regional policy dialogue	Established a natural disaster network. First phase of a study on national systems and institutional mechanisms for the comprehensive management of disaster risk completed. Second phase will concentrate on Bolivia, Colombia, the Dominican Republic and El Salvador.
Cooperation with other agencies	<i>Organization of American States (OAS)</i> Working Group on Financing Within the Inter-American Committee on Natural Disaster Reduction. Continuous work with ECLAC, ADC, CEPREDENAC, the <i>Caribbean Disaster Emergency Response Agency (CDERA)</i> , ISDR, UNDP, the WMO and other UN agencies.
Puebla-Panama Plan	Develop efficient insurance markets and improve public and private-sector access to insurance and other financial risk transfer instruments.

Combined investment in economic development, environmental management and related risk factors has also been seen in the inauguration in 2001 of the *Regional Corridor Development "Plan Puebla-Panama"* (Puebla in northern Mexico) and its inclusion by the Mexican President, Vicente Fox, in his National Development Plan, supported by IADB.

This initiative seeks to accelerate integration and development in a region that covers nearly 375,000 square miles and counts 64 million inhabitants in Mexico and all seven countries in Central America. The principal objective of this plan is to overcome the region's vulnerability to natural disasters and address a long-standing infrastructure deficit that has prevented the countries from profiting more from their proximity to large foreign markets.

The Plan Puebla-Panama will include a project in the area of natural disaster reduction that will upgrade the quality of meteorological and hydrological information available in the region. The plan will also promote the development of a catastrophe insurance market to provide coverage for public infrastructure such as highways, bridges, schools and hospitals. This insurance is expected to reduce the need to raise funds for reconstruction and the premiums could act as an incentive for builders to construct public works that are more resistant to natural disasters.

CDB has adopted strategic and operational guidelines for assessing natural disaster management programmes. These initiatives seek to assist member countries in developing disaster management capabilities while they make sure that disaster management principles are integrated into CDB operations. With the support of OFDA/USAID, CDB is in the process of establishing a disaster management facility.

ECLAC is working with several other UN agencies on improving a socio-economic damage assessment methodology to promote investment in risk reduction especially focused on rehabilitation activities following major disasters in Latin America and the Caribbean.

### *Asia*

The World Bank and Asian Development Bank (ADB) have supported a large number of projects for disaster recovery and reconstruction in Asia. These projects relate to emergency financial assistance, earthquake reconstruction, flood recovery and restoration, and cyclone reconstruction. There are a large number of post-disaster recovery and reconstruction programs in Iran, India, China, Bangladesh, Cambodia, and other countries in the region. Most recently, the World Bank supported a large earthquake reconstruction program in Gujarat, India.

The ADB has also supported a number of Technical Assistance projects for capacity-building in many countries. In India, ADB has initiated a programme, which goes beyond its traditional role of extending reconstruction loans after disasters to support long-term risk management. The ADB currently is supporting a technical assistance programme implemented by the ADPC in two Indian states, Uttar Pradesh and Uttaranchal. The project was formulated after the 1999 Chamoli earthquake and is focused on advising the two state governments in their review and efforts to strengthen existing institutional arrangements for disaster management.

Activities include the creation of state, district and village disaster management and mitigation plans, the development of community awareness videos and publications, and the establishment of a state-wide disaster management information system. The project is a pioneering initiative undertaken by the ADB to promote disaster reduction measures more proactively in the anticipation of future crises. It also represents an exemplary outlook in which disaster reconstruction programmes go beyond interventions to satisfy only immediate needs and aim at longer-term vulnerability reduction.

## The World Bank and disaster reduction

The World Bank and borrowers today are developing a greater awareness of the need to mitigate or reduce the adverse effects of natural disasters before they strike (see more chapter six). A review of the Bank's disaster-related projects since 1980 recognised that in most of the projects, the full loan amount is not dedicated to mitigation and prevention measures, but rather includes one or more components dedicated to these objectives. Four countries alone – Bangladesh, Brazil, China and India – accounted for 40 per cent of the mitigation portfolio. Moreover, it is a concern that half of the top client countries for reconstruction projects do not appear among the main borrowers for these mitigation projects. There is scope for greater bank mitigation assistance to these countries that may help reduce demand for reconstruction. There is a trend of increased bank approval of mitigation projects over time, with 55 approved in the 1990s against only 40 in the 1980s.

