JAMAICA
NATIONAL HAZARD MITIGATION POLICY

Prepared by
National Hazard Mitigation Policy Development Committee, Jamaica
Consultant: Dr. Balfour Spence

For the
Caribbean Development Bank

December 2005

TABLE OF CONTENTS

Executive Summary

Jamaica's vulnerability to multiple natural and human-induced hazards and their repeated impact on the social and economic fabric of the society are challenges to the attainment of sustainable development. These challenges are further compounded by social issues such as poverty, the location of human settlements in high-risk areas, environmental degradation and instances of poorly constructed infrastructure and housing.

In a globally changing economic environment, Jamaica's ability to mobilize external disaster assistance will be diminished as international aid organizations and development partners impose more stringent criteria for assistance owing to increasing cost associated with disaster impacts globally. It is within this context that hazard mitigation is being promoted as a priority in Jamaica's policy agenda. There is increasing recognition that hazard mitigation, through the implementation of risk-reduction measures can play a significant role in sustainable development. In that regard, it is timely that Jamaica is now articulating a Policy that reflects national desire to factor hazard mitigation into the overall development framework. The *vision* of the policy is to have a society in which hazard mitigation has evolved to become a part of everyday life. This vision is predicated on the recognition that a community-based approach must be the focus of any intervention. This Policy therefore promotes the active participation and partnership of communities, governmental and non-governmental organizations, the private sector and development partners, in the conceptualization, design and implementation of hazard mitigation measures It also provides the basic guidelines for realization of the benefits of hazard mitigation to the achievement of sustainable development.

The main *purpose of the policy* is the provision of a framework for the integration of hazard mitigation into all policies, programs and plans at all levels of society. As such the policy promotes the institutionalization of hazard-risk reduction measures that leads ultimately to the process of hazard-impact mitigation. Since hazard mitigation is not an end within itself, the policy is grounded in the belief that the mainstreaming of hazard-mitigation measures must be an integral part of the sustainable development process, and as such, its primary goal is to facilitate the attainment of Jamaica's sustainable

development objectives through minimization of physical, economic and social dislocations caused by hazards and disasters.

The *scope of the policy* involves the application of structural and non-structural mitigation measures by the society in general and communities in particular, to lessen the adverse effects of natural and human-induced hazards. Specifically, these measures incorporate disaster prevention, preparedness, emergency response and rehabilitation and reconstruction.

Within the context of its *institutional and legislative framework*, the implementation of the Policy will be spearheaded by ODPEM, but with the recognition that there are currently a number of institutional mandates whose frameworks support the objectives of hazard mitigation. The primary *goals* are therefore acceleration of sustainable development and minimization of physical, economic and social dislocations through the implementation of hazard mitigation strategies. In that regard the main *objective* to provide of an integrated legislative, regulatory and institutional framework that will support hazard mitigation at all levels of society. Achievement of this objective is hinged on the promotion of collaboration among all stakeholders towards the achievement of reduced hazard impacts.

The policy is grounded in the key *guiding principles* of accountability among institutional and community stakeholders, equity of access to resources, partnership inclusiveness and participation of all stakeholders. *Strategies* for achieving the goals of the Policy will focus on the engagement of communities, the building of relevant institutions and capabilities to reduce vulnerability, expansion of hazard/disaster information base, the harnessing of local knowledge and experiences and the engagement of the scientific community. The effectiveness of strategies will depend on the development of mechanisms for financing hazard mitigation. This policy document is intended to provide a broad framework for hazard mitigation. The design of strategies that are specific to different hazards to which Jamaica is vulnerable will for part of a separate document detailing the policy implementation plan.

Priority areas for action include the integration of hazard mitigation into national policy and legislative/regulatory frameworks, sensitization, public education and outreach at all levels of society, initiation of long-term programmes of hazard-risk mapping and community-based disaster management planning.

The primary *challenge* to the implementation of this policy is how to effectively create a culture of hazard mitigation at all levels of society.

The immediate *next step* towards meeting the objectives of the policy is the development of a strategic implementation plan focusing on specific measures to be undertaken in the implementation of the Policy.

Preface

The National Hazard Mitigation Policy for Jamaica is prepared by a multi-agency Policy Development Committee (PCC), spearheaded by the Ministry of Land and Environment and comprising representatives from the Office of Disaster Preparedness and Emergency Management (ODPEM), the Planning Institute of Jamaica (PIOJ), the National Environmental and Planning Agency (NEPA), the Water Resources Authority (WRA), the National Works Agency (NWA) and the Meteorological Service.

This Policy is adapted from a Model National Hazard Mitigation Policy developed by the Caribbean Disaster Emergency Response Agency (CDERA) through its Caribbean Hazard Mitigation Capacity-building Programme (CHAMP) and the Caribbean Development Bank (CDB) through its Disaster Mitigation Facility for the Caribbean (DMFC). The development of the national hazard mitigation policy of Jamaica was financed by CDB through its DMFC. The DMFC is a partnership between CDB and the United States Agency for International Development Office of Foreign Disaster Assistance.

