



INPUT PAPER

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TRACKING PUBLIC INVESTMENTS FOR DISASTER REDUCTION AND RECOVERY

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INTRODUCTION

The Hyogo Framework for Action 2005-2015: Building the Resilience of Nations and Communities to Disasters adopted at the World Conference on Disaster Reduction in January 2005 by 168 participating countries provides the most comprehensive framework for reducing the risks of natural disasters around the world. The framework has prescribed 5 *Priorities for Action* structured around 15 key activities and 62 sub-activities. While these activities and sub-activities have to be performed by a multiple of stakeholders at all levels, it is the national governments that have to play the key role in the implementation of the framework. The efforts of the national governments shall be determined obviously by their commitments, capacities and priorities, but in the final analysis a lot would largely depend on the resources that are allocated for the *'development and implementation of disaster risk management policies, programmes, laws and regulations on disaster risk reduction in all relevant sectors and authorities at all levels of administrative and budgets on the basis of clearly prioritized actions'*.¹

Constraints of resources have remained one of the important factors that have impeded the implementation of the HFA. The biennial Global Assessment Report on Disaster Risk Reduction 2009 reported that hardly a few countries around the world have provided dedicated and adequate resources for disaster risk reduction, which still heavily depends on resources from bilateral and multilateral cooperation on short term stand alone project or programme modalities that generally do not facilitate its institutionalization or sustainability.² Global Assessment Report 2011 reported that less than one country in five could describe the percentage of their national budgets assigned to disaster risk management, indicating that allocating dedicated resources remains the exception and not the norm.³ The Mid Term Review of the HFA found that only 20 countries had dedicated budget allocations to local governments for disaster risk management even though 65 percent of all countries have made local governments legally responsible for the same.⁴

In his Report to the General Assembly the Secretary-General emphasized the need to 'encourage Governments, donors and funding institutions to increase substantially their investment in disaster risk reduction, as an integral component of all programmes for humanitarian action, economic and social development, and environmental protection, *as well as to improve the coordination and tracking of these investments*. Governments should also consider setting targets for public spending on multi-year DRR programmes at national and local levels.'⁵

¹ Hyogo Framework of Action 2005-2015: Building the Resilience and Commitments to Disasters, Priority Action I (ii) (f).

² 2009 Global Assessment Report on Disaster Risk Reduction: Risk and Poverty in a Changing Climate- Invest Today for a Better Tomorrow, p-123.

³ 2011 Global Assessment Report on Disaster Risk Reduction: Revealing Risk, Redefining Development, p-82.

⁴ Mid-Term Review 2010-11 of Hyogo Framework for Action: Building the Resilience of Nations and Communities to Disasters, P-23.

⁵ General Assembly document A/62/320, para 79

There is very little information and understanding about the quantum and nature of public investment on disaster risk reduction by the national governments, particularly in the developing countries and the impact that such investments have had in reducing the risks of disasters. The existing national accounting systems and budgetary processes do not generate enough of disaggregated data on the basis of which realistic assessments could be made about the resources that are allocated for the development and implementation of disaster risk management policies, programs, laws and regulations in all relevant sectors and at all levels of governance and administration. Clearly systems, processes and methodologies should be developed which would enable governments at the national, provincial and local levels to assess the resources available from different sources for disaster risk reduction, determine *inter se* priorities in allocation of resources across sectors, identify the critical gaps in each sector, track the devolution of resources from the national to the local levels and evaluate the impact of such public investments in reducing the risks of disasters.

While it is the prerogative of the national governments to develop these systems and processes according to their constitutional, legal and administrative arrangements, it is imperative to study the existing systems of classification, measurement and accounting of public investments for disaster risk reduction, learn from the cross country experiences and global best practices and develop a set of guidelines and indicators and a model framework for allocating and tracking public investments on disaster risk reduction.

This working paper analyzes the objectives and rationale of tracking public investments on disaster risk reduction, surveys the literature available on the subject, looks into the methodologies adopted for tracking public investments for various cross-cutting issues, reviews the case studies on tracking public investments on disaster risk reduction in different regions and countries, identifies the main issues involved and suggests a framework which is simple, sustainable and easy to be adapted in the budgetary processes and practices in the countries around the regions. The idea is to generate further debate and discussion on the issues among all the stakeholders including the national governments, regional and international organizations, donors and international humanitarian and development aid agencies so as to reach a common and agreed framework for tracking public investments and analyzing its impact in reducing the risks of disasters.

WHY TRACKING

There is a general sense of skepticism among the functionaries of the finance and planning departments about the rationale of tracking public investments on disaster risk reduction.⁶ The main argument is that there is no agreed indicator or benchmark about the optimum level of investment on disaster risk management which could be compared with the actual and therefore no purpose shall be served in tracking such investments. The other arguments range from the complexities in tracking such investments to the difficulties in disaggregating data on large public investments on various schemes that are not directly related to disaster risk management but contribute indirectly to reduce vulnerabilities and enhance capacities and thereby contribute to the reduction of the risks of disasters.

⁶ The interaction the author had with the senior officers of the Ministry of Finance and the Planning Commission in Government of India.

No doubt there is no common benchmark about the desired level of investments on disaster risk management, which would vary from one country to another according to the level of hazards, vulnerabilities and risks, but there is agreement that ideal public investments from all sources should be adequate enough to offset the modeled risks of disasters in a country. There are scientific tools to assess the risks of disasters and quantify the risks and the costs and benefits of preventing and mitigating these risks. If the 'actual' investments do not match the 'ideal', as it usually is, there will be residual risks of disasters for which the countries and the communities should be prepared. In fact, preparedness for the risks of disasters is an integral component of disaster risk reduction. This common framework of disaster risk management provides a tool for the countries to determine its own benchmark of investment according to its needs, resources and capacities. This is essentially the function of strategic action plan on disaster risk management. The function of the finance and planning departments is to ensure that the required resources are available for implementation of the strategic action plan on disaster risk management which the country has adopted for itself. The tracking of public investments on DRM provides a useful tool to analyze whether such investments are actually taking place.

There are obvious advantages of tracking public investments on disaster risk management, which far outweigh the costs and complexities of such tracking. First, tracking enables us to assess whether the government is serious enough to implement its commitment to reduce the risks of disasters. Almost all the countries of the world have adopted the Hyogo Framework for Action and most of them have developed the legal and institutional framework for disaster risk management, but they have not taken these commitments forward in actually allocating resources for translating such commitments into action. Tracking enables to identify the critical needs and gaps in resources – it provides an index for measuring the level of commitments of the politico-administrative decision makers in implementing measures for disaster risk reduction.

Since there are always competing demands for limited resources of the exchequer, sound decision making requires analytical economic and financial inputs about the expected returns from investment. Tracking public investments coupled with scientific modeling of the economic costs of disasters provide convincing arguments in support of enhancing public investment for disaster risk reduction. This strengthens the hands of disaster risk managers in projecting their cases before the decision makers for adequate allocation of resources for optimal management of the risks of disasters. Tracking provides powerful tool to the Parliamentarians and the DRR lobbyists to register their demands for adequate resources for disaster risk management.

Tracking enables analysis of the trend public investments for disaster risk management, distribution of such allocations ex-ante and ex-post of disasters and further distribution on various priorities of action ex-ante. Tracking further enables analysis of the regional and geographic distribution of such investments and relate them to the hazards and vulnerabilities to ensure that there is a balanced and integrated approach in allocating limited resources.

Tracking helps to identify the allocation of resources on numerous programs, activities and projects in various sectors such as education, health, agriculture, environment and forests, housing, rural and urban development etc that have the potential for reducing or enhancing the risks of disasters. Tracking provides a sound basis for dialogue and negotiation with the sectoral agencies regarding how best to mainstream the existing allocations for reducing the risks of disasters. Tracking enables a sound basis for mainstreaming DRR across sectors.

