United Nations Development Programme
Regional Centre for Latin America and the Caribbean

Transforming Local Risk Management

Disaster Risk Management Programme in Southeast Mexico

Knowledge Sharing Series

This publication is the result of a joint effort of the UNDP Regional Center for Latin America and the Caribbean and the UNDP country office in Mexico and its projects "GEF Small Grants Programme" and "Disaster Risk Management Programme in Southeast Mexico"

Transforming Local Risk Management
Disaster Risk Management Programme in Southeast Mexico
Sharing Knowledge Series
Vol VIII,
ISBN 978-9962-663-05-8

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November 2009

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1 Enough Reinventing the Wheel

Experience can be Transferred, Translated Internationally, and Add Value to New Programmes

UNDP's Regional Centre for Latin America and the Caribbean supports the systematic organization and documentation of knowledge acquired by the countries of the region. Each country in the region has completed many high-quality and highimpact projects. In addition, the countries have high expectations for prospective mechanisms to share domestic and foreign knowledge, issues, and sustainable successes. Therefore, we have undertaken the task "Knowledge Sharing," guided by a basic principle: many of our experiences can be useful for others in the region.

Experience can travel, cross borders, and add value to the work of others. This series of publications is the conduit chosen to achieve these goals, and, of course, it reflects a joint effort that included developing a methodology to expedite and facilitate the systematic organization and the exchange of knowledge.

Colleagues of national and local governments, UNDP Country Offices, experts in various areas, and thematic teams of UNDP's Regional Centre for Latin America and the Caribbean have all participated in this initiative. The visible products are only the tip of the iceberg. In this case, the publications are only one part of "Knowledge Sharing." They are a synthetic presentation of programming options and key issues of each experience. They tell us, in essence, "how the program was created and how it is being implemented." Thanks to the participation of various colleagues, all with extensive experience in their respective areas, each project has plentiful and detailed online documentation (project documents, evaluations, information, important data, etc.). These tools help transfer, recreate, and customize systematically organized programmes- adapting to changing demands in the real world.

Count on us to obtain the maximum benefits from this proposal. Our team is at your service: once facts on the ground have been identified, we can deepen and

expand multiple facets of knowledge to help achieve your objectives, reduce costs associated with learning and research and development, and help implement key programmes and solutions. We are grateful for the collaboration that helped produce this "Knowledge Sharing" series. Your continued commentaries and suggestions will help us offer you better services.

The Team of UNDP's Regional Centre for Latin America and the Caribbean.

Panama and Port-of-Spain

November 09

2 Introduction

Latin America and the Caribbean is the second most vulnerable region to extreme floods, landslides, earthquakes, and droughts. On average, natural disasters in the region have increased 5 percent annually during the last three decades. The relative risks from climate change will also increase the impact of natural disasters on the most vulnerable populations. While countries in the Caribbean, like Barbados and Haiti, are susceptible to floods and hurricanes, one third of Latin America faces an increase in desertification and potential drought. More than 70 percent of land in Argentina and Mexico is dry, and in Bolivia and Peru the majority of the population lives in dry regions.

UNDP in Latin America and the Caribbean is committed to supporting countries in the region through the creation of strategies and programmes that help reduce risks associated with climate change such as drought, floods, tropical storms, and hurricanes.

Despite a solid theoretical foundation about the impact of climate change on increasing risks, few experiences in the region have applied this conceptual framework. In general, adaptation to climate change has focused on improving means of subsistence and conserving ecosystems. For their part, local risk management programmes have focused on capacity building for communities and local institutions on preparation and response actions.

There are numerous programmes for adapting to climate change or reducing risks in the region, but only in a few exceptional cases are these two orientations combined into a comprehensive approach. *The Disaster Risk Management Programme in Southeast Mexico* demonstrates the possible and necessary overlap between both areas of work. Important differences in disaster impact can be observed between municipalities who have employed the programme and neighbouring municipalities who have not.

The programme relies on a trained team to provide methodologies and concrete tools to prepare international cooperation agencies, governments, and communities for action in three fundamental areas: a) **local capacity development in prevention for all involved actors**, b) **preparation and response to potential damage or destruction** to livelihoods, services, and the productive products of the population, along with damage to natural resources such as jungles, forests, mangroves, coastal dunes, coral reefs, etc, and c) **public policy advocacy** (legislation, plans, programmes, projects, and governmental budgets) to achieve results and more sustainable benefits.

Working with this focus, the programme helps communities, governments, and social organizations with the **information, capacities, and tools needed to minimize the negative effects of various contingencies, reducing gender and ethnic inequalities and supporting opportunities for development**.

3 Climate Change: Impacts in Latin America

The recent published report of the UN's Intergovernmental Panel on Climate Change (IPCC) placed Latin America among the regions with greatest potential impact, due to meteorological factors and its high level of vulnerability.[1]

If the expected temperature increases of between 1.5 °C and 3°C occur, the main impacts will be:

- The resilience of ecosystems (their ability to recover) will be overcome by the impact of global warming and its associated effects. As a consequence, between 20 to 30% of plant and animal species will fall under some type of endangered status. In the Amazon, the jungle will be replaced by savannah.
- Food production capacity will decrease in both tropical and dry areas.
- Coastal areas will be exposed to floods and erosion, complicating fishing and tourism industries.
- Low-lying coastal plains will suffer continual flooding, affecting their population and industries.
- There will be an increase in diarrheal and cardiac diseases, dengue fever, and malaria.
- The availability of water for human consumption, urban uses, and agriculture will decrease.