The basic framework for the Policy was developed at a workshop sponsored and facilitated by the CDB/USAID, NEPA, PIOJ and ODPEM. The workshop produced the basic framework for the policy goals, objectives and strategies. The National Hazard Mitigation Policy for Jamaica had its genesis in the 1970s when the National Physical Plan for Jamaica addressed the issue of hazard-risk reduction and its relevance to development. Momentum in the development of a policy was gained in early 1980s simultaneous with the establishment of the Office of Disaster Preparedness and Emergency Relief Coordination (ODIPERC) and in the wake of extensive damage caused by Hurricane Allen. The first documented expression of the need for a hazard mitigation policy formed part of a publication on Natural Hazard Mitigation: A Recommended Strategy for Jamaica[1] in 1984. The need for such a policy was again highlighted in a

---

[1] Ralph Fields & Associates, 1984

video documentary on Disaster Mitigation[2] produced with support from the Pan-Caribbean Disaster Preparedness and Prevention Programme (PCDPPP) and the Jamaica Office of Disaster Preparedness in 1986, following devastating flood rains which left 54 persons dead and the road infrastructure of southern Jamaica virtually crippled.

The Disaster Preparedness and Emergency Management Act (1993) was a catalyst for renewed focus on risk reduction in disaster management planning and outlined the pathway towards a hazard mitigation policy.

---

[2] Eleanor Jones, 1986

Glossary

Climate Change: Change observed in the climate on a global, regional or sub-regional scale, caused by natural processes and/or human activity.

Disaster-risk management: The systematic management of administrative decisions, organization, operational skills and abilities to implement policies, strategies and coping capacities of the society or individuals to lessen the impacts of natural and related environmental technological hazards.

Disaster-risk reduction: The systematic development and application of policies, strategies and practices to minimize vulnerabilities, hazards and the unfolding of disaster impacts throughout society, in the broad context of sustainable development.

Hazard: A phenomenon caused by natural or human forces which endangers a group of people, their belongings and their environment, when they have not taken precautions.

Hazard analysis/assessment: Identification, study and monitoring of any hazard to determine its potentiality, origin, characteristics and behaviour.

 Hazard-impact mitigation: Structural and non-structural measures undertaken to limit the adverse impact of natural hazards environmental degradation and technological hazards. In climate change terminology hazard mitigation is synonymous with adaptation to some degree. Climate change adaptation is an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Hazard-risk management: The systemic management of administrative decisions, organization, operational skills and responsibilities to apply policies, strategies and practices for hazard risk reduction.

Hazard-risk Reduction: The development and application of policies, procedures and capacities by the society and communities to lessen the negative impacts of possible natural hazards and related environmental and man-made disasters. This includes structural and non-structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, and the development of coping capabilities.

Natural Disaster: A serious disruption triggered by a natural hazard causing human, material, economic or environment losses, which exceed the ability of those affected to cope.

Natural Hazard: Natural processes or phenomena occurring in the biosphere that may constitute a damaging event. These include hydro-meteorological hazards such as hurricanes, floods and droughts, Geological hazards such as volcanoes, earthquakes, landslides and tsunamis, and health-ecological hazards such as diseases and pollution

Hazard Risk: the probability of harmful consequences, or expected loss (of lives, people injured, property, livelihoods, economic activities disrupted or environment damaged) resulting from interactions between natural or human induced hazards and vulnerable/capable conditions. Conventionally, risk is expressed by the equation.

Hazard Risk = Hazard x Vulnerability/Capacity

Stakeholders: any individual or institution that would be affected by a policy or activity.

Sustainable Development: Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

Technological hazard (Man-made hazards): Danger originating from technological or industrial accidents, dangerous procedures, infrastructure failures or certain human activities, which may cause the loss of life or injury, property damage, social and

economic disruption or environmental degradation. Technological hazards also include emerging social/organization hazards such as terrorism (including bio-terrorism)

Vulnerability: A set of conditions and processes resulting from physical, social, economical, and environmental factors, which increase the susceptibility of a community to the impact of hazards.

Acronyms and Abbreviations

CARICOM	Caribbean Community
CDB	Caribbean Development Bank
CDB/BMCs	Caribbean Development Bank Borrowing Member Countries
CDERA	Caribbean Disaster Emergency Response Agency
CDERA	Caribbean Disaster Emergency Response Agency/Participating States
CDM	Comprehensive Disaster Management
CHAMP	Caribbean Hazard Mitigation Capacity Building Programme
CPACC	Caribbean Planning for Adaptation to Global Climate Change
DM	Disaster Management
DMFC	Disaster Mitigation Facility for the Caribbean
IPCC	Inter-government Panel for Climate Change
IR	Intermediate Result
KSAC	Kingston and St Andrew Corporation
MACC	Mainstreaming Adaptation to Climate Change
NGO	Non-Governmental Organization
NHRM	Natural Hazard Risk Management
ODPEM	Office of Disaster Preparedness and Emergency Management
OECS	Organization of Eastern Caribbean States
OECS-ESDU	Organization of Eastern Caribbean States – Environment and Sustainable Development Unit
PEO	Public Education and Outreach
SIDS	Small Island Developing States
SIDS/POA	Small Island Developing States/Programme of Action
UNFCCC	United Nations Framework Convention on Climate Change
UNISDR	United Nations International Strategy for Disaster Reduction