Tracking helps to identify the duplicity of resources among different agencies of the government who may be spending resources doing the same thing without knowing each other, like the proverbial left hand not knowing what the right hand is doing. Tracking helps to locate such wasteful expenditure, promote better understanding and coordination and bringing in better efficiency and transparency in governance and administration.

Tracking enables analysis of whether the allocations of limited resources for disaster risk management have been utilized in full, and if not, the reasons thereof. This may provide interesting insight into the capacity constraints within the organizations and institutions and provide useful leads to enhance capacity through corrective actions. Tracking has therefore both diagnostic and therapeutic value for better monitoring and evaluation of programs, activities and projects for disaster risk management. In fact, tracking must always be an essential component for financial analysis of public investment, particularly for managing large and cross-cutting programs which involve a multitude of agencies and stakeholders.

The technology has made tracking of large scale investments across many sectors quite simple, full proof and at the same time cost effective. Standard softwares for tracking public investments are already available and these are being applied by many governments for monitoring many programs. Further adaptation and refinement of such tools to meet the specific requirements of tracking investments on disaster risk management is not at all difficult. The cost will be minimal, but benefits substantial.

SURVEY OF LITERATURE

The existing literature on the classification, measurement, tracking and accounting of public investments on disaster risk reduction is extremely scanty. The much publicized World Bank study *Natural Hazards, Unnatural Disasters: the Economics of Effective Prevention*⁷ and the background work of over seventy experts and two dozen institutions that it preceded⁸ stopped short of looking at the core issues of public finance for disaster risk management. The findings of the study that prevention is both possible and cost-effective and that resources for prevention can often be embedded in the budget of the projects, such as the design of infrastructure etc are important, but the study did not systematically explore how such integration can be achieved across sectors within the systems and processes of governance and public finance. The four main policy recommendations of the study⁹ rather placed emphasis on the market forces for solution: (a) make information available on hazards and risks and thereby enable risk reduction to be reflected in the pricing of land, property and insurance; (b) permit land and housing markets to work freely to provide incentives for investment on maintenance and improvements; (c) ensure that adequate infrastructure and public services are provided by government; and (d) permit public oversight over institutions. No doubt market can correct many distortions and improve efficiency in the systems, but it may not be an answer to imbalances and exclusions that expose large sections of people to disasters. Therefore budgetary interventions are necessary for reducing risks of disasters.

The UNISDR study on *Effective Financial Mechanisms at the National and Local Levels for Disaster Risk Reduction*¹⁰ reviews the principles and practice of Public Expenditure

⁷ The World Bank, 2010

⁸ <http://www.gfdr.org/gfdr/node/284>

⁹ Pages 3-8.

¹⁰ Paper written for the Mid-Term Review of the HFA by David Jackson of the United Nations Capital Development Fund, January 2011.

Management (PEM) and applies these to the context of financing and investment on disaster risk management at national, local and community levels. The study concludes that ‘public resource allocation is influenced by conflicting plans, policies, and pressures extant during the bureaucratic process of preparing budget proposals and the political process of approving them’. In this competing environment the best way to raise the demand for disaster risk reduction is to create institutions, assign functions and weight to the institution, develop regulatory frameworks and coordinating plans and create projects that would leverage funds from the budgetary process. The key lesson of the study is that ‘supply’ of public finance would not be forthcoming unless ‘demands’ are pitched by institutions from within the system. Where such institutions are not available, it would be good policy to create such institutions at strategic locations within the governance system and vest them with powers and functions that would receive priority for allocation of resources.

In this perspective the HFA Priority-1 for ‘creation and strengthening of national institutional and legislative framework’ is significant, but as the Global Assessment Reports on 2009 and 2011¹¹ have shown, creation of new institutions in most of the developing countries have not necessarily facilitated allocation of additional resources for disaster risk reduction. This raises the key issue that when resources themselves are scarce, the manipulative capacity of bureaucratic-political process for altering the pattern of allocation gets limited. Therefore the alternate strategy of ‘mainstreaming disaster risk reduction in development’, which are inherent in all the five priorities of action of the HFA, assumes importance.

Mainstreaming is the key process which involves¹² (a) identification of the existing systems, processes, schemes and programs in each sector that can have a potential role for risk reduction; (b) review of how such role is being performed at present; (c) analysis of the shortcomings and critical gaps; (d) prescription of how such gaps can be addressed within the framework of the systems and processes; (e) suggestion of changes in the systems or processes by way of additions, amendments or revisions that can optimally utilize the available resources; (f) evaluation of impact of these changes. These six-fold processes of mainstreaming involve very comprehensive and incisive exercise within each sector with complete participation of all the stakeholders. The budgetary allocations within each sector can be revised, re-appropriated or supplemented on the basis of such exercise. Unfortunately there are very few examples of such comprehensive sectoral analysis of mainstreaming DRR in development in most of the countries. This makes the analysis of public investment on DRR a difficult task and calls for innovative methodologies to deal with a canvass that is simultaneously too large and too small - large as it looks at public investments on disaster risk reduction across all sectors; small as sector specific information on the needs and gaps of investments are limited.

Ideally every investment made by the public authorities should be tracked down to its destination to see how much of these resources are reaching the target areas and population and what has been the net outcome of such investments. Various quantitative and qualitative tools, such as monitoring actual flow of funds, interviewing users of public services about their experiences, assessing the accessibility and costs of public services etc have been employed, but application of such tools have been limited to specific programs and limited

¹¹ Risk and Poverty in a Changing Climate: Invest Today for a Safer Tomorrow, GAR 2009, page-123; Revealing Risk, Redefining Development, GAR 2011, page-82.

¹² Charlotte Benson and John Twigg, Tools for Mainstreaming Disaster Risk Reduction-Guidance Notes for Development Organizations, ProVention Consortium, January 2007.

geographical areas¹³. There is not a single application of such tools to country wide budgets of national governments or more specifically to disaster management. The AidData¹⁴ portal set up with collaborative efforts of a number of donor countries seeks to track development finance to the developing countries. The GFDRR is collaborating with AidData to develop a disaster aid tracking dashboard¹⁵. The project envisages isolation and classification of all DRR projects of the donors in accordance with the HFA Priorities of Action. The system is still in an experimental stage and probably at a later stage the methodology can be considered for tracking public investments on disaster management by the national governments.

REVIEW OF TRACKING METHODOLOGIES

In this context it may be relevant and worthwhile to look at how public investments on other wide ranging cross-cutting issues have been studied. Here we will look at the methodologies developed for studying public investments on three multi-sectoral issues of contemporary importance – gender, millennium development goals and climate change.

Gender Budgeting

Gender discriminations in societies are pervasive and public policy interventions to correct the situation have ranged from affirmative discriminations in favour of women to designing special programmes across different sectors for the welfare, development and empowerment of women. Despite such interventions the discriminations have persisted and shockingly public investments have shown biases against women. Therefore the concept of gender budgeting was advocated by economists to analyze the revenue and expenditure of government to see whether these are adequate to meet the needs of women or whether these are causing further discriminations against women¹⁶.

The principles and practices of gender budgeting are followed in different ways. The United Nations has advocated a Five Step Framework for Gender Budgeting¹⁷, which is somewhat similar to the six-step process for mainstreaming DRR in development. These are: (a) analysis of the situation of women and men and girls and boys in a given sector; (b) assessment of the extent to which the sector's policy addresses the gender issues and gaps; (c) assessment of the adequacy of budget allocations to implement the gender sensitive policies and programmes; (d) monitoring whether the money was spent as planned, what was delivered and to whom; (e) assessment of the impact of the policy/ programme/ scheme and the extent to which the situation has changed in the direction of greater gender equality.