Graphic 1. Main Impacts of Climate Change by Sector (IPCC Report, 2007)

Phenomena and Direction of Trends	Probability of Future Tendencies (Projections for the 21st century, IEEE scenarios	Examples of Important Projected Impacts, by Sector			
		Agriculture, Forestry, and Ecosystems (GTII 4.4, 5.4)	Water Resources (GTII 3.4)	Human Health (GTII 8.2, 8.4)	Industry, Housing, and Society (GTII 7.4)
Periods of intense precipitation. Increase in frequency in the majority of areas.	Very probable	Damage to crops; soil erosion, impossibility of cultivating land due to flooding	Adverse effects on groundwater and ocean water quality; contamination of water supplies; possibly, less water shortage	Greater risk of death, injury, and infectious disease (respiratory and skin)	Changes in business locations, transportation, and in societies due to flooding: pressure on urban and rural infrastructure, loss of goods
Area affected by increase in droughts	Probable	Land degradation, decrease in agricultural yields and inhibition of crops; dead livestock; greater risk of uncontrolled fires/ burns	Greater reach of stresses on water resources	Greater risk of scarcity of food and water; greater risks of malnutrition; greater risk of illnesses spread by water and food	Water shortages for housing settlements, industry, and societies; reduced potential for generating hydroelectric power; possibility of population migrations

Increase in the frequency of intense tropical storms	Probable	Damage to crops; trees uprooted by wind; damage to coral reefs	Interruptions in electricity provision that impact the populations' water supply	Increased risk of death, injury, and water and food-borne illnesses, post-traumatic stress disorders	Disturbances caused by floods and strong winds; denial of private insurance in vulnerable areas; possibility of population migration, loss of goods
Greater impact of rising sea levels (excluding tsunamis)	Probable	Salinization of water for irrigation, in estuaries, and in fresh water systems	Reduced availability of fresh water supplies due to intrusion of salt water	Greater risk of deaths and drowning injuries caused by increased levels, effects of migration on health	Cost of protecting the coastlines compared to the costs of relocating land uses, possible population and infrastructure displacement, added to the previously listed impacts of tropical storms

4 Regional Vulnerability

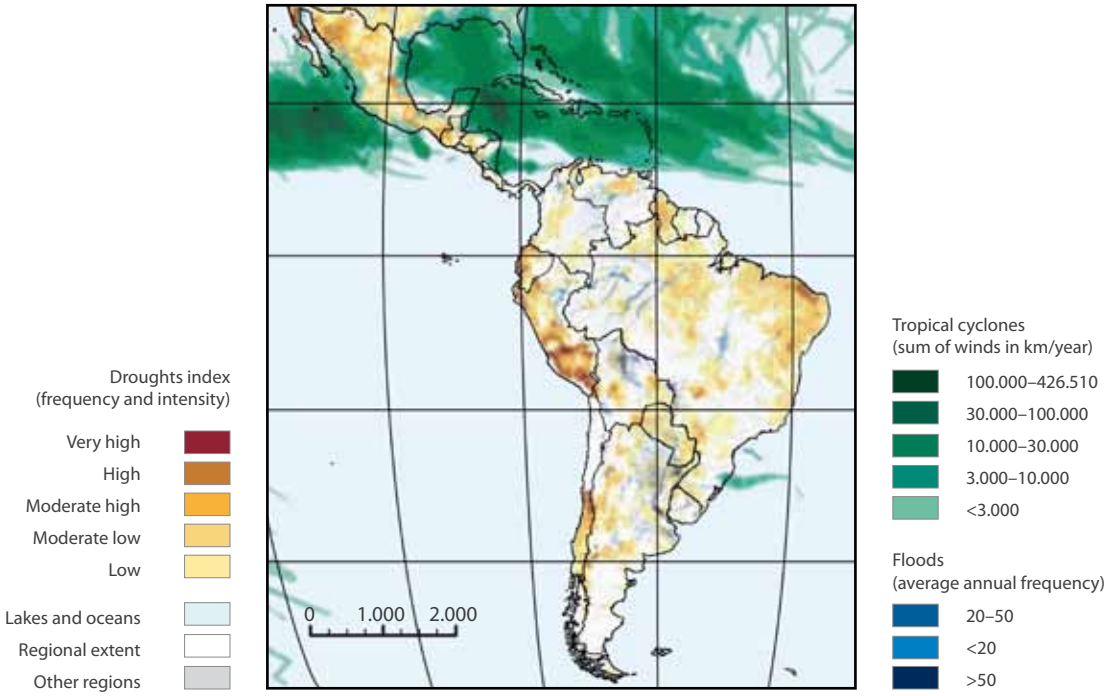
The region's vulnerability depends on geological, meteorological, and water-related dynamics as well as development options and their impact on different societal sectors. An especially serious consequent for human development in the region is that the consequences of disasters divert attention away from the fundamental needs of communities and drain resources needed to eliminate poverty.

Natural Disasters

The western portion of Latin America is part of the "Pacific Ring of Fire," which means that earth's crust is in a process of continual transformation. The characteristic volcanic and seismic activity of Andean and Central American countries provides tangible evidence of these processes, along with geological activity in the Caribbean Basin, and in particular the Antilles. While the dynamics of geological origin have remained constant, meteorological and water-related processes have intensified in magnitude and frequency.

Graphic 2. Multi-Threat Regional Map (UN 2009 Global Assessment Report on D.R.R.)

Weather-related hazards



In recent years, Latin America has experienced a series of disasters (floods, hurricanes, storms, earthquakes, landslides, volcanic eruptions, and forest fires) that have claimed thousands of lives and caused material damages worth hundreds of millions of dollars. It is estimated that in only the past three decades, 160 million people in Latin America and the Caribbean were affected by natural disasters. The number of people at risk has been growing by between 70 to 80 million per year. More than 90 percent of this demographic are people with the least access to resources and the greatest exposure to disasters.

Central America is geographically continuous with southeast Mexico. This region is unique in the world with an intercontinental and interoceanic position and location in the Inter-Tropical Convergence Zone. This positioning allows Central America to be among the most naturally diverse areas on the planet, but also creates the necessary conditions for natural events that expose the isthmus to earthquakes and volcanic eruptions, hurricanes, torrential rains and floods, droughts, tidal fluctuations, and landslides that affect an irregular and mountainous territory.

Development and Risk Distribution

Numerous reports have called attention to the region's high vulnerability to climate change and its impact on the population. During the last 20 years, weather fluctuations have increased, and the region is subject to the effects of these climatic alterations.[2] Studies warn "the decisions made by individuals, communities, and nations about development can create unequal disaster risk distribution." [3] These studies also emphasize poor land use planning, environmental mismanagement, and a lack of regulatory mechanisms increase risks and exacerbate the effects of disasters .[4]

The following elements, linked to economic growth, create social inequality and environmental degradation and will impact the region's vulnerability.