The bank is reviewing its operational policies to respond, among other things, to the conclusions of its review of disaster-related projects since 1980 and to incorporate more considerations on disaster and vulnerability reduction activities in its lending operations.

The World Bank is supporting projects in Honduras and Nicaragua with more than US\$ 14 million committed to each country to improve municipal capabilities in risk management. Activities will focus on improving land-use and planning procedures based on hazard analysis and strengthening national risk and disaster management systems. The scheme works through umbrella municipal organizations, national disaster organizations and scientific and technical institutions such as the *Nicaraguan Institute of Territorial Studies (INETER)*. The World Bank is developing another programme with the *Organization of Eastern Caribbean States (OECS)* that will offer risk reduction loans to five countries to support capacity building, institutional strengthening, community preparedness and greater protection for key infrastructure.

## Financial instruments addressing disaster risk reduction

Risk-sharing and risk transfer at national (macro), community (meso), and household (micro) levels cut down losses, improve resilience, and contribute to expeditious recovery. The efficiency of risk-sharing and risk transfer, however, depends upon the size of the risk pool and availability of financial instruments and services. In developed countries, governments, corporate entities and individuals engage in risk-sharing, which increases the size of risk pool, thus improving insurability of properties and assets, whereas in developing countries, the size of the risk pool is smaller, resulting into inadequate insurance coverage and pay off. A related requirement is the commercial application of specific instruments and services for risk-sharing at different levels.

Insurance, microfinance and public works programmes are examples of financial instruments and programs that can potentially be used for

### Insurance in the Caribbean

United Insurance Company Limited, provides insurance services to several islands in the region, and offers 25 per cent discount on premiums for clients who have hazard resistant structures. They have also published two handbooks entitled *Professional Guide to Performance-Based Design Upgrade for the purpose of Achieving Hurricane-Resistant Construction* and *Guide to Making Your Home Hurricane Resistant* and have promoted their use to design professionals and householders.

*Working Party on Insurance and Reinsurance:* Whilst not an institution, this working party was developed as a CARICOM initiative. It seeks to minimise the overall economic costs and social effects of natural hazards in the CARICOM countries based on an increased emphasis on vulnerability reduction and a strengthened insurance industry – including increased self-insurance.

mitigation, recovery and reconstruction at different levels. Insurance can be used at the national, community and household levels, while microfinance services are provided at the community and household levels. Public works programs have their own specific context, and it could be undertaken to provide relief to households and communities struck by situations in which there are no income-earning opportunities. There could be a great deal of variation in their forms and applications. It is also likely that in a given situation a combination of these instruments may be required.

At the national level, improvement in the regulatory frameworks of disaster reduction including disaster-related insurance, building codes and land use planning will help ensure that infrastructure is properly sited and built to minimise damages as well as to reduce the costs of repair. This involves public insurance policy, market and regulatory incentives for risk and vulnerability reduction, protection against fluctuations in insurance/reinsurance prices, augmentation of insurance coverage at reasonable cost and backstop financial mechanisms.

One of the limitations of hazard mitigation insurance is that it is primarily a mechanism that will help after the disaster occurs. While some group-based insurance policies are linked to improvement in physical surroundings, there are not many examples of built-in incentives in insurance policies, which motivate households to invest in mitigation. On the contrary, availability of insurance may discourage investment in mitigation, as households may tolerate riskier practices after purchasing insurance policies.

Well-designed insurance schemes may encourage appropriate risk management by lowering premiums if compliance with building codes and land use regulations are observed. One example where the insurance coverage has been used as an incentive to undertake disaster mitigation or protection measures is the case of Florida in the USA after hurricane Andrew in 1992. In this case, the insurance industry promoted lower deductibles to wind storm insurance if building code compliance was achieved. The problem with this kind of incentives, however, is the certification process. Another limitation of insurance coverage is that the market for insurance is largely underdeveloped in poor countries.