The usefulness of such sector specific situational analysis is well established; but cross-sectoral analysis of public finance from gender perspective would require application of different tools. Most of the countries that have adopted gender budgeting use the sectoral studies to prepare an annual statement which is either appended to the budget itself or issued

¹³ Dehn, J, Reinikka, R, & Svensson, J. *Survey Tools for Assessing Service Delivery* World Bank Development Research Group. Washington, D.C. (2002)

<http://citeseer.ist.psu.edu/cache/papers/cs/26199/http://zSzzSzecon.worldbank.org>

¹⁴ www.aiddata.org

¹⁵ <http://gfdr.aiddata.org/dashboard/dashboard?showDisclaimer=true>

¹⁶ Debbie Budlender and Hewitt Guy, *A Practitioners' Guide to Gender Budgeting: Understanding and Implementing Gender responsive Budgets*, London 2003; Diana Elson, *Gender responsive Budget Initiatives: Key Dimensions and Practical Examples*, 2002

¹⁷ UNIFEM-UNFPA, *Gender Responsive Budgeting-Resource Pack*, 2006.

separately by organizations responsible for the same. In Australia which pioneered in gender budgeting a Women's Budget Statement is appended with the federal and many state budgets. The statement is based on compilation of statements from each Ministry on what their budget meant for women. In South Africa, the Women's Budget Initiative (WBI) has been set up by the Parliamentary Committee on Finance to analyze the budget of all major departments. In United Kingdom Women's Budget Group (WBG) which is an independent group of professional economists and policy analysts works with the Cabinet Office's Women and Equalities Unit to conduct studies and analysis to examine how taxation and expenditure affect men and women differently and what measures are necessary to correct the imbalance and inequities, if any. In Philippines Gender and Development Budget (GAD) is led by the National Commission on the Role of Filipino Women.

India has institutionalized Gender Responsive Budgeting with the process of budget making itself at the national level. Every Department is required to prepare a Gender Budget Statement on the basis of a two-category format: (a) schemes/ programmes in which 100% allocations are meant for women; (b) schemes/ programmes in which 30 to 99% allocations are meant for women. Further each Department has to prepare an Outcome Budget which would detail how policy initiatives and programmes relate to outputs and final outcomes in a range of areas, including gender empowerment. Ministry of Finance has issued a Charter for Gender Budget Cells which makes it obligatory for each Department to set up such cells to conduct/ commission studies/ performance audit of the schemes/ programmes from gender perspective.

The lessons from the methodology of gender budgeting are that detailed sectoral analysis has to be undertaken by experts within the government or outside, but a mechanism has to be institutionalized within the government to concurrently review what resources are being spent, how it is spent, what impact it creates and what needs to be done further to improve.

Millennium Development Goals

The Millennium Declaration of the United Nations set 2015 as the time-line for achieving eight Millennium Development Goals (MDGs), which provide quantitative benchmarks for eradication of extreme poverty, hunger, illiteracy and diseases apart from achieving gender equality and empowerment of women, environmental sustainability and global partnership for development¹⁸. To monitor progress towards the goals and targets, the UN system, including the World Bank and the International Monetary Fund developed a set of 48 quantitative indicators. Five main criteria that guided the selection of indicators are: (a) provide relevant and robust measures of progress towards the targets of the MDGs; (b) be clear and straightforward to interpret and provide a basis for international comparison; (c) be broadly consistent with other global lists and avoid imposing an unnecessary burden on country teams, Governments and other partners; (d) be based to the greatest extent possible on international standards, recommendations and best practices; and (e) be constructed from well-established data sources, be quantifiable and be consistent to enable measurement over time. The UN Statistical Division developed guidance notes on the definitions, rationale, concepts and sources of data for each of the indicators used to monitor the goals and targets¹⁹. The monitoring of the MDGs takes place globally, through annual reports of the UN Secretary-General to the General Assembly and periodic country reporting.

¹⁸ <http://www.un.org/millenniumgoals/>

¹⁹ The United Nations Development Group, Indicators for Monitoring the Millennium Development Goals: Definitions, Rationale, Concepts and Sources, 2003.

Although MDG monitoring is a complex exercise which is cross-cutting and multi-sectoral, the focus is clearly on the impact rather than on the process and much less on the process of public investment. The only comparable tool that has some relevance for public investment is related to MDG Goal 8 on Global Partnership for Development which has a target to develop an open, rule-based, predictable, non-discriminatory financial system. The twin indicators developed for monitoring the progress of the target is also rather simple – (a) net ODA to the least developed countries, as a percentage of OECD/DAC donors’ gross national income and (b) proportion of total ODA to basic social services (basic education, primary health care, nutrition, safe water and sanitation). These are simple statistical analysis of information available from clearly identified sources. Therefore there are not many lessons from MDG methodology that are relevant for tracking budgetary allocations for disaster risk reduction except that how such major monitoring exercises involving so many countries and agencies are organized within definite time limits despite the constraints of data sources.

Climate Change Adaptation

In the recent past attempts have been made by several countries to estimate public investments across sectors on climate change adaptation. India’s National Action Plan on Climate Change announced that ‘current government expenditure on climate variability exceeds 2.6% of the GDP with agriculture, water resources, health, forests, coastal zone infrastructure, health and sanitation, and extreme weather events being areas of concern’²⁰. The methodology adopted for conducting the study would be of relevance for tracking public expenses on disaster risk reduction. First, the schemes/programmes of different Ministries/ Departments of Government of India were identified as per their orientation and relevance for climate change adaptation. For establishing baseline criteria for identification, seven critical adaptation components were selected: (a) crop improvement and research, (b) poverty alleviation and livelihood preservation, (c) drought proofing and flood control, (d) risk financing, (e) forest conservation, (f) health (g) rural education and (h) infrastructure. The approach in selection of the scheme was conservative as big incentive schemes like the food and fertilizer subsidy which can enhance adaptive capacities were not considered.

Over the years, several new sectoral schemes were launched, while several others have been amalgamated and modified. Therefore, for the purpose of data standardization, it was necessary to benchmark a list of schemes that would hold good for all the years under examination. Hence two benchmark list of relevant schemes – those operational during the period 1997-98 to 2000-01, and the other set under implementation during 2001-02 to 2006-07. After scheme selection and benchmarking, the revised budget allocation towards the identified schemes for the study period (1997-98 to 2006-07) was tabulated. The total outlays of schemes were aggregated under each adaptation component to find out the expenditure incurred under each component during the review period. All these figures were finally aggregated to compute the total expenditure on all adaptation related programmes.

UNDP has developed the methodology of Climate Public Expenditure and Institutional Review (CPEIR) which builds upon the World Bank approach of Public Expenditure Review (PER).²¹ The methodology consists of classification of public expenditure into different categories that are relevant to climate change, the allocations and expenditure on each

²⁰ Government of India, National Action Plan on Climate Change, 2009, page 17

²¹ Climate Public Expenditure and Institutional Review (CPEIR): Developing a Methodology to Review Climate Policy, Institutions and Expenditure, UNDP-CDDE-ODI, 2012

category are computed and relative shares are worked out in relation to total budget, GDP, sectors and regions and the trend overtime is analyzed. The main problems faced in the methodology are the tendency towards subjectivism in the approach towards classification and difficulties in decoding expenditure that are not very explicit. A review of the CPEIR in the Asia-Pacific pointed out: ‘With a large proportion of ‘climate relevant’ expenditures predominantly embedded in sector expenditures with other primary objectives, the size and distribution of climate-relevant expenditures is not seemingly being affected first and foremost by considerations of climate change policy, but rather more generally by the overall composition of the budget.’²²

TRACKING DRR INVESTMENTS: CASE STUDIES

Unlike the MDG monitoring which is well established in the budgetary systems and processes of most of the target countries, due largely to the efforts of the UN and the IMF/World Bank in developing methodologies for the same, and the gender budgeting which is well integrated in the budget analysis of a number of countries, public investments on disaster risk reduction have not attracted much attention among policy makers, researchers and budget analysts. This may be due to the complexities involved in tracking such expenditure besides the lack disaggregated data on sectoral schemes and programs and absence of interest among the finance and planning departments who may have other priorities for investment analysis. Therefore there is hardly any national government which has established a regular mechanism for tracking public investments on reducing risks of disasters.