- Regionalization and globalization have led to an increase in natural gas and oil extraction, changed land usage, and increased tourism. As a consequence, **rural families have less access to means of subsistence**, which has led to disorganized growth in urban areas.
- Changes in land use have **affected biodiversity and cultural diversity**. The conversion of forested land into pastures and jungles into single-crop fields, along with the increase in infrastructure and urban areas, causes habitat loss and fragmentation, along with the disappearance of indigenous cultures and practices.
- Other pressures come from deforestation and forest fires. Deforestation, overgrazing, and inappropriate irrigation have caused **the degradation of 15.7% of Latin America's land**.
- Deteriorating water quality and algae blooms have contributed to an **increase in waterborne illnesses in coastal regions**.
- In Central America, high and growing population density (relative to cultivable areas), very concentrated in urban areas (especially metropolitan areas) and, **large inequalities in access to resources with an export economy based on natural resources** with little processing (basically agricultural products and minerals) create strong pressures for environmental deterioration. [5].
- Many people live in **cities located in seismically active areas**. Demographic pressures have also made more people live in floodplains or in areas at high risk of suffering from landslides.

This problem is exacerbated by the way in which risk is addressed in the region. Generally, preparation and response actions are only undertaken just before a phenomenon occurs or after one has recently happened. This strategy leaves out key elements, such as implementing prevention and planning actions with adequate timeframes and stages, involving the population, and local capacity building to manage risk.

Given this concerning background and considering the low adaptability of human systems in Latin America and its high vulnerability, particularly to extreme climatic phenomena, the United Nations Development Programme (UNDP) highly prioritizes the generation of knowledge and development of tools and methodologies to prevent and recover from natural disasters as integral parts of sustainable human development strategies.

5 The Mexican Experience

The joint work of the Small Grants Programmes of the Global Environment Facility (SGP-GEF) and the Disaster Risk Management Programme (RMP-UNDP) in Mexico respond to problems caused by natural disasters over the past 15 years, whose negative effects on biodiversity, development infrastructure, and livelihoods were much greater in more vulnerable rural micro-regions.

The SGP-GEF and RMP-UNDP programmes work to link their thematic areas in order to support **capacity building to adapt to the effects of climate change in the region** on the local level, in order to face the grave threats of environmental risks occurring with greater strength and frequency.

The State of the Situation

Disasters have reduced the quality of life and deepened gender and ethnic inequalities in the southern and southeastern states of Mexico where the programmes operate. In this region, more than 60% of the population is indigenous and the Human Development Index (HDI) of municipalities are on average less than 0.62. These HDI are well below the national and regional averages, and are equivalent to countries like Ghana, Zimbabwe, and Swaziland, and are created by a combination of low incomes, inadequate health conditions, little access to education, and poor living conditions.

Additionally, southeast Mexico is one of the five regions most exposed to tropical storms on the planet, and has marked periods of heat and fires, along with chemical and industrial dangers caused by the activity of the oil industry.

Vulnerability to these threats is exacerbated since most of the population lives in settlements on eroded hillsides along the coastlines, in low and flood-prone forests, and along riverbeds. Almost the entire population in rural municipalities in this region depends on productive activities strongly linked to ecosystems, and is highly vulnerable to the gradual effects of climate change like droughts, wild fires, the migration of animal populations, and desertification.

In the majority of the area's ecosystems, there is a high incidence of forest fires in the first and second years after a major hurricane has struck (Gilbert in 1988, Opal-Roxane in 1994, Isidore in 2002, Wilma-Stan in 2005, and Dean in 2007). In total, forest fires have consumed nearly 7 million hectares of forests and grasslands during the period from 1992-2008. Droughts that have occurred in southeast Mexico from 1998-2009 demonstrate the potential of this type of threat to cause grave injury to the population's livelihood and the economies of affected states. In particular, during these years seasonal production of grains and legumes (grown for self-consumption) decreased, as did commercial cultivations (coffee, cacao, and honey). These crops are the main income source for indigenous families in the areas where the programmes are operating.

What is the SGP-GEF?

The Small Grants Programme of the Global Environmental Facility (SGP-GEF) seeks conservation and sustainable development. To achieve these goals, SGP-GEF uses tools such as project financing, technical and organizational assistance, participatory planning, construction of networks, the promotion of fair trade, etc. The SGP began its activities on the global level in 1992, and currently works in 55 countries in Africa, Asia and the Pacific, Europe, and Latin America and the Caribbean.

The SGP's actions are designed to meet the challenge of reconciling global environmental priorities (for example, avoiding air pollution) with the needs of communities (for example, job creation), offering them direct benefits. With small grants, less than 50,000 dollars, community groups can begin activities that will transform their lives and their environment in important ways, achieving or supporting global benefits.

Chronology

1994 – Small Grants Programme Begins- In March 1994, UNDP launched the Small Grants Programme (SGP-GEF) in Mexico, with projects in the Yucatan Peninsula and the state of Tabasco. In the region there were adequate related institutions, very important biodiversity, and a large Mayan population**.**

2002 – Initiation of the Disaster Risk Management Programme (RMP-UNDP). SGP-GEF had a portfolio of over 300 projects in the states of Southeast Mexico. With the arrival of Hurricane Isidore, 70 of these projects were destroyed or severely affected.

A quick survey demonstrated that this situation was shared among major civil society organizations (NGOs) and with other sources of financing for the Mexican government for development infrastructure, productive projects, and housing. Facing this situation, under the auspices of the SGP-GED itself and the Bureau of Crisis Prevention and Recovery (BCPR-UNDP), UNDP Mexico began in December 2002 a project to build local capacities for disaster prevention, and to design and test methodologies for organizing and training indigenous and multicultural rural communities along with social organizations. The objective is to **reduce conditions of vulnerability for future contingencies and damages from current contingencies.** This project was the beginning of the Disaster Risk Management Programme (RMP-UNDP).

2005-2006 - Expansion and Public Policies – During the years before Hurricanes Wilma and Stan, the programme's best practices were implemented in seven states. Progress was made in the number of localities and participating organizations, along with the elaboration and monitoring of public policy proposals along the lines of: **"Disasters and Gender Equity," "Disasters and Social Participation,"** and **"Disasters and Inter-Culturality."**

2008 – More Governmental Capacity – The programme concentrated in capacity building for governments through programmes and pilot projects with state and municipal governments in Chiapas and Tabasco. The positive results of this process generated interest in neighbouring states, so in 2008 similar programmes were launched in the states of Yucatan and Quintana Roo.