1.0   POLICY CONTEXT

1.1 OVERVIEW

Jamaica's vulnerability to multiple hazards, both natural and human-induced
is one of the main challenges to the attainment of sustainable development, the overarching framework of which is outlined in a number of international conventions and principles such as Agenda 21, the SIDS Programme of Action and the Mauritius Strategy. This vulnerability is largely a function of geographical setting and hydro-meteorological dynamics, especially with respect to hurricanes, earthquakes, droughts, the location of population concentrations, topography and geology. Over the past two decades, increased pressures have being placed on the economic, social and environmental fabric of Jamaica, at the same time that changing global economic relations require that its economy become more competitive and its limited resources be developed and utilized in a sustainable way. The challenges created by these dynamics are further compounded by costly damages sustained from continued impacts of hurricanes and their associated effects, flooding and landslides and earthquakes. There is also concern about the potential impact of global climate change and indications are that Jamaica and the rest of the Caribbean region will experience resultant increased frequencies of hurricanes, floods and droughts. In the absence of timely and appropriate hazard-risk reduction measures, the increased frequency of these events will further erode Jamaica's economic base, especially with regard to water resources, ecosystems, human settlements, agricultural systems, coastal resources, tourism infrastructure and human health.

As a consequence of recurrent hazard-related damages, Jamaica is forced to divert scarce resources earmarked for development projects to relief and reconstruction, resulting in impeded economic growth. For instance, in the immediate aftermath of Hurricane Ivan in September 2004, J$94.9 million was diverted from government institutions to finance relief activities. The total economic impact of this hurricane is estimated at J$35,931 million or the equivalent of 8.0 percent of the country's GDP for 2003 (Planning Institute of Jamaica, 2004). Hazard impact also directly affects the foreign exchange earning

capacity of Jamaica at a time when extra resources are needed to finance imports of food, energy, and inputs for the agricultural manufacturing sectors.

Apart from natural hazards, Jamaica is also susceptible to a number of human - induced and biological hazards. Human-induced hazards include large-scale fires, oil and chemical spills, aircraft accidents, accidents involving the transportation of toxic and hazardous waste material on land and sea, large-scale marine and on-land transportation accidents and terrorism, while biological hazards include SARS outbreak and pest infestation.

Hazard impacts are often exacerbated by social factors such as poverty, the location of settlements in hazardous areas, environmental degradation and in some cases, poorly constructed infrastructure and housing. While Jamaica's disaster preparedness and emergency management capacity has made steady progress since the establishment of the Office of Disaster Preparedness and Emergency Relief Coordination (ODIPERC) in 1980, through to the later establishment of the Office of Disaster Preparedness and Emergency Management (ODPEM) in 1993, critical areas of concern such as community-based disaster management still need to be appropriately addressed. Given Jamaica's small size, the impact of a major event can affect the entire country and in many instances damage incurred can be equal to a significant proportion of the country's Gross Domestic Product.

Within the context of hazard vulnerability, Jamaica is microcosm of the Caribbean regional situation, experiencing recurrent high levels of losses owing to the environmental, social and economic impact of hazards. For instance, in 1986, during one of the worst incidences of flooding in the nation's history, 54 lives were lost and damage to infrastructure and agriculture totaled over one billion Jamaican dollars. In real terms, these impacts and associated cost are likely amplified, since impacts such as soil loss during high magnitude rainfall and associate flooding are not normally incorporated into the assessment of impact cost.