Therefore, keeping in view the importance of the subject and lack of information and analysis on the pattern and trend of public investments for disaster risk reduction, the UNISDR, the World Bank and the Asian Development Bank have sponsored a few studies on the subject in the recent past to have preliminary understanding of the issues. A few such studies have been conducted in some selected countries in the Asia-Pacific, Africa and Latin America and the Caribbean. The Asian studies had greater focus on understanding the existing systems of classification, measurement and accounting of public investments in DRR. while in other countries these are in the nature of preliminary investigation. All these studies have followed different methodologies which raise critical issues but do not provide solutions that can be applied uniformly.

Case Studies in the Asia-Pacific

In 2011 the Asia Development Bank supported studies of national budgetary and planning processes for disaster risk reduction in two countries of South East Asia, namely Indonesia and the Philippines, under the project Regional Stocktaking and Mapping of Disaster Risk Reduction Interventions in Asia and the Pacific (RETA). UNISDR commissioned a similar study on India. On completion of these studies, state officials and experts from both regions met in February 2013 at the Regional Workshop on ‘DRR Investment Tracking’ in Manila to review the methodologies and findings of the studies and discuss further road map in developing common methodological framework in advancing risk-sensitive public investment. Earlier the World Bank had sponsored a study on ‘Government Expenditure in Pre and Post- Disaster Risk Management’ in Nepal. The overall contexts, methodology and

²² Climate Public Expenditure and Institutional Review (CPEIR) in the Asia-Pacific: What We Have Learnt, UNDP, 2012

findings of these studies in different geographical regions of the Asia-Pacific are summarized below.

India

India is the second most populated country of the world. Layers of hazards, vulnerabilities and risks have made India one of the most disaster prone countries in the world. As per the global database of disasters, India ranks third in terms of disaster events, second in mean annual number of victims (people killed and affected) and ninth in terms of economic damages due to disasters.²³ A World Bank study in 2003 had indicated that India may well be losing 2.15 percent of its GDP on account of natural disasters.²⁴

India has developed strong legal and institutional systems for disaster management at national, provincial and local levels. The Disaster Management Act 2005 provides for setting up of Disaster Management Authorities and constitution of Disaster Response and Mitigation Fund at the national, state and local levels. The National Disaster Development Authority (NDMA), constituted under the Act, released the National Policy and Disaster Management in 2009 which declares: ‘In order to bring about a paradigm shift from the relief-centric approach to one covering prevention, preparedness and mitigation, efforts would be made to mainstream prevention and mitigation measures into the developmental plans and programs by enlisting cooperation from all stakeholders.’ The NDMA issued series of guidelines²⁵ on management of natural hazards such as earthquake, tsunamis, landslides, cyclones, drought, flood and urban flood, and thematic issues like medical preparedness, psycho-social support, role of NGOs for disaster management etc.

The Planning Commission, the apex body for development plans, underscored the importance of disaster risk reduction for sustainable development of the country.

The future blue-print for disaster management in India rests on the premise that in today’s society while hazards, both natural or otherwise, are inevitable, the disasters that follow need not be so and the society can be prepared to cope with them effectively whenever they occur. The need of the hour is to chalk out a multi-pronged strategy for total risk management, comprising prevention, preparedness, response and recovery on the one hand, and initiate development efforts aimed towards risk reduction and mitigation, on the other. Only then can we look forward to “sustainable development.”²⁶

The Finance Commission, which decides the principles of devolution of tax revenue of the central government to the States, has been allocating funds to the State Disaster Response Funds (SDRF) for five yearly fiscal cycles, to meet the needs of disaster response, relief and rehabilitation. The requirements over and above these allocations are met from the National Disaster Response Fund (NDRF). For the fiscal cycle 2010-15, an amount of INR 335.8 billion (equivalent to USD 6.1 billion) was allocated for the SDRF and another INR 30 billion is expected to be raised for the NDRF during this period.

²³ Thirty Years of Natural Disasters 1974-2003: The Numbers, Centre for Research on the Epidemiology of Disasters Louvain, 2004.

²⁴ The World Bank, *Financing Rapid Onset Natural Disaster Losses in India: A Risk Management Approach*, 2003.

²⁵ <http://ndma.gov.in/ndma/guidelines.html>

²⁶ Tenth Five Year Plan (2002-07) Vol -II, page – 202, Planning Commission, Government of India.

The Ministry of Finance has come out with regulations which stipulate that any new project costing more than INR1.0 billion shall be reviewed by the Expenditure Finance Committee from the angle of disaster management before it is considered for approval. Every such project proposal must necessarily have a *Check List for Natural Disaster Impact Assessment* which would provide complete information on the hazards, risks and vulnerabilities of the project and the measures proposed to be taken for prevention and mitigation of disasters. This would include not only the probable effects of natural disasters on the project but also the possible impacts of the project in creating new risks of disasters. The costs involved in the prevention and mitigation of both types of impacts shall be built into the project costs and accordingly its economic viability shall be worked out.

In this context the Indian study²⁷ applies the HFA classification and sub-classification of activities for disaster risk reduction to identify the programs, activities and projects on disaster risk management. When hundred per cent of the allocations are earmarked on disaster management or disaster risk reduction these are categorized as ‘dedicated schemes’, while the remaining schemes where allocations are less than hundred per cent but which contain elements of risk reduction are classified as ‘embedded schemes’. Scanning through the hundreds of items of expenditure under different programs, activities and projects of all the Ministries and Departments of the Union government, the study identifies 38 schemes of 8 Ministries/ Departments as dedicated schemes on disaster management. The total financial allocations on these schemes in the budget of 2011-12 are INR 117.1 billion, which is equivalent to USD 2.12 billion. This works out to 0.95% of the Union Budget and % of the GDP.

Decoding the embedded schemes from the perspectives of disaster risk reduction is much more complex as most the schemes were formulated without any direct objective of risk reduction but the nature of the schemes are such that it has elements which serve to promote the cause of risk reduction. 85 schemes of 75 Ministries/ Departments of Government of India were identified that have the potential for reducing the risks of disasters. Most of these schemes are taken in their generic forms which may include a number of sub-schemes and programs. For example the Department of School Education and Literacy of the Ministry of Human Resource Development has a large number of programs covering various aspects of school and informal education. These have been clubbed together under the three generic schemes of elementary education, secondary education and adult education, as per the broad classification in the budget. Similarly a large number of sub schemes and programs of the Department of Rural Development have been classified under the three generic schemes of Swarnajayanti Gram Swarozgar Yojana, National Rural Employment Guarantee Scheme and Indira Awas Yojana, as per the broad classification provided in the expenditure budget. Total allocations on these schemes for the year 2011-12 are INR. 3962.7 billion (equivalent to USD 72.1 billion) which works out to 32.02% of the total budget of Government of India.