2005 to 2008 – Funds to Replicate the Success – During this period, after each disaster, the SGP-GEF and RMP-UNDP met to create a Fund for Recovery Micro-Projects with two main objectives: a) contribute to r**e-establishing jobs and rural livelihoods** and b) offer governmental efforts successful alternative **pilot micro-**

projects for replication. In total, the fund received support of 5.8 million dollars of resources from SGP-GEF itself, agencies of the Mexican government, foundations, and private businesses, which financed 157 micro-projects.

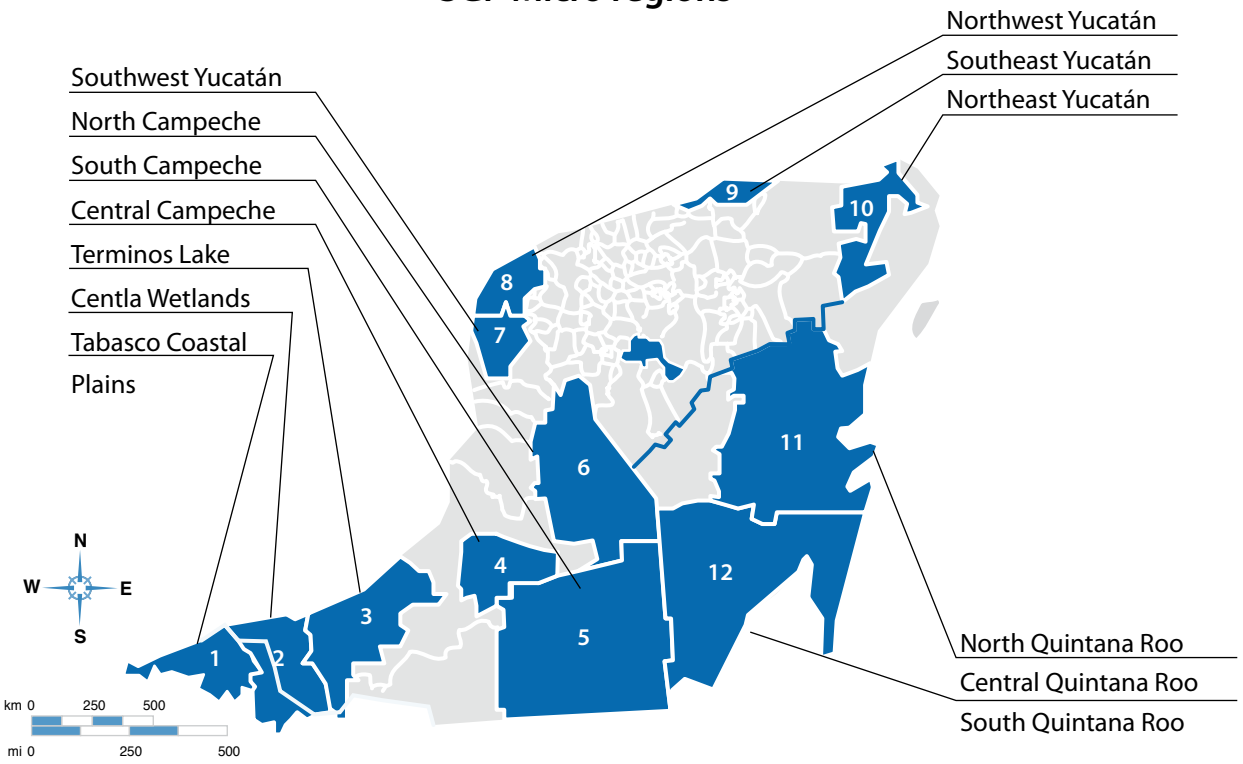
Civil Society and the Disaster Risk Management Programme

NGOs linked to SGP-GEF had a central role in the design and launching of the Disaster Risk Management Programme (RMP-UNDP).

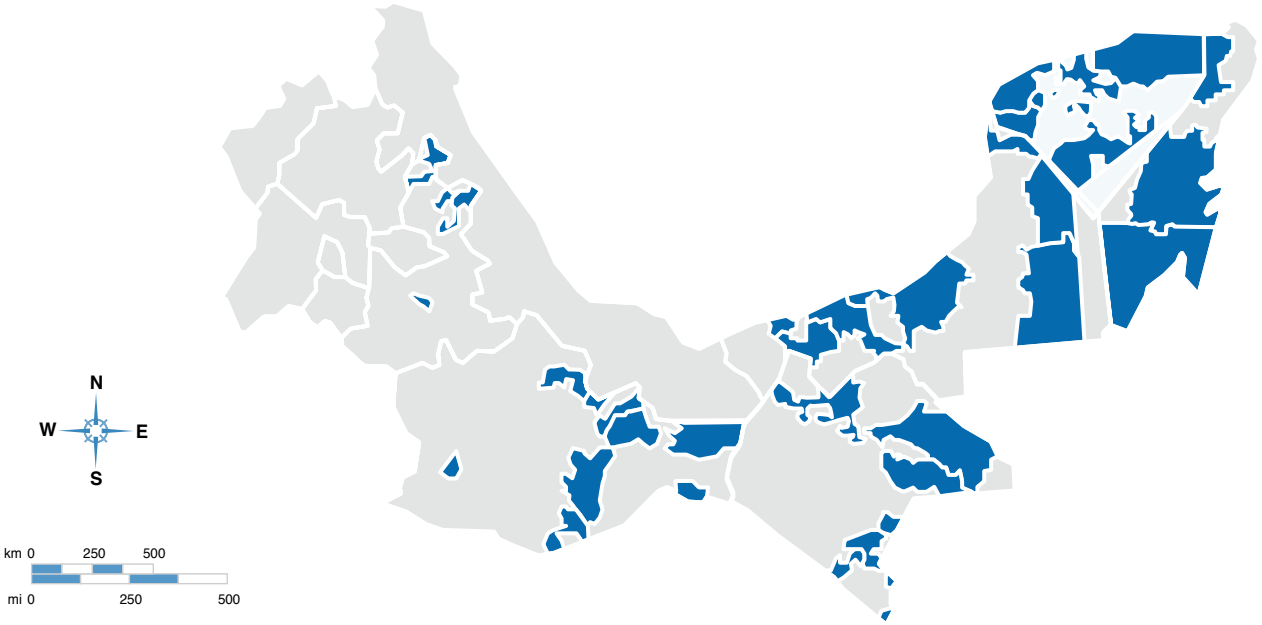
In 2002, one day after the passage of Hurricane Isidore, 29 NGOs formed a network and began work on evaluating damage, managing and distributing humanitarian aid, social audit, and designing small livelihood recovery projects. One week after the disaster, a team of experts from UNDP and the NGOs, in response to a request from Yucatan State's government and backed by the Mexican Foreign Ministry, met to design the first project that today is the RMP-UNDP.