Over the last two decades Jamaica economic growth and development has been persistently hampered by the impact of natural hazards. For example, between May and September 2002, flood rains in Jamaica caused cumulative damage about $6 billion. Over 90 percent of this damage was accounted for by infrastructure and agriculture. Placed in perspective, that $6 billion was approximately 26.3 per cent of the total budget for education in 2003 and could have built 12,000 low income houses to shelter the poor. Were these monies not spent on disaster recovery, they could have reduced fiscal deficit and advance growth.
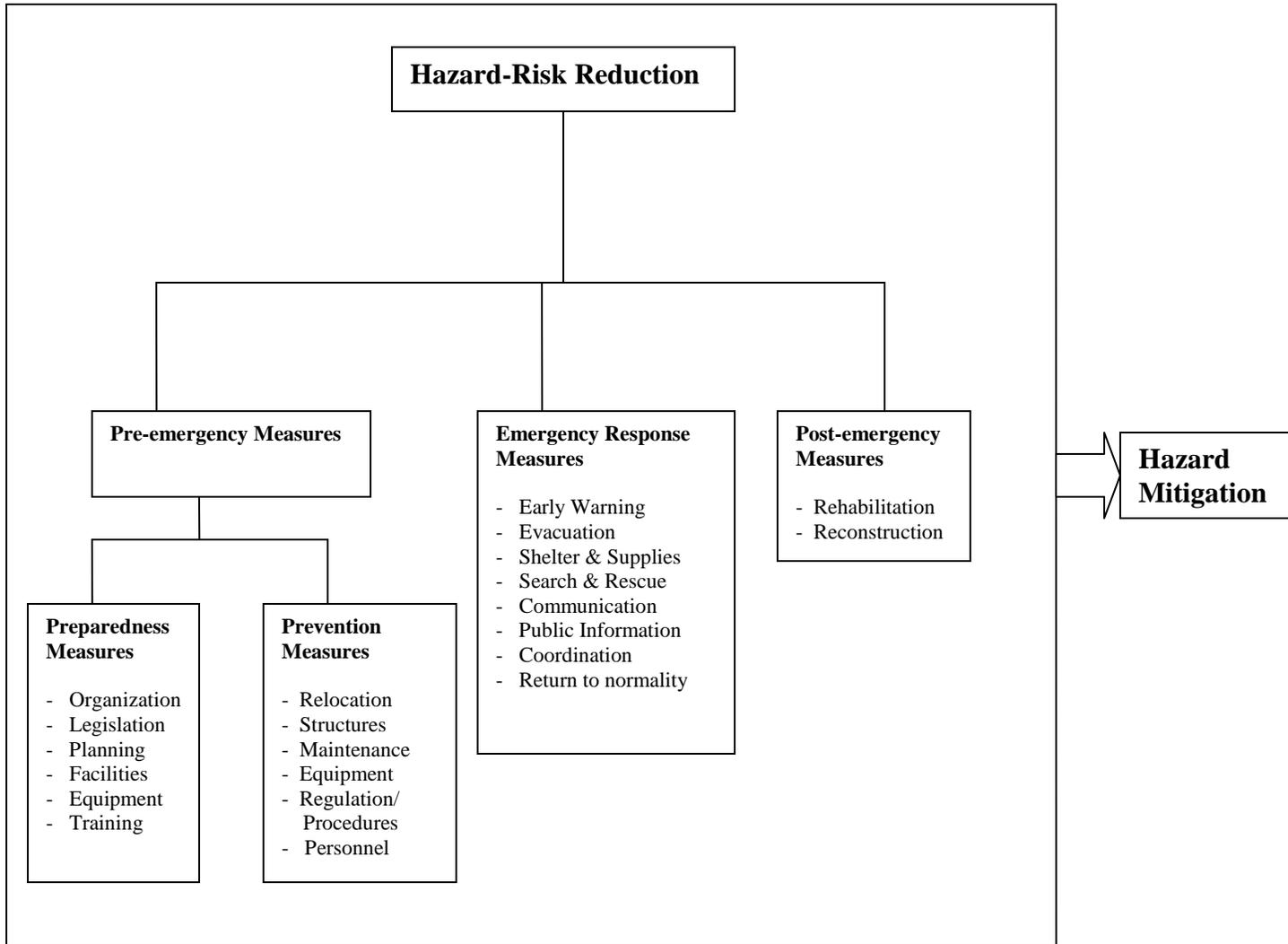
With growing   recognition of the economic and social costs incurred as a result of repeated damage from natural hazard impacts, of the threat of man-made hazards, as well as the increasing awareness that global concerns such as climate change will impact all countries in the region, hazard-risk reduction has become a priority in the policy agenda of a number of Caribbean countries. While this awareness is neither sufficiently heightened nor articulated in development decisions, there has been increasing recognition of the role that hazard mitigation can play in the achievement of sustainable development and in that regard, the time is opportune for the articulation of policies that reflect national desire to factor hazard mitigation into Jamaica's development framework. In that context, successful integration of risk reduction measures into national development frame work is predicted on the recognition that a *community-level approach* to the design and implementation of measures for hazard mitigation must be the focus of related policies. This is consistent with the emergent paradigm shift in Caribbean disaster management approach towards *community-based disaster management planning*. In that regard, communities should not be mere recipients of hazard mitigation measures, but must be active participants and partners in the conceptualization, design and implementation of these measures. This policy not only reflects the desire to factor hazard mitigation into the national development framework but also promotes the full participation and partnership of communities as the focus of the mitigation agenda and provides the basic guideline for the attainment of this objective.

1.2 PURPOSE OF THE POLICY

A national policy on hazard-risk reduction provides a framework for integrating hazard mitigation into all policies, programmes and plans at national and community levels. It sets out the broad goals and guiding principles for hazard risk reduction, and thus informs the development of national hazard mitigation plans. This is necessary, as in the absence of well-articulated policies there is the real risk that scarce resources may not be utilized as effectively as they should be in the implementation of programmes, projects and ongoing activities.