Table – 1
Allocations on Dedicated and Embedded Schemes on
Disaster Risk Management

(INR billion)

Financial Year	Total Budget Allocations	Dedicated Schemes	%	Embedded Schemes	%
2005-06	5143.4	58.3	1.13	1235.7	24.03

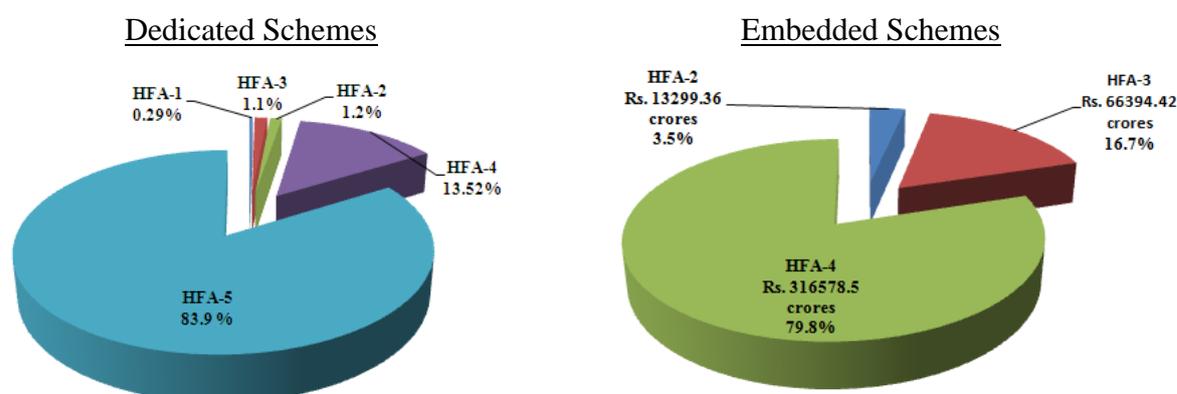
²⁷ Understanding Existing Methodologies for Allocating and Tracking DRR Resources: Case Study India, P.G.Dhar Chakrabarti, 2012.

2006-07	5639.9	68.6	1.22	1505.3	26.69
2007-08	6805.2	62.7	0.92	2227.8	32.74
2008-09	7508.8	70.6	0.94	2304.9	30.70
2009-10	10208.3	95.8	0.94	3302.5	32.35
2010-11	11087.5	114.2	1.03	3728.4	33.63
2011-12	12377.3	117.1	0.95	3962.7	32.02

This by no means suggests that one-third of the total budget allocation of Union government is spent entirely on disaster risk reduction; this only means that some parts or elements of these allocations have the potential for risk reduction. DRR elements are so embedded in the schemes that it may not be possible to quantify them precisely, unless detailed work studies are conducted on each scheme, which was beyond the scope of this study.

Since 2005-06 there been steady rise in Union government budget allocations on both dedicated and embedded schemes on disaster risk management in absolute terms, although in relative terms the share has remained constant on dedicated schemes. The details of budget allocations on both dedicated and embedded schemes are provided in Appendix- A.

Chart - 1
Allocations on Dedicated and Embedded Schemes on DRR in India
as per HFA Priorities of Action 2011-12



It is interesting to observe that almost 80% of the total allocations on embedded schemes have significant elements that are in the nature of *reducing the underlying risk factors* under HFA Priority-4. This is contrary to the general findings in the Global Assessment Reports that governments tend to invest less on risk reduction. It may be necessary to look beyond the nomenclature or declared objectives of the schemes to uncover the elements that do help to reduce the risks of disasters directly or indirectly. For example, if the droughts in India do no longer kill people in millions as it used to during the pre-independence period this can only be attributed to distribution of food grains at an affordable price to the vulnerable sections of the community all over the country. Therefore subsidies on food grains have directly contributed to the '*substantial reduction of disaster losses in lives*' which is the declared expected outcome of the Hyogo Framework of Action. Similarly, the Mahatma Gandhi National Rural Employment Guarantee Act provides livelihood security to people in rural areas by guaranteeing hundred days of wage-employment in a financial year to every adult member who volunteers to do unskilled manual work. This has provided valuable livelihood

security to rural households who are affected by natural disasters at regular intervals. It is essential to capture such investments for reducing the underlying vulnerabilities of people, which budget analyses of DRR have generally tended to ignore. Likewise it is necessary to register every large or small initiative in every sector that contributes directly or indirectly to disaster risk reduction. This is possible only through detailed and comprehensive analysis of sectoral investments on disaster risk reduction.

Indonesia

In terms of human exposures to the risks of natural disasters, Indonesia ranks first in tsunami, third in earthquake and sixth in flood²⁸. According to the global database of disasters, on an average, 6209 people are killed, 21.6 million are affected and assets worth USD 761 million are lost every year in Indonesia due to natural disasters. The Indian Ocean Tsunami of December 2004 alone consumed 165,708 human lives and damaged crops, animals and infrastructure worth more than USD 4.4 billion in this fourth most populated country of the world.

Responding to these enormous risks of disasters, Indonesia enacted the Law 24 of 2007 on Disaster Management and established the National Agency for Disaster Management (BNPB) in 2008. A set of government regulations were formulated, such as Regulation No. 21 of 2008 on Disaster Management Operation, Regulation No. 22 of 2008 on Funding Management of Disaster Aid etc. and many existing laws and regulations have been revised to incorporate the principles of disaster risk reduction in the policies and programs of the government at all levels. At the national level, DRR has been integrated into the policy framework for preparedness, emergency response and post-disaster recovery, known as the policy on 'Building Back Better'. The National Development Plan 2010-14 lays down that DRR mainstreaming shall remain one of the nine national development priorities.

Based on these laws, regulations and policies, BNPB coordinated with the government ministries and agencies at the national level to formulate the National Disaster Management Plan (Renas PB) 2010-14. The plan estimated that IDR 24.16 billion shall be needed for its implementation, but 'this is not an on-top budget to the Ministries/Agencies budget' but will be integrated into existing budget items that are related to disaster management'²⁹

In this context the Indonesian study³⁰ had the challenge to analyze how the disaster management funding is integrated into existing activities of the government. The methodology followed for this analysis is explained in the following words:

The method to achieve the objective is: classifying, measuring and accounting the current investments, by documenting overview of existing financial mechanisms at the national, local and community levels. Two types of investments are to be explored: stand-alone DRR investments (for example - early warning, preparedness, risk assessments, etc.) and mainstreamed (implicit/embedded) investment on risk reducing measures imbedded in infrastructure as well as investment measures.³¹

²⁸ Global Assessment Report 2009

²⁹ National Disaster Management Plan 2010-14, BNPB, page-91

³⁰ Disaster Risk Reduction Investment Tracking: Case Study Indonesia, Herry Darwanto, 2012

³¹ Page 8

The classification of current investments on DRR follows Regulation 21 of 2008 which structured the investments on disaster risk reduction into 7 programs and 33 activities that are aligned with the Hyogo Framework of Action. Based on these classifications 71 activities are identified and allocations made during 2006-12 in the annual budget of national government are computed. The details are shown in Appendix B. The analysis shows that allocation on disaster management, as also its share in national budget and GDP has increased progressively during these years, as reflected in the following Table³².

Table - 2
Budget on Disaster Risk Management 2006-12 (IDR Billion)

Share of Allocation on DRM	2006	2007	2008	2009	2010	2011	2012
Total allocation on DRM	2,548	3,558	4,386	3,807	5,158	8,997	9,876
Percentage share of National Budget	0.38	0.47	0.44	0.41	0.49	0.68	0.69
Percentage share of Central Budget	0.58	0.71	0.63	0.61	0.74	0.99	1.02
Percentage share of GDP	0.08	0.09	0.09	0.07	0.08	0.12	0.12

Investment on Disaster Mitigation and Prevention accounted for average 76 percent of the total investment on DRR, followed by Disaster Preparedness (12.7%), Research, Education and Training (5.8%), early warning system (3.3%), Institutional Capacity Building (0.8%), Community Participation for DRR (0.7%) and DM Planning (0.5%). About 14 percent of the DRR budget in 2011 was mobilized from foreign loans and grants, most of which for construction of flood control facilities and infrastructure, and the remaining allocation was provided from domestic resources.