### **Risk sharing and transfer: protecting investments and sharing the costs**

The private insurance sector contributes important funding for reconstruction after disaster impact in developing countries, but it has made fewer inroads in developing country markets. In emerging economies, the state and the individual carry much of the cost of disasters. As a result, ad hoc funds transfers to respond to disaster emergencies disrupt planned development activities. Tools have to be developed to assist the very poor to more effectively manage disaster risk. This includes microfinance mechanisms that can deal with risks such as disasters and that build social capital and encourage risk mitigation for the very poor. In addition to that, measures may include safety nets and calamity funds, and informal mechanisms.

*Source: DMF, 2001*

Insurance policies should not be seen as a panacea to achieve disaster reduction. If losses from recurring disasters are too high, the availability of insurance coverage will be reduced and reinsurance costs will increase, which has happened in many parts of the world, for example in the Caribbean. Property insurance for reducing economic risk from catastrophes might no longer be available at reasonable prices in the future. In this regard, potential socio-economic impacts related to global environmental and climate changes need to be carefully assessed to anticipate and adapt to their consequences. The present retrospective claim calculation will no longer be commensurate to such changes. Therefore, a prospective underwriting approach is needed by the insurance industry.

### **Other financial mechanisms to promote disaster risk reduction and safety nets**

An effort to explore additional and relevant private sector engagements and alternative financial instruments, both to serve as incentives for disaster reduction and as safety nets for recovery, is an ongoing interest. For example, guarantee programmes enable governments to mobilise larger amounts of financing with a given amount of support from the private sector. This mechanism has not been used for disaster reduction projects yet. However, it offers the potential to catalyse private financing either for public borrowers or private projects in developing countries. Private debt funds could play an important role in financing disaster recovery and prevention projects.



### Corporate social responsibility

The research project, Corporate Social Responsibility and Disaster Reduction, conducted by the *Benfield Greig Hazard Research Centre (BGHRC)*, is looking at private-sector involvement in natural disaster reduction through social responsibility and philanthropic programmes, especially in developing countries.

Available at: [www.bghrc.com](http://www.bghrc.com)

### Microfinance

Microfinance, a hybrid of formal and informal financial services, has been a recent innovation, which has a great potential for helping the poor reduce their vulnerability to disasters. It started with credit, and has since come to include savings and insurance. These different instruments which now comprise microfinance service help families increase their coping capacity, through diversification of income (different types of jobs and capital, regular employment, opportunities for women). They also serve as a kind of insurance policy following disasters.

The need for small amounts of credit and flexibility of terms was the motivation factor behind the idea of microcredit. The *Grameen Bank in Bangladesh* pioneered the concept of microcredit in 1976, primarily for entrepreneurial activities of the rural poor. Many microfinance institutions have since been established to provide financial services to the poor on a non-profit-making basis.

These institutions have produced microcredit as an effective poverty alleviation instrument. The link between microcredit and disaster risk reduction relates primarily to increased capacity to cope with losses from disasters. Some initial experiences have also promoted investments in risk reduction measures. Nevertheless, disasters can also have negative impact on micro-financing institutions themselves. According to IFRC, the *Grameen Bank in Bangladesh* reported that around 1.2 million of their 2.3 million members were affected by the 1998 floods, which make repayment of loans difficult. This calls for finding ways to insure against credit, which may make loans more expensive.

One of the distinctive features of microcredit is that it is based on group lending. Communities

may access resources for building social and physical assets based on a shared perception of their vulnerability. The strong element of peer monitoring in microcredit programmes facilitates greater community participation. Microfinance also encourages savings by group members, which may be invested in mitigating hazards at the household and community level.

A number of microcredit programmes have included government subsidies. If governments provide incentives and subsidies for mitigation, it is feasible to combine it with microcredit so that households may access it for specific mitigation measures. Since mitigation requires financial resources, knowledge of hazard, mitigation options, and community efforts, microcredit models can bring together these essential ingredients.