Since the initiation of the project, gender and cultural equality focuses have been included in all the methodologies, by agreement of NGOs and donors. The pilot phase of this project obtained results with high social and economic impact, helping reduce as far as possible the impact of hurricanes Emily and Wilma (2005).

SGP Micro regions



Risk Management Programme



Conditions for Success: It is Better to Prevent than to Repair

The following elements have contributed to building synergies between the Local Risk Management Programmes and the Small Grants Programme, and to increasing their impact on risk prevention and community and governmental capacity building.

The Social Base Strengthened by SGP. The main success factor is the strong relationship SGP has had since 1994 with grassroots organizations that make up social networks on the Yucatan Peninsula and Tabasco. SGP sponsors workshops for training, consultation and coordination on the regional level, within a state, or in a micro-region. In these workshops, proposals have arisen on themes such as credit for sustainable development, rights of indigenous populations, and gender equality.

Partnerships with Civil Society Organizations. Along with community-based groups, SGP has had a broad relationship with and has supported initiatives of important local and national NGOs. An example of this is the RMP itself, which was originally proposed by the network of NGOs previously linked to SGP. (See "Civil Society and the Disaster Risk Management Programme" graphic).

Funds for Prevention. Evidence demonstrates that the cost of reconstruction always exceeds available financial resources and that it is more efficient to prevent than to rebuild. Since the end of the 1980s, Mexico has had the National Fund for Natural Disasters (FONDEN, acronym in Spanish) that invests between 130 and 250 million dollars annually from federal budget, to respond to disasters and initiate reconstruction. Given the insistence of a large number of institutional and social stakeholders, RMP among them, in 2003 the Mexican government created a specialized investment instrument for prevention: the National Disaster Prevention Fund (FOPREDEN, acronym in Spanish). RMP was one of the first projects proposed and approved by the FOPREDEN (2004). Since then, the government of Mexico has been a supporting partner.

The Most Affected Evaluate Damages. After the hurricanes of 2005 ("Emily," "Wilma," and "Stan"), the programme designed a methodology for the Assessment of Damage and Needs Analysis (EDAN, acronym in Spanish). The modality was created by PM, so that communities themselves could undertake a self-evaluation of damages produced by a disaster within the first 24 hours. With help from UMAC,

this assessment was attached to damage report by municipality or micro-region, as previously agreed with authorities.

Concrete Results. The arrival of Hurricane Wilma allowed the observation of important differences in the impact of SGP projects and municipalities where RMP was active, compared to neighbouring municipalities where the programme was not yet active.

Comparison of the Situation of Municipalities Before and After RMP Implementation

Municipalities (2005 Baseline)	Municipalities with a Strategy
• Alerts given only to municipal leaders. • Evacuation of sometimes <50% of the population. • Almost half of the infrastructure and team of income-generating activities were destroyed. • Slow, inexact, and generalized preliminary damage assessment.	• Warning provided to all communities, with individualized messages for genders and ethnic groups. • Voluntary evacuation of 97% of the population. • Protection for 98% of ports and ecotourism projects, 80% of livelihoods. • Rapid self-assessment of damage and needs, with disaggregated proposals.

Methodologies, Protection, and Micro-Regional Teams. The programmes have developed and tested adequate risk analysis methodologies and formed local preparation and response plans. Additionally, a tool was designed for protecting projects and incorporated small grants with risk prevention criteria. A key feature the RMP used to establish its strategy of regional work was the Micro-Regional Contingency Care Units (UMAC, acronym in Spanish). These are micro-regional teams specialized for building community committees for preparation and response for contingencies produced by events like hurricanes. After a joint analysis with local governments and international foundations (OXFAM, Help in Action) and their counterparts, interest grew in expanding RMP to the Yucatan Peninsula and throughout south-southeast Mexico. In 2006, RMP began activities in the neighbouring states of Tabasco, Chiapas, and Oaxaca, and in 2007 in Puebla.

Geographical Coverage and Progress in Numbers

Federal entities	**7**
Micro-regions with working teams of local experts	32
Municipalities where training and assistance has started	60 to 194
Organized communities and emergency plans	534 to 1,034
Cooperative organizations, NGOs, and universities with emergency plans	132
Private enterprises donating to the Humanitarian Network	613
"Protective" Investment Projects	112
Direct beneficiaries	183,670
Indirect beneficiaries	890,400

Social and Private Participation. After the hurricanes of 2005, RMP identified in Mexico a great potential for societal solidarity and social responsibility from businesses. At the same time, there is evident need for creating capacities and trust so that the help provided is efficient and relevant. Within this framework, an informal humanitarian network was organized. After Hurricane Dean and the floods in Tabasco and Chiapas (2007), damages were evaluated and almost 6,000 tons of humanitarian aid were distributed directly to communities, after agreements with respective governments. Local and state NGO networks, foundations of national businesses (FUNDEMEX), the Wal-Mart Group of Mexico, and the Mexican Red Cross participated in this effort.

6 Strategy: "To Transform Affected Local Communities into Risk Managers."

Conventional belief holds that a natural disaster is an isolated and temporary event, produced by the climate and interrupting development, leaving no other option but to wait for its passage and then return to work.

The experience that we analyze adopted the viewpoint that adaptation to the effects of climate change alters the conception of a disaster. This type of disaster is the result of multi-causal processes, socially constructed over time in a specific area. In this case, the presence of a dangerous problem- whether natural, socio-natural, or directly caused by society- impacts pre-existing conditions of vulnerability provoking death and injury within the population, its natural or created environment, its economy, and its social organization. These disasters are not natural, even though some of the threats are. In this context, the threats can become real opportunities for local sustainable development.