The study further looked into DRR budget of the provincial, municipal and regency governments in 2011 and found that the average ratio of DRR budget to total budget in the municipalities (1.1%) was higher than in provinces (0.6%) and regencies (0.3%). The study also looked into DRR investments by NGOs, as disclosed, and found that some NGOs spent more than IDR 1 billion annually, mainly sources from private companies, CSR programs and donations from private international institutions.

However, the study fell short of the professed methodology of analyzing the mainstreamed investments on implicit/ embedded schemes. Although Indonesia has a well established budget classification system for disaster management, the system does not include the embedded schemes. The author admits this shortcoming in the following words: ‘Not all activities on DRR can be captured by this research. Some DRR activities are embedded in other activities that could not be separately identified from other activities’.³³ Therefore actual DRR investments could be greater than what is reflected in the study report.³⁴

Nepal

Nepal is a lower income country which, according to the World Bank natural disaster hotspot study, has 97.4 of its population residing at areas at risk of multiple hazards. This makes it the second country at highest disaster mortality risk among countries most exposed to multiple hazards. Nepal is still in the process of developing its new legal and institutional framework

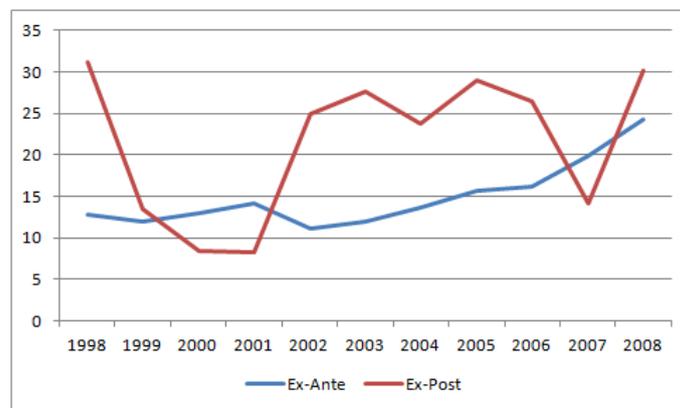
³²

³³

³⁴ Marc Gordon, Exploring Existing methodologies for Allocating and Tracking DRR in National Public Investment, UNISDR, 2013, page 14.

for disaster risk reduction in line with the Hyogo Framework of Action but it has released its National Strategy for Disaster Risk Management in 2009 for guiding actions towards reducing disasters in the process of execution of development programs for national development. There is no established mechanism as yet to mainstream public investments for DRR, but a study conducted by the World Bank shows that during 1998-2008 Nepal from its own budget USD 164.4 million on ex-ante disaster risk reduction as compared to USD 237.3 million spent on ex-post disaster response and reconstruction.

Figure - 2
Ex-Ante and Ex-Post Budget Allocation on Disaster Risk Management
in Mexico during 1998-2008 (USD millions)



Ex-ante investment on DRR has remained constant and predictable over the decade but ex-post expenses on relief and rehabilitation has fluctuated widely depending the nature of disaster events in the country. The study does not explain the methodology adopted for classifying and measuring the ex-ante and ex-post investments on disaster risk reduction.

Philippines

The Philippines is the third most country at risk of disasters³⁵. EM-DAT figures from 1980-2010 show that natural disasters affect an average of more than 3 million Filipinos and cause an average of more than 900 deaths annually³⁶. In terms of economic impact, annual damage from disasters amount to PhP 19.7 billion in the past two decades, equivalent to an average of 0.5 percent of GDP each year (World Bank: 2009). Typhoons are the most frequent and the most damaging of all natural disasters in the Philippines accounting for 88 percent of total damages and 79 percent of total lives lost.

The Philippines has developed a comprehensive legal and institutional framework for disaster risk management. The Philippine Disaster Risk Reduction and Management Act of 2010 declared that it shall be the policy of the State to ‘mainstream disaster risk reduction and climate change in development processes such as policy formulation, socioeconomic development planning, budgeting, and governance, particularly in the areas of environment, agriculture, water, energy, health, education, poverty reduction, land-use and urban planning, and public infrastructure and housing, among others’. The Act further creates Disaster Risk

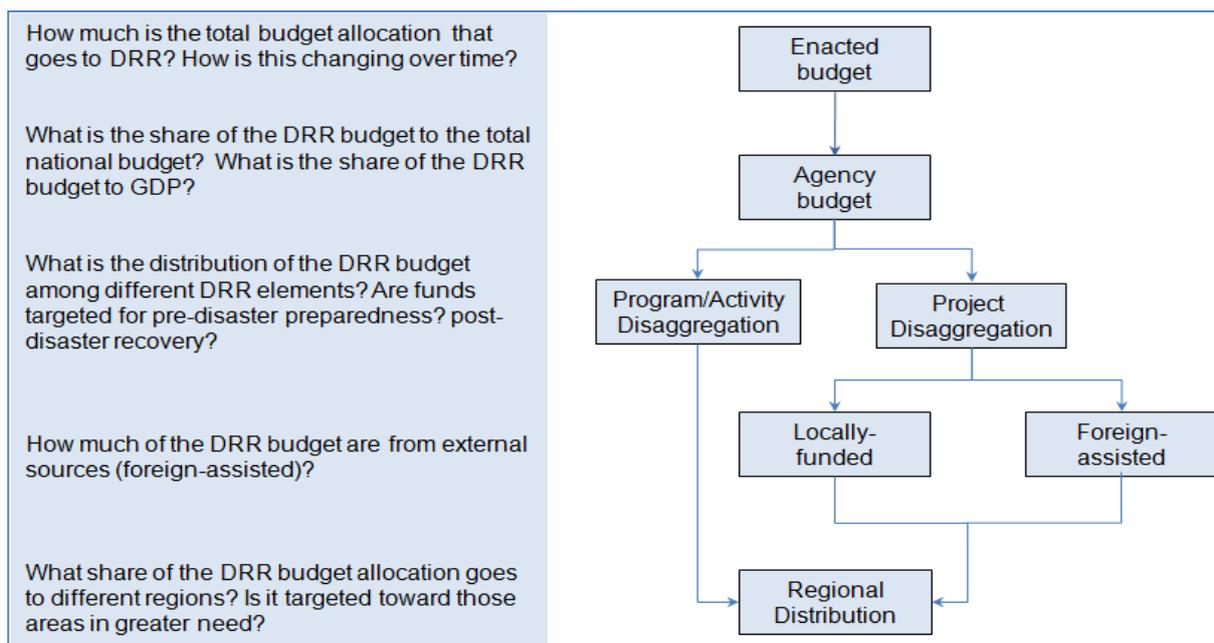
³⁵ UNU-EHS World Risk Report, 2012

³⁶ EM-DAT

Reduction and Management Councils (DRRMC) at national, regional and local levels of Disaster Risk Reduction and Management Fund (DRRMF) at national and local level for the implementation of the Act. Strategic National Action Plan for Disaster Risk Reduction 2010-19 have been developed to translate the policy into action. The Philippine Development Plan 2011-16 has incorporated disaster risk reduction and climate change adaptation into national development goals, thereby facilitating significant public investment on these subjects.

In these contexts the Philippines study³⁷ looks into the multilayer Programmes, Activities and Projects (PAPs) on DRR in the national budget or General Appropriation Act (GAA) for the three financial years of 2009, 2010 and 2011. Budgetary allocations on DRR are broadly classified into three major heads: (a) Understanding hazards, (b) Minimizing exposure and Lessening vulnerability/ building resilience. This is further sub-classified into a number of minor heads. Budgetary allocations on these heads are computed from the General Appropriation Act for the years 2009 to 2011 and the resultant figures are analyzed from various angles, such as trends in allocation over the years, percentage of allocation in terms of GDP, sectoral and regional distribution of allocations and source of allocations in terms of domestic resource and foreign assistance.