1.3 SCOPE OF THE POLICY

Hazard mitigation (hazard impact mitigation) involves the development and application of policies, procedures, capacities and measures by the society and communities to lessen the negative impacts of possible natural hazards and related environmental and man-made disasters. Mitigation is therefore achieved through a process involving a variety of risk-reduction measures. These risk reduction measures are both structural and non-structural and are intended to avoid (prevention) or to limit (mitigation and preparedness) adverse impact of hazards, the development of emergency response capabilities and the institution of post-emergency (rehabilitation and reconstruction) measures (Figure 1). Risk-reduction measures that will effect the mitigation of hazards are undertaken before (pre-emergency), during (emergency response) and after (post emergency) the impact of a hazard.

```
┌─────────────────────────────────────────────────────────────────────────────┐
│                          ┌───────────────────────┐                          │
│                          │  Hazard-Risk Reduction│                          │
│                          └───────────┬───────────┘                          │
│                                      │                                       │
│        ┌─────────────────────────────┼─────────────────────────┐            │
│  ┌──────────────┐          ┌──────────────────┐      ┌──────────────────┐   │
│  │ Pre-emergency│          │Emergency Response│      │  Post-emergency  │   │
│  │   Measures   │          │    Measures      │      │     Measures     │   │
│  └──────┬───────┘          │                  │      │                  │   │
│         │                  │ - Early Warning  │      │ - Rehabilitation │   │
│  ┌──────┴──────┐           │ - Evacuation     │      │ - Reconstruction │   │
│  │             │           │ - Shelter &      │      └──────────────────┘   │
│  │             │           │   Supplies       │                             │
│  │             │           │ - Search & Rescue│                             │
└──│─────────────│───────────│──────────────────│─────────────────────────────┘
```


Figure 1: The Hazard Mitigation Process

Examples of structural measures are:

- Relocation of facilities from hazardous locations

- Building of roads and bridges

- Slope stabilization to protect facilities

- Installation of cribbing or retaining walls to prevent erosion and deter flood waters

- Installation of soil retention blankets

- Protection from high winds
- Installation of hurricane shutters to protect windows
- Installation of hurricane straps
- Flood-proofing of buildings
- Use of flood-damage-resistant materials
- Elevation of mechanical equipment and utilities
- Seismic protection

Examples of non-structural measures include:
- Directing development through land-use planning, zoning and sub-division regulations
- Limiting risk and increasing the community's capacity through structure and property acquisition
- Information dissemination
- Adopting and enforcing building codes
- Conducting outreach activities to educate the public on hazards, vulnerabilities, and hazard –risk reduction measures
- Directing development with taxes, incentives and other techniques.

Implementation of strategies for hazard mitigation is inherently multi-sectoral. This is because mitigating the impact of hazards involves the making of choices among development alternatives and therefore requires inter-agency coordination, the building of synergy between public and private sectors as well as the cooperation and support of civil society. In that regard, agencies and citizens will need to act in concert to identify and utilize integrated mechanisms to reduce potential damage to the built environment, make appropriate land use choices, protect the natural environment, implement building standards, adopt and enforce building codes, and retrofit, repair and reconstruct existing development.

Hazard mitigation activities are intended to focus on actions that produce sustained benefits over time. One of the principal benefits is that expenditure on mitigation measures will significantly reduce human suffering, infrastructural damage and the need for large expenditure in the event of a national emergency.

1.4 INSTITUTIONAL AND LEGISLATIVE FRAMEWORK

The Office of Disaster Preparedness and Emergency Management will be assigned responsibility for the implementation of the Policy. Within Jamaica there exist a number of institutional mandates whose framework supports the objectives of hazard-risk reduction and by extension, mitigation. The Policy should therefore be closely integrated with these existing mandates, especially those that are supported by the following national legislations and guidelines:

i)   The Disaster Preparedness and Emergency Management Act (1993)

ii)   The Public Health Act (1985)

iii)   The Fire Brigade Act and Regulations

iv)   The Town and Country Planning Act (1957)

v)   Natural Resources Conservation Authority Act (1991)

vi)   Draft National Building Code (1983)

vii)   Forest Act (1996), Forest Regulations (2000)

viii)   Beach Control Act (1996)

ix)   Water Resources Act (1995)

x)   Land Development and Utilization Act (1966)

xi)   Local Improvements Act (1914)

xii)   KSAC and Parish Council Building Act (1908)

xiii)   National Solid Waste Management Act

xiv)   Housing Act

xv)   Mining and Quarries Act (1947)

xvi)   Watershed Protection Act (1963)

xvii)   Severe Weather Orders (1990)

Some of these legislations contain deficiencies and areas of overlap in relation to responsibilities and will therefore require updating of relevant sections.

Design of a system of monitoring, reviewing and reporting to Parliament must be a critical component of the Policy implementation plan.

2.0   POLICY STATEMENT

The focus of the Policy is hazard mitigation and rests on the belief that sustainable development cannot be achieved without mainstreaming hazard-risk reduction measures.

2.1 VISION STATEMENT

A society in which hazard mitigation is an integral part of everyday life.

2.2 POLICY GOALS

The main goals of the policy are:

i)   The acceleration of the attainment of sustainable development objectives through hazard mitigation.

ii)   The minimization of physical, economic and social dislocations through hazard mitigation strategies.