Working within this framework, the programmes contribute to communities, municipal governments, and social organizations in the poorest and most vulnerable micro-regions of south-southeast Mexico, using **information, capacities, and tools to minimize the negative effects of various contingencies, reducing gender and ethnic inequalities and promoting opportunities for growth.**

Strategic Principles

In continuity with this alternative framework for disasters, the programme has established some primary strategies present in the actions of the SGP and RMP programmes. The most important are:

Beginning with the Local Area. Programmes should be built according to the particularities of each local community, so the population can get involved in disaster risk management. This can be accomplished by linking similar communities, up scaling into broader territories and administrative regions, such as municipalities as states.

Selecting, Training, and Strengthening Appropriate Counterparts. Social organizations, NGOs, and public and private assistance foundations are fundamental counterparts in risk management processes, given their ability to integrate in the social situation and build creative linkage mechanisms.

Analyzing Risks. Completing risk analysis by sector or theme, for example, in housing, coffee cultivation, tourism, aquaculture, apiculture, etc. This implies that local projects are capable of identifying and analyzing the threats they face, their vulnerability, available material resources, their capacities, and what they need to acquire in order to prevent and mitigate risks.

Recognizing Diversity. Seeking and promoting participation from diverse social stakeholders to be subjects of their own risk management, taking into consideration differences in gender, culture, and generations.

Self-Managing for Development. Avoiding handouts and dependency through disaster prevention, using disaster prevention as a stimulus for endogenous development and community self-management. Risk analysis ceases to be only a preventive instrument, and starts being a tool to plan for development and generate public policy.

Areas of Action

To meet its objectives, RMP concentrates on three areas of action: a) **local capacity development for prevention** for all involved stakeholders, b) **preparation and response to face possible damage or destruction** to livelihoods, services, and productive projects of the population, along with natural resources such as forests, jungles, mangroves, coastal dunes, coral reefs, etc., and c) **public policy advocacy** (legislation, plans, programmes, projects, and governmental budgets) to achieve results and more sustainable benefits.

Areas of Action	Type of Actions
Local Capacity Development for Prevention	• Train staff with a focus on comprehensive disaster risk management, with tools to elaborate and/or implement its Atlas of Risks and Municipal Plans of Civil Protection according to its norms. • Train NGOs and Community-Based Organizations (CBOs) to institutionalize comprehensive disaster risk management (not only preparation and response, but also risk reduction in development activities) as part of their plans and projects. • Train local experts (UMACS) through a course in risk management
Building forms of preparation and response that are multi-cultural and equitable, by sector and by theme	**In Local Areas:** • Perform multicultural risk analysis disaggregated by gender and formulate plans to contribute to the reduction of inequalities between men and women. • Protect all rural homes, preparing for the most common threats in each of the micro-regions. • In localities situated on riverbeds and floodplains, protect the lives of people, their housing, and their property through an early-warning system and local organization against floods and overflowing rivers. **In Productive Activities** • Build and strengthen infrastructure of social businesses for women and indigenous populations • Protect irrigation systems, warehouses, cultivation areas, trucks, along with diverse species of local vegetables, grains, and fruits of economic, cultural, and ecological importance. • Protect local fish and animal species of economic and ecological important, laying the groundwork for their prompt reconstruction in the case of a major disaster. • Protect beehives and apiculture centres or subcentres and the apiculture industry. • Protect fishing boats and ports from tides and hurricanes, through an early alert system and best practices of mobilization and anchoring. • Protect mills, warehouses, means of transport, and tractors and equipment in forest communities. • Implement activities that help reduce fires to conserve natural areas with important biodiversity and their role in reducing climate change.
Impact on Municipal Development Instruments	• Create conditions for risk analysis methodology (protecting of projects) to be made into a public policy proposal to reduce vulnerability to future disasters in development programmes of involved government institutions. • Publicize successful governmental experiences in the process of creating the Atlas of Risks.

Methods and Tools

These are some of the tools RMP has developed, proven, and utilized for disaster management in rural communities, cooperative organizations, micro-regions, municipalities, states, etc. For all elements of the toolbox, the RMP website is available. [6]

Guide to Formulate a Local Risk Management Plan. This guide leads members of Community Committees step by step through the elaboration of a local risk management plan. The guide explains necessary concepts like risk, disaster, vulnerability, etc, and presents tables and graphs where participants can incorporate risk analysis information and measures and activities to develop to prepare for contingencies and mitigate their possible effects.

Protecting Projects from Disasters. Method for Reducing Vulnerability of Social and Productive Projects. Protecting projects reviews the level of exposure and vulnerability of each of the project's elements in the face of existing threats in its environment with the goal of establishing best practices and reducing threats. Usually, this applies to productive or social projects, but in the states of Chiapas, Tabasco, and Yucatan, this methodology is being tested for reducing risks to large public and private development investments. This practice has been internationalized through the Small Grants Programmes of the Global Environmental Facility (SGPGEF).

Preliminary Damage Assessment and Needs Analysis by Community. This is a format that allows data collection in a simple manner and within a short time. Eight hours after a disastrous event, information about damage caused to public services, housing, public buildings, productive systems, livelihoods, and development projects can be collected. The goal is to quickly assemble an assessment of the damages and an analysis of the population's needs for the management of humanitarian assistance.

Method of Capacity Building for Municipalities on Disaster Risk Management. This method aims to strengthen the capacities of municipalities in risk management, through experience achieved in the RMP and through the experiences of creasing the Municipal Atlas of Risks made in Mexico. The method assumes the general outlines of the Basic Guide for the Development of State and Municipal Atlases of Dangers and Risks of the National Centre for Disaster Prevention (CENAPRED, acronym in Spanish), adapting the participatory methodology of RMP. This method of municipal strengthening allows municipal authorities to evaluate their situation of vulnerability and develop a plan accordingly, that includes the development of a municipal Atlas of Risks.