### Saving mechanisms

Another way to mobilise investment in mitigation is through savings. Households may be given incentives to save and invest these savings in improving their physical assets. *Morduch (1998)* has cited successful examples from Bangladesh and Indonesia of mobilising saving from poor households.

The savings mechanism was also successful in an earthquake reconstruction programme in the state of Maharashtra, India. Although the government provided assistance in cash and in-kind to households for seismic strengthening, it also organized self-help groups at the village level and encouraged them to save a part of their earnings. Most of the households participating in the seismic strengthening programme invested more money and resources through their own savings than the government assistance they received.

### Public works programmes – a social safety net.

In many developing countries, public works programmes were taken up as a scarcity or drought relief measure. This was a need-based programme supported by governments. One of the most important examples was the *Maharashtra Employment Guarantee Scheme (MEGS)* in India, developed as a response to severe drought in 1970-71. This scheme, aimed at

building public and individual assets yielded better resources for rural communities. It took care of the basic entitlements by guaranteeing employment to the rural poor, including small and marginal farmers, landless agricultural workers and rural artisans.

The public works programme represents an important social safety net in dealing with situations of mass deprivation. Its effectiveness in protecting poor households from severe shocks is consistent with longer-term goals of economic growth and environmental protection. Public works programmes provide employment when households find it difficult to restore their productive assets. Public works programmes may also contribute to reduce physical risks, by engaging in structural measures. This was the case in Honduras after hurricane Mitch, when the *International Labour Organisation (ILO)* supported

several municipalities to implement intensive work plans to build protection works in river basins, as a means of protection but also to restore job-opportunities for victims of the floods and landslides. Food for Work programmes, employed by the World Food Programme and others, have also been shown to be useful both after disasters, and in promoting public works to reduce future risks and diversify economies.

However, some experience show that a number of public works programmes have not been satisfactory because they are not sufficiently targeted and suffer from inefficient implementation. Also, public works programmes have been more effective in dealing with droughts or famine, and its applicability to dealing with other natural hazards such floods and earthquakes have not yet been tested.



## Future challenges and priorities

From the issues described in this chapter, the following main challenges and priorities stand out:

- Need for sustained support through national and international agencies for these financial instruments and programmes for establishing their viability in pre- and post-disaster situations.
- Need for setting up vulnerability reduction / mitigation / social funds for supporting these financial services. Such funds have been set up for many other development activities, and so they could be effectively used for the purpose of disaster risk reduction too.
- The need for continued encouragement for international development banks and development agencies to require risk assessment and management for new infrastructure development projects.
- The need for more systematic documentation and research on quantification of benefits of risk reduction and hazard mitigation.
- The need to further elaborate a strategy for involvement of the financial sector in disaster reduction. This also involves the insurance sector exploring how insurance incentives can encourage disaster risk reduction measures.
- Development of more specific financial tools aimed at the very poor. Microcredit or revolving community funds are solutions that need more attention and sup-

“In Canada, one of the most important issues in the development of disaster risk reduction is to be able to substantiate the savings from mitigation.”

*Canada response to ISDR questionnaire, 2001.*

port. It is necessary to evolve financial instruments that enable households to employ risk and vulnerability reduction measures.

The UN agencies and the development banks can come together to promote many innovative financial instruments and mechanisms in disaster preparedness, mitigation, recovery and reconstruction. Since a large number of agencies are participating in this program, mobilization of resources for promoting financial and non-financial services for disaster risk management should not be difficult.

In addition, regional policy dialogues could be supported to facilitate exchanges in several areas such as governmental strategies and practices for financing catastrophe loss, including loss to government-owned assets like infrastructure and government buildings, obligations to reimburse losses due to natural disasters, and new financial policy alternatives.

Other areas which require more study and understanding are, on the one hand the detrimental effects of deregulation and economic interconnection, and on the other hand, the beneficial effects associated with trade opportunities and economic competitiveness.