2.3 POLICY OBJECTIVES

The following are the objectives of the policy:

(i)   To provide an integrated legislative, regulatory and institutional framework in support of hazard mitigation at all levels of society.

(ii)   To reduce environmental, social and economic dislocations, with emphasis on infrastructure, land use practices and rehabilitation of degraded areas.

(iii)   To promote collaboration and coordination among national, regional and international agencies to harmonize activities towards achieving common objectives for hazard mitigation.

(iv)   To empower communities to manage hazard risk.

(v)   To protect and rehabilitate the natural, social and economic environments through hazard mitigation.

3.0   GUIDING PRINCIPLES OF THE POLICY

The Policy is grounded on the key principles of:

i)   Reduction in social and economic dislocation owing to hazard impacts and realization of social and economic benefits of hazard mitigation.

ii)   Accountability among institutional stakeholders responsible for implementation of specific aspects of the National Hazard Mitigation Policy.

iii)   Equity of access to resources for hazard mitigation.

iv)   Inclusiveness of all stakeholders in strategies for hazard mitigation.

v)   Partnership and participation among stakeholders for hazard mitigation.

vi)   Environmental protection, good governance and an integrated approach

In addition, Jamaica is a signatory to a number of international conventions related to hazard risk management and is guided by them in this policy.

3.1 REDUCTION IN SOCIAL AND ECONOMIC DISLOCATION AND BENEFITS OF HAZARD MITIGATION

Social and economic dislocations resulting from hazard impacts and the associated cost of recovery are the primary impetus behind the guiding principle of impact reduction and realization of the benefits of hazard mitigation. In defining any policy for hazard-risk reduction, it is necessary to ensure that vulnerability is reduced, since hazard events cannot always be eliminated.

The sources of hazard vulnerability in Jamaica are varied and complex and are related to:

i)   Population growth and dynamics

ii)   Inappropriate land use

iii)   Environmental damage

iv)   Inappropriate/insufficient conceptualization and implementation of policy initiatives aimed at hazard mitigation.

v)   High levels of poverty

vi)   Inequity and exclusion in access to resources for hazard mitigation.

vii)   Low levels of institutional/organizational collaboration and partnership to effect hazard mitigation.

viii)   Paucity of environmental, technological and social data to support the formulation of strategies for hazard mitigation.

Hazard vulnerability can be reduced through identification and rationalization of the use of hazard prone areas and the proper design, construction and maintenance of buildings and infrastructure. This however will require the strengthening of institutional as well as technical capacities.

While disasters are by definition devastating events, lessons learnt and incorporated into post-disaster recovery can often present opportunities for future vulnerability reduction. The destruction of unsafe infrastructure and buildings can provide opportunities for rebuilding with better standards or for relocation. Damage to buildings may highlight structural weaknesses, which could be rectified and may serve to improve planning and building regulations.

Relatively small investments in risk reduction measures can reduce the recurrent losses caused by hazard impacts. The benefits of hazard-risk reduction to Jamaica can in turn lead to a more stable social and economic environment. The stability can encourage development and give people some sense of control over their own well-being.

Hazard mitigation requires the incorporation of specific risk reduction measures into existing and ongoing development programmes at all stages of the development process. Awareness of the inter-relationship between hazard mitigation and sustainable development should be second nature to all stake-holders in the development process and should be complemented by relevant regulations and guidelines.

3.2 ACCOUNTABILITY OF STAKEHOLDERS RESPONSIBLE FOR IMPLEMENTATION OF HAZARD MITIGATION

If the objectives of the Policy are to be effectively met stakeholders must be held accountable for aspects of implementation assigned to them. Accountability in that regard involves the timely and efficient provision of deliverables consistent with clearly outlined terms of reference. Accountability is also hinged on the provision of access to adequate and appropriate resources for the implementation process.

3.3 EQUITY IN ACCESS TO RESOURCES FOR HAZARD MITIGATION

If hazard mitigation is to become a way of life at all levels of the Jamaican society, equity in access to requisite resources is a necessary prerequisite. In that regard, measures are required to ensure equity in access to relevant information/data and material, technical and financial resources among communities, agencies and other stakeholders at all levels of society.

3.4 STAKEHOLDERS INCLUSIVENESS IN STRATEGIES FOR HAZARD MITIGATION

Strategies for hazard mitigation must include all stakeholders. In that
regard, special attention must be given to women and children, the poor, mentally and physically challenged individuals and other special groups.

3.5 PARTNERSHIP AND PARTICIPATION AMONG STAKEHOLDERS

The multi-sectoral nature of hazard mitigation necessitates the building of synergy and partnership among stakeholders at the community, parish, national, institutional and international levels. In that regard, a conceptual model of interrelationships and responsibilities in mitigation should provide a rational basis for the implementation of the national Hazard Mitigation Policy for Jamaica.

3.6 ENVIRONMENTAL PROTECTION, GOOD GOVERNANCE AND INTEGRATED APPROACH

In light of the sustainability focus of the Policy, measures for hazard mitigation must endeavour to prevent harmful impact on natural processes. Hazard mitigation activities that degrade the natural environment are not viable long-term solutions to hazard risk and properly conceived measures will present opportunities to conserve resources and to enhance the quality of the environment.