Figure – 3
Analytical Flow of the DRR Budget Allocation Tracking System in the Philippines



Based on this methodology the study has concluded that DRR budget allocation in Philippines has expanded by 61.4 percent during 2009-11 (mainly to address the requirements for rehabilitation and recovery post typhoons Ondoy and Pepeng in 2009), but still it comprises a mere 2.12 percent of the national budget and 0.28 percent of the GDP. Interestingly, ‘minimization exposure’ has taken the major share of budget (62.3%), followed by ‘lessening vulnerability/building resilience’ (33%) and ‘understanding hazard’ (3.7%). Construction of flood control, sea wall and drainage projects account 42.2 percent of the allocation, followed by disaster response and recovery (33.7%) and forest management

³⁷ Understanding Existing Methodologies for Allocating and Tracking National Government Budget for Disaster Risk Reduction in the Philippines, Susan Rachel Jose, 2012

(13%). The share of foreign loan to total DRR budget allocation has increased from 7.4% in 2009 to 27.3% in 2011, mainly due to external borrowings by the Department of Public Works for flood control projects. Nearly half of the allocations are spent on region specific projects while the remaining funds are utilized for nation-wide projects. Based on the findings of the study a DRR Budget Allocation Tracking System Form has been which is enclosed as Appendix-C.

While the study provides significant insight into the process of DRR budget allocation in the Philippines, there are certain inherent limitations in the methodology for tracking investments on disaster risk reduction which are not very explicit but are embedded into different programmes, activities and projects. The study report admits that ‘spending on social infrastructure and services on improving health and wellbeing, social protection and sustainable livelihood, among others, are not part of DRR budget allocation analysis’³⁸, as these are basic government functions, as distinct from the specialized functions of disaster risk reduction. But the fact is that social infrastructure projects are important interventions that enhance the capacities and reduce the vulnerabilities of the population at risk, and thereby contribute significantly to disaster risk reduction. Excluding such allocations from the purview of the tracking analysis would give an incomplete and distorted picture of the total public investments and therefore undervalue the whole of government approach for DRR. The very purpose of mainstreaming is that disaster risk reduction does not remain confined to the few agencies but permeate into every sector, including the social sector. Reduction of social vulnerabilities is an important component of the HFA Priority Action 4 on ‘Reducing the Underlying Risk Factors’.

Likewise the study does not take cognizance of the HFA Priority Action 3 on ‘Use of Knowledge, Innovation, and Education to build a Culture of Safety and Resilience at all levels’, which remain embedded in large public investments on education, awareness, research, training and capacity building across sectors. Disaggregating budgetary allocations on DRR hidden in multiple programs, activities and projects is a formidable methodological challenge that is not addressed in the report.

Since allocations on embedded schemes are not direct and implicit, it may be worthwhile to look forward into the outputs and relate them to allocations, but this approach is constrained by lack of coherent and clearly identifiable indicators in all related PAPs. The study points out that Organisational Performance Indicator Framework (OPIF) gives an indication of performance indicators of programs, activities and projects, but there is incongruence in the PAPs of the OPIF and General Appropriation Account of many agencies. This calls for further streamlining and harmonization of budget input and output analysis.

The Pacific Islands

Spread over 165.2 million square kilometres in area, the Pacific Island countries are among the most vulnerable in the world. Three of these islands – Vanuatu, Tonga and Solomon Islands – are ranked 1, 2 and 6 in World Risk Index.³⁹ All the islands are exposed to both hydro-meteorological and geo-physical hazards. Disaster Risk Financing in the island countries have several windows – National Reserve Fund, Contingent Budget for unforeseen expenses, Contingent Credit and Disaster Risk Insurance – most which depend on external

³⁸ page 25

³⁹ World Bank, World Risk Report 2012, page 63.

assistance. Unless routed through domestic budget it is difficult to track donor assistance. Budget classification codes are not very transparent and limited information is available about the actual expenses at the local level after the appropriations are made by the central government.⁴⁰ The Applied Geoscience and Technology Division (SOPAC) of the Secretariat of the Pacific Community completed two studies which analyzed investment in disaster risk management in the Cook Islands and Vanuatu through an analysis of National Government Funding.⁴¹ The study of Vanuatu found that although the cost of disaster has regularly exceeded the annual allocations for DRM - principally through the Disaster Relief Fund managed by the Ministry of Finance and Economic Management (MFEM), the government continues to regard DRM solely through the lens of response, relief, recovery and rehabilitation. Investment in risk reduction measures were not recognized as part of DRM and were thus invisible in the annual budgets at the sectoral level. Other allocations to the Vanuatu National Disaster Management Office (NDMO) amount to only 0.16 per cent of total expenditure.

In the study of the Cook Islands, as a function of the output-based accounting methodology of the budget process which omits detailed expenditure in budget lines, total Government expenditure on DRM was once again invisible. The report examined two departments with direct responsibility for DRM, Emergency Management Cook Islands (EMCI) and the Meteorological Services – the budget allocation for both accounts for less than 1 percent of the total gross annual expenditure. Responsibility for supporting DRR measures lies with EMCI, which receives less than one third of the budget allocated to the Meteorological Service.

Africa

Countries and regional organizations in Africa have made significant strides in addressing disaster risk reduction on the African continent. However, despite the development of policies, plans and legislation, direct investments in disaster risk reduction in Africa remain low. Most African countries have limited resources to invest in disaster risk reduction and minimal fiscal space to fund relief and recovery efforts after a major disaster. Governments often lack the capacity to disaggregate specific budgetary allocations to disaster risk reduction. In order to have an in depth understanding of the issues, the UNISDR commissioned a study on Tracking DRR Investment in Africa.⁴² This study found three limitations in reporting on overall disaster risk reduction spending in Africa.

- a) inaccurate reporting exists due to the multi-sectoral and multi-disciplinary nature of disaster risk reduction,
- b) ‘masking’ of disaster risk reduction initiatives within development, humanitarian and other projects occurs and is thus not reported on, and
- c) unrelated funding, which contributes to disaster risk reduction such as normal day-to-day development projects within other sectors, reduces a significant amount of risk in communities (such as education and health programs).

⁴⁰ S. Cook, Investment on Disaster Risk Management in Pacific Island Countries, presentation made at the ‘Regional Workshop on DRR Investment Tracking’, Asian Development bank, Manila, February, 2013

⁴¹ S. Cook, Vanuatu Investment in Disaster Risk Management, Economic Report (PR21), and Cook Islands Investment in Disaster Risk Management, Economic Report (PR23), SOPAC, 2011

⁴² Disaster Risk Reduction Investment in Africa, the UNISDR, presented before 4th Africa Regional Platform on DRR, the UNISDR, February 2013.

The study made use of both a qualitative and quantitative research design. Data was collected from the national governments as also the existing humanitarian aid databases and reports. The main findings of the study are that the African countries are experimenting with different approaches to offset the impacts of natural hazards on their economies, ranging from contingency funds, emerging risk transfer schemes, as well as budgetary allocations of varying proportions for national and local level planning, programs activities. Mozambique, for example, has invested approximately 5.2% of their national budget in disaster risk reduction through hazard-proofing of sectoral investments, particularly since the 2000 floods. Egypt, on the other hand, indicated no formal budget allocation for disaster risk reduction in national budget, even though significant investments were seen through their decentralized state system. Similar examples were found in countries like South Africa, Burundi, Madagascar and Togo. The study found disconnect between actual spending on disaster risk reduction through national budgets, and what is reported to the international disaster risk reduction system.