7 Efforts and Implementation (The Path is Made by Walking)

Phase	Main Activities	Key Participants
1. Institutional arrangements	• Disseminate among country offices the local disaster risk management experience (UNDP MEX). • Analyze the impact of recent events. • Incorporate the risk management focus in the SGP of the country. • Obtain financing for programme implementation. • Obtain endorsement from the national government.	Country Office (UNDP) GEF and RMP Federal Government (National): National Directorate of Protection/ Civil Defence/ Secretary (Ministry) of Social Development
2. Identify counterparts	• Notify local government. • Identify local counterparts and present the local risk management proposal (civil and social organizations). • Define initial agreements with local counterparts. • Select candidates for local experts (UMAC).	RMP State governments (subnational) Municipal governments Municipal council of civil protection/ Council of municipal planning Social and civil organizations
3. Training and methodological adaptation	• Initiate training course for local experts (UMAC). • Territorial analysis of risks (threats, vulnerabilities, resources, scenarios). • Adaptation of methodological tools to existing threats.	RMP UMAC UMAC linkages (Coordinators by state)

Phase	Main Activities	Key Participants
4. Planning and testing of methodologies	• Continuation of the course. • Apply MLR methodologies between sessions. • Formal agreements with social and civil organizations for UMAC operation. • Formation of risk management plans by micro-region by UMAC and counterpart organizations. • Incorporation of risk management in the design of operational rules of projects to be protected.	RMP UMAC UMAC linkages NGOs and organizations based in the micro-regions
5. Implementation of the risk management plan	• Implementation of RMP in the micro-region (community plans, project protection, plans by productive group, trainings for communities and organizations). • Implementation of local plans and protocols for preparation and response (in the case of a contingency).	RMP Community and communal committees
6. Mainstreaming of local risk management (LRM) in social organizations	• Plans for mainstreaming LRM focus in the activities of counterpart social organizations. • Training and assistance for municipal governments within the micro-region. • Basic arrangements for coordinated work with state/ provincial and federal/national governments.	UMAC linkages Advisors on strengthening municipalities in risk prevention Social organizations Federal, state, and municipal governments
7. Systematization	• Building a tool to create a SGP database. • Capture of all projects financed by SGP. • Create of a systematization proposal for the synergy between SGP and RMP programmes. • Development of a systematization process..	SGP SGP SGP/RMP/IEPAAC/UGC del CR-LAC SGP-RMP-Consultants

8 What has been Achieved

These are the main results achieved by RMP.

Areas of Action	Results
Development of Local Prevention Capacities	In 60 municipalities in the Yucatan Peninsula and Tabasco, training and social organization methodologies have been applied to prevent disaster risks. More than 53 methodological documents have been published on analysis of risks, elaboration of contingency plans, methods of municipal strengthening in risk management capacities, EDAN formats, diverse monitoring and early alert protocols, among others, which can be found on RMP's website. [6]
Generation of multicultural and equitable preparation and response methods by sector and theme	Methods of contingency planning have been designed and successfully proven, for communities and organizations, in 534 communities and 132 diverse organizations and universities. Tools have been applied for analysing threats and risks, protecting 120 projects, which have been modified to reduce their vulnerability to future disasters. In the municipalities of San Felipe (northeastern Yucatan Peninsula) and Calakmul (southern Yucatan Peninsula), the passage of Hurricanes Wilma (2005) and Dean (2007) **demonstrated that communities and ports where these methodologies have been applied experienced far less damage than others**. Their faster recovery was also notable, despite their containing municipalities with less private insurance coverage or tourism investments than their neighbours.

Areas of Action	Results
Impact on Municipal Development Instruments	Influence in the 25 municipalities of the Yucatan Peninsula and Tabasco, through the work of UMAC, in the scaling-up of Community Contingency Plans in **Municipal Contingency Plans**. Achievement of influence on the Master Plan of Civil Protection, in the Plan for Floods in Tabasco and in the State Contingency Plans of Chiapas and Tabasco. Impact on the Recovery Plan after cold fronts 6 and 7 of 2007 in the state of Chiapas, that provoked floods in river-front communities on the Grijalva River. In 2007, introduced the same methodologies in almost 100 communities and 10 municipalities in the states of Oaxaca, Chiapas, Tabasco, and Puebla, with excellent results. This spurred interest from state governments and some agencies of the federal government in continuously expanding the benefits in new micro-regions, communities, and municipalities

9 Challenges and Recommendations

1. **Strengthen local strategies for adapting to climate change** in order to: a) Improve conditions of resiliency in the face of damage caused by the combination of exposure to extreme climactic events and large environmental, economic, and social vulnerability; b) increase local prevention capacities, since in Latin America and the Caribbean there is almost no disaster risk transference in insurance systems.

2. **Develop coordination with government and society**, through actions such as: a) **Dialogue** with appropriate bodies of the National/Federal Government, like those making up the National Civil Defence/Protection System, and those in charge of Comprehensive Disaster Risk Management (CDRM) with a perspective of gender equality; b) **agreements** with state and local governments on preparation and response work: legal frameworks, atlas of risks, contingency plans, alert systems, EDAN systems, humanitarian assistance, recovery processes; c) **strengthening** of the organization and capacities of foundations and NGOs relating to preparation and response work (humanitarian networks on the micro-regional, state, and national level), along with funds for recovery micro-projects, linked to SGP-GEF (Global Environmental Facility); d) **mainstreaming** of prevention within sustainable development, assistance to NGO networks and government agencies to revise public policies and harmonize them with the MIRD: state, sectoral, and operation programmes.

3. **Promote social participation to generate multi-stakeholder decision making**, under the following understandings that come from experience:
   - It is not possible to reduce disaster risks below a certain level, without participation from society (RMP starts from local projects financed by SGP).
   - It is necessary to overcome a naïve view of "participation," to really insert the programme within endogenous development frameworks. This basically includes recognizing and promoting local diversity, learning and implementing

- local practices and connecting them to public policy (organizations linked to projects financed by SGP and emerging UMAC members, creating social networks that attempt, among other objectives, to impact public policies to improve the social and environmental context in different states in the republic).
- Bet on dialogue and building alliances for governance (ie processes of early recovery). The SGP-RMP establishes alliances, through the IEPA A.C. NGO partner of SGP, with the National Council for Educational Development (CONAFE, acronym in Spanish), a government agency, to scale RMP to municipalities and small or isolated communities where CONAFE has a presence. In this way, the programme's capacity for action can be tripled.