Risk assessments of prevalent hazards and the communication of risk information to communities through public education are critical to the protection of the natural, social and economic environments. Formulation of strategies for risk assessment must therefore be part of the long-term agenda.

4.0   POLICY STRATEGY

The strategy for realizing this policy is the incorporation of hazard   mitigation   into development planning, project formulation and implementation of government, non-governmental organization and private sector projects. This will require that emphasis be placed on engagement of communities, building institutions and capabilities to reduce vulnerability, an expanded information base, up to date scientific information, local knowledge and expertise as well as the involvement of all levels of the society. It will also require that ordinary citizens be made aware of and pursue mitigation in their communities. Financial resources for implementation of the strategy will be achieved through incorporation of hazard-risk management considerations into the budgetary allocations of each Ministry as well as other strategic measures to provide sustainable support for the process of mitigation on an ongoing basis.

5.0 PRIORITY AREAS FOR ACTION

The priority areas of the Policy are informed by issues pertaining to hazard/disaster-related loss. These issues include the high capital cost of development and insurance which necessitates conducting appropriate site analysis in relation to hazard vulnerability for major projects. In addition, the upsurge in natural disasters globally has placed severe stress on external sources of recovery/rehabilitation financing, implying reduced levels of assistance for Jamaica in future catastrophes. The continued loss of reinsurance capacity in the Caribbean and increasing rates of premium owing to increasing disaster-related insurance claims will severely hamper the recovery capacity of individuals and companies from future hazard impacts/disasters. At the same time, continued population growth will lead to the occupation of more marginal/high-risk areas, thus increasing the likelihood of more severe hazard impacts in the absence of mitigation measures. Also, occupation of the most vulnerable sites by the poor is an indication of social issues pertaining to access to and affordability of land.

In light of the above issue, **areas of priority include**:

i)   Integration of hazard mitigation into national policy and legislative/regulatory frameworks. This framework entails:

- Determination of the requirements for implementation of mitigation measures, as identified in this policy.
- Mobilization of communities for hazard-risk management in accordance with emerging paradigm shift towards community-based disaster management.
- Integration of hazard-impact assessment into the environmental impact assessment (EIA) process and where required, hazard mitigation measures incorporated into project design and implementation.

- Incorporation of hazard/disaster mitigation component and hazard-risk zoning into physical development plans.
- Construction and/or retrofitting of critical facilities to a designated standard to ensure performance of their role in emergency response.
- Application of conditionality for the use of sites that have been repeatedly impacted by hazards.
- Application of conditionality for the use of sites that have been repeatedly impacted by hazards.
- Requirement of an emergency response plan for development permitted in vulnerable sites.
- Hazard vulnerability disclosure by developers/sellers of hazard-prone sites.

ii) Creation of an integrated development framework, which emphasizes mitigation, environmental protection and capacity building community and national levels.

iii) Sensitization, public education and outreach at all levels, through development and dissemination of information for decision-making.

iv) Mobilization of communities for hazard-risk management in accordance with the emerging paradigm shift towards community-based disaster management.

v) Initiation of a long-term programme of hazard-risk mapping in support of hazard vulnerability disclosure requirements and community-based disaster management planning.

vi) Initiation of a long-term programme of community-based disaster management planning for all communities in Jamaica.

5.1 STRATEGIC INTERVENTIONS

The specific tasks involved in the achievement of priorities are outlined below:

5.2 INTEGRATION OF HAZARD MITIGATION INTO NATIONAL POLICY AND LEGISLATIVE/REGULATORY FRAMEWORKS

i)   Identify inherent links between hazard mitigation and existing policies

ii)   Ensure coherence between existing policies and sub-regional, regional and international commitments

iii)   Develop instruments at the sectoral and national levels to facilitate the adoption of hazard-risk management by all stakeholders including government, non-government organizations, private sector and communities.

iv)   Incorporate hazard mitigation into sectoral policies.

v)   Review, update and coordinate all existing legal instruments that have implications for hazard-risk management.

vi)   Develop regulations and standards to implement legislations.

vii)   Develop incentive-base regulatory frameworks

viii)   Identify and build endogenous capacity and administrative mechanisms to implement laws, regulations and standards

ix)   Develop and implement strategic land use planning

x)   Adopt and enforce building codes

xi)   Mandate hazard-vulnerability assessment as a component of EIA

xii)   Promote hazard-vulnerability analysis as a key decision-making criterion in the EIA approval process.

xiii)   Promote the integration of hazard mitigation measures in physical development plans.

xiv)   Embark on a programme of hazard-risk zoning to be informed by the hazard mapping undertakings.

xv)   Ensure the design and construction of new facilities that are critical to emergency response are in accordance with designated hazard-resistant standards.

xvi)   Mandate and facilitate the retro-fitting of existing emergency response facilities in accordance with designated hazard-resistant standards.

xvii)   Stipulate conditionality for development of high risk zones as informed by hazard-risk zoning.

xviii) Promote coincidence between land-use and hazard-risk zoning

xix) Enforce land-use conformity in accordance with hazard-risk zones

xx) Mandate emergency response plan as part of the approval process for development on highly vulnerable sites

xxi) Introduce a hazard vulnerability disclosure clause as part of the development application and approval process.

5.3 CREATION OF AN INTEGRATED DEVELOPMENT FRAMEWORK

i) Conduct hazard vulnerability and risk assessment studies and apply them to integrated development planning and mitigation measures.

ii) Integrate environmental policies into the national development planning process

iii) Strengthen cultural and traditional systems that improve the resilience of local communities to disaster events.

iv) Develop and strengthen national and sectoral disaster management plans, with emphasis on inter-sectoral collaboration.

v) Promote poverty reduction through hazard mitigation and environmental protection.

vi) Identify and review the capacity of all stakeholders for hazard mitigation.

vii) Strengthen and empower national disaster institutions, other government agencies, the private sector and civil society to routinely implement hazard mitigation measures.

viii) Develop technical capability for undertaking hazard-risk assessments, as needed, for executing mitigation measures.

ix) Mobilize communities and stakeholders to reduce their vulnerability.

5.4 **SENSITIZATION, PUBLIC EDUCATION AND OUTREACH (PEO) THROUGH DEVELOPMENT AND DISSEMINATION OF INFORMATION**

i) Develop and implement public awareness programmes on policies and laws related to hazard mitigation.

ii) Sensitize key decision-makers including the political directorate about the requirements and benefits of hazard mitigation.

iii) Develop specialized training programme for technical and professional levels in hazard assessment and mitigation.

iv) Develop community mitigation training programmes, some of which should be designed for special interest groups.

v) Develop curricula at all levels in hazard mitigation.

vi) Develop tailored programme in hazard mitigation, targeting specific audiences.

vii) Develop specific sensitization and education interventions fore each sector.

viii) Develop built-in assessment instruments to assess and evaluate the impact of PEO programmes.

ix) Sensitize with respect to roles and responsibilities hazard-risk management.

x) Develop inventory of existing hazard information and research. Develop repositories and designate lead agencies for hazard/disaster-related information.

xi) Make hazard/disaster-related data/ information easily accessible to all users.

xii) Identify baseline data for hazard-risk assessment and reduction (where data exist; where investment is necessary).

xiii) Research, monitoring and assessment should be a priority and an ongoing activity (these should be viewed as a process, not a project).

5.5 MOBILIZATION OF COMMUNITIES FOR HAZARD-RISK MANAGEMENT

i) Embark on a programme of hazard awareness in communities

ii) Design and promote strategies for community participation in vulnerability assessment for hazard mitigation.

iii) Foster and facilitate the establishment of community disaster management organizations.

iv) Foster and facilitate synergy and partnership between national and community-level disaster management planning.

5.6 HAZARD-RISK MAPPING

i) Embark on a long-term programme of hazard-risk mapping at the community scale.

ii) Utilize IKONOS or other large scale imagery as the basis of hazard-risk mapping.

i) Engage community indigenous knowledge and oral history in the hazard risk mapping process.

5.7 COMMUNITY-BASED DISASTER MANAGEMENT PLANNING

i) Promote community-based disaster management planning as the focus of hazard mitigation.

ii) Engage communities as active participants in developing strategies for hazard-risk education.

iii) Promote participatory methodologies such as the Disaster Imagination Game (DIG) as a strategy for enhancing community awareness and participation in mitigation planning.

5.8 CHALLENGES TO THE IMPLEMENTATION OF HAZARD-RISK REDUCTION

The essential challenge is that hazard mitigation must become an everyday requirement at every level of the society, which means that all stakeholders including the general public and government must be aware of the need for it, and make hazard-risk

reduction a part of their daily routines. This points to the development of strategies to ensure the education of the general public on the benefits of mitigation.

Hazard-impact mitigation involves both structural and non-structural measures. The cost of structural measures might be prohibitive. Existing settlement patters can also challenge the ability to respond to hazards of a certain magnitude.

6.0   THE NEXT STEPS

The immediate next step in meeting the objectives of the Policy includes the development of a strategic implementation plan focusing on specific measures to be undertaken in the implementation of the Policy.

Bibliography

Burby Raymond J. (1998) Cooperating with Nature: Confronting Natural Hazards with Land-use Planning for Sustainable Communities

Burton, Ian, Robert W. Kates, and Gilbert F. White (1993) The Environment as a Hazard. Guilford Press. New York.

Field, Ralph M. and Associates (1984) Natural Hazard Mitigation: A Recommended Strategy for Jamaica

Field, Ralph M. and Associates (1982) Jamaica Natural Hazard Management Study, Phase II Documents.

PIOJ/ECLAC/UNDP (2004) Macro-economic and Environmental Assessment of the Damage done by Hurricane Ivan, September 10-12, 2004

United Nations (1992) Agenda 21. United Nations

White, Gilbert F. (1996) Emerging Issues in Global Environmental Policy. Ambio (25) 1.