4. **Ensure gender, inter-ethnic, and intergenerational equality in all processes,** through:

- Encourage members of the UNDP team, as well as government and NGO officials, to be sensitized and have adequate comprehension of the concepts and basic methods of gender and inter-cultural exchange, so that disaster analysis and risk management plans consider the conditions, needs, and different strategies of men and women along with indigenous populations and young people, and that they are adequately managed through different messages in early warning systems (language, themes, etc).
- Encourage greater self-management in actions for evacuation, shelter, and humanitarian assistance, with the participation of women and local youth. For this, it is important that damage evaluation and needs analysis separate data according to gender and ethnicity, and that early recovery plans help improve the situation of inequality that existed before the disaster.

5. **Driving change from the local level,** assuming that in recent years a general interest has developed for working in Disaster Risk Recovery (DRR) in the municipalities. UNDP's experience is that a municipality without capacities or instruments for DRR becomes an obstacle for local risk management and advancing public policies.

The proposal includes:

- Diagnostic evaluation of capacities on the theme.
- Capacity building and training, including a system of certification and updating.
- Current Atlas and municipal plan, including mechanisms for institutionalizing them in the council's decision-making. For example, broadening municipal rules on the subject.

10 Who Can Help?

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Annex 1. Options of Planning Adaptation for Climate Change by Sectors, recommended by IPCC (IE-2007)[1].

Sector	Option/Adaptation Strategy	Basic Political Framework	Most Important Limitations and Opportunities with respect to Application (normal font = limitations, italics = opportunities)
Water (GTII, 5.5, 16.4, Tables 3.5, 11.6, 17.1)	Extension of water recollection; storage and conservation techniques; water reuse; desalinization; efficient water use and irrigation	National water policies and comprehensive management of water resources; management of dangerous phenomena related to water	Financial and human resources and physical obstacles; *comprehensive management of water resources, synergies with other sectors*
Agriculutre (GTII 10.5, 13.5; Tables 10.8)	Adjustment of planting dates and cultivated varieties; relocation of crops; improving land management (for example, erosion control, soil protection through tree planting, etc)	Policies of I+D; institutional reform, capacity development; insuring crops; financial incentives (for example, subsidies or monetary credits)	Technological and financial limitations, access to new varieties; markets; *lengthening of planting season in higher latitudes; income from "new" products*
Infrastructure for settlements (including coastal areas) GT II 2.5, 11.4, Tables 6.11, 17.1	Relocation; coastal retention walls and defences against high tides and storms; dune reinforcement; land acquisition; creation of mechanisms to reduce the increase in sea level and flooding; protection from existing natural obstacles	Rules and regulations that include design considerations relative to climate change; policies on land use; building codes; insurance	Financial and technological obstacles; availability of space for relocation; *policies and comprehensive development; synergies with sustainable development goals*

Sector	Option/Adaptation Strategy	Basic Political Framework	Most Important Limitations and Opportunities with respect to Application (normal font = limitations, italics = opportunities)
Human Development. GTII 14.5, Table 10.8)	Action plans for health; emergency medical services; improvement in disease monitoring and control related to climate; water safety and improving sanitation	Public health policies that incorporate climactic risks; reinforcing health services, regional and international cooperation	Limits of human tolerance (vulnerable groups); limits of knowledge, technical capacity, and finances, *improving health services; improving quality of life*
Tourism. GTII 12.5, 15.5, 17.5, Table 17.1)	Diversification of attractions and sources of tourism income; displacement of ski runs and high altitude facilities and glaciers; manufacture of artificial snow	Comprehensive planning (for example, for maximum capacity, or through linkages with other sectors); financial incentives (for example, subsidies and monetary credits)	Attractiveness/marketing of new attractions, financial and logical challenges, potential negative impact on other sectors (for example, making artificial snow can increase energy use); *income from "new" attractions, participation of a broader group of interested parties.*
Transportation (GTII 7.6, 17.2)	New areas/relocation; design rules and planning of highways, railways, and other infrastructure to face warming and soil drainage	Including climate change in national transportation policies, investment in I+D in special situations (for example, permafrost regions)	Financial and technical obstacles; availability of less vulnerable routes; *improvement of technology and including key sectors (for example, energy).*
Energy (GTII 7.4, 16.2)	Reinforcement of transmission and distribution; below-group cable for basic public services, energy efficiency; use of renewable resources; less dependence on unique energy sources	National energy policies, regulations and financial incentives for alternative energy use; incorporation of climate change in design regulations	Access to viable alternatives; financial and technological obstacles; acceptance of new technologies; *stimulation of new technologies, use of local resources.*

Annex 2
What is the Synergy between SGP and RMP?

SGP's existence in the south-southeast of Mexico has favoured the creation and development of RMP as a tool for the management of, prevention of, preparation for, and response to risks from threats of disasters, within the broad framework of planning and self-management of endogenous development built by communities themselves. One of the lessons of the SGP experience is that it facilitates the existence of a working area in a strong social network of community-based organizations and civil society organizations, which are main actors in the risk management process. The existence of SGP is very favourable for the development of RMP, given the broad relationship between community based organizations and NGOs that serves as the minimum requirement for its development.

The SGP has the capacity to finance projects of community based organizations and NGOs. This strengthens the social fabric necessary for local risk management. Additional, the micro-regionalization of the SGP allows social and institutional capacity building in each micro-region. Moreover, exploiting the situation created by an event also serves as a point of entry for activities of both programmes.

The generation of partnerships for co-financing, the capacity for public advocacy, and capacity building are strengthened if jointly implemented. In terms of financing, recovery and humanitarian aid generate significant resource flow (philanthropy, social responsibility) that can be directed towards sustainable development activities.

The entire initiative requires joint planning among programmes to unify and magnify the efforts and resources. A way to link SGP and RMP is to have the physically share the sub-national UNDP office in the Yucatan Peninsula, producing

greater articulation between them, as well as favouring communication and work organization.

Another factor demonstrating the synergy between the two programmes is SGP's activities in conservation through its projects in the communities and micro-regions, helping reduce the vulnerability of future projects encouraged by RMP and SGP itself.