68 percent of all disaster risk reduction funding in Africa stems from humanitarian aid. Since 2000 USD 3.7 billion worth of disaster risk reduction investment has been made from all aid sources, both developmental and humanitarian, to the top 40 recipients of humanitarian aid, most of these being countries from African region. During the period 2007-2011, Africa received in total USD 471 million in disaster prevention and preparedness funding, which represents 4.2% of total humanitarian aid and a 0.3% of overall Official Disaster Assistance, far away from the agreed disaster risk reduction investment targets of 10% investment for all humanitarian aid, 1% of all development assistance.

The study made a number of recommendations, focusing mainly on the international humanitarian and development assistance:

- a) An agreed framework for reporting on disaster risk reduction investment through all sectors and among all relevant actors in Africa would support integrated approaches, sharing of expertise and greater coherence in planning;
- b) The debate on the integration of disaster risk reduction in the humanitarian, development and climate change adaptation sectors requires further elaboration to focus on the importance and cost-benefit of accurate disaster risk reduction funding allocation and reporting;
- c) Governments should develop systems to track and report disaster risk reduction investments which is multi-sectoral in nature and overlaps with development, humanitarian and climate change adaptation programming;
- d) More support is needed for research on disaster risk reduction investment in the short-term to accelerate the above recommended actions.

Therefore the African study made just a modest beginning to understand the complexities of the issues in tracking public investment on DRR; it did not seriously look into the quantum and quality of investments in national budget of the countries and analyze the nature, trend and distribution of such allocation, much less did it prescribe any methodology for such analysis by the countries.

Latin America and the Caribbean

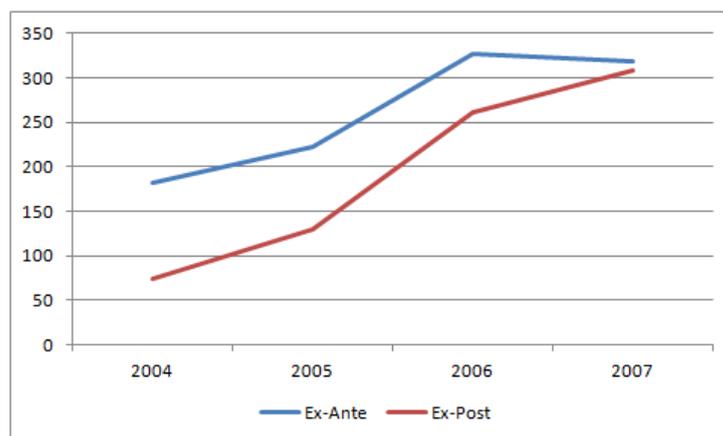
The UNISDR conducted preliminary studies on tracking public expenditure on DRR in the five Latin American and Caribbean countries of Costa Rica, Guatemala, Mexico, Panama and

Peru. On completion of these studies, state officials and experts from the region met in September 2012 at the Consultation Forum ‘Understanding Public Investment for DRR’ in Mexico to review the findings, exchange experiences and discuss potential collaborative actions in advancing risk-sensitive public investment. Earlier the World Bank had sponsored a study on ‘Government Expenditure in Pre and Post- Disaster Risk Management’ in Mexico and Colombia. Brief summary of the methodology and findings of these studies are given below.

Colombia

Colombia is a lower middle income country heavily exposed to floods and landslides. 85% of its population and 87% of its GDP are exposed to the risks of disasters. This has triggered proactive public investments for reducing the risks of disasters. In fact, Colombia is one of the few countries where ex-ante outlays on prevention, mitigation and preparedness have outpaced ex-post expenses on relief, recovery and reconstruction.

Figure - 4
Ex-Ante and Ex-Post Investment on Disaster Risk Management
Colombia 2004-2007 (USD million)



Costa Rica

Costa is prone to high risks of earthquakes, tsunami and landslide. The National Emergency and Risk Prevention Law of 2006 mandated the formulation of the National Risk Management Policy and development of the National System of Risk Management. With the finalization of the National Risk Management Plan (PNGR) 2010-2015, provisions for prospective risk analysis in public investment planning seek to retrofit public infrastructure from the risks of natural disasters, improve construction quality, as well as incorporate financial protection strategies including risk transfer instruments. As per the new planning regulations⁴³ of the Ministry of Planning and Economic Policy (MIDEPLAN) all projects of the National Public Investment System (SNIP) of Costa Rica are required to undertake risk analysis for all stages of pre-investment (profile, pre-feasibility and feasibility).

Although criteria and mechanisms for allocating DRR investment are yet to be developed, MIDEPLAN, with support from the Inter-American Development Bank, is updating

⁴³ Executive Decree 36721 of 2011 and Executive Decree 35374-PLAN

guidelines for disaster risk analysis and for incorporation of DRR in specific sectoral investment proposals. The MIDEPLAN, with further support from the World Bank, is upgrading the Natural Hazard Risk Estimation Methodology and developing sector-specific guidance for risk assessment together with a system of indicators to monitor application.

Guatemala

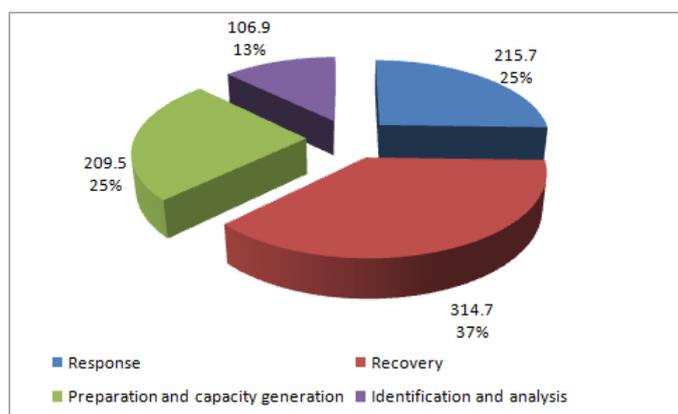
Guatemala is a multi-hazard country with nearly half of its population and economy exposed to high risks of earthquake, tsunami, landslide, cyclone, drought and flood. The National Coordinator for Disaster Reduction Law (Decree 109-96) assigns the responsibility for the prevention, mitigation, care and rehabilitation / reconstruction to the National Coordinator for Disaster Reduction (CONRED). Subsequently, with Decree 42-2001, the Social Development Act of 2001 included two articles (37/38) on disaster reduction which established an intrinsic relationship between development planning and reducing vulnerability to threats. CONRED defines its specific objectives as: a) the strengthening of capacities for systemic monitoring, b) building capacity of key civil society actors, c) mainstreaming disaster risk analysis in public and private investments, and d) planning and implementation of post-disaster remedial actions. The upper body of CONRED, the National Disaster Reduction Council, is responsible for approving policy and regulation.

All public investment projects in Guatemala submitted via the National Public Investment System (SNIP) of Guatemala require mandatory disaster risk assessment. The SNIP offers DRR criteria and tools to guide the formulation and evaluation of public investment projects considering hazard exposure, vulnerability and methods to reduce risk. In addition, the Technical Budget Directorate (DTP) of the Ministry of Finance (MINFIN) incorporates risk analysis both in the formulation of General Budget Revenues and Expenditures of the State, and in financial regulation to be followed by public institutions.

MINFIN has developed a comprehensive set of indicators for DRR expenditure encapsulated in the tool, the *etiquetador* (label maker) for disaster assistance and risk management. Items accounted for by the tool are proposed by financial administration and planning units of each spending agency for MINFIN review, and then subjected to an iterative process until formal classification is reached. The *etiquetador* can be assigned for four dimensions of DRM expenditure: (i) identification and analysis, (ii) preparedness and capacity building, (iii) disaster response, and (iv) disaster recovery. Expenditure coding follows a three-level budgetary system from *purpose* through *function* to *division*, from the generic to the specific.

Figure - 5
Investments on Disaster Risk Reduction
Guatemala, 2010 (USD millions)⁴⁴

⁴⁴ Technical Budget Directorate (DTP), Vice Ministry of Financial Management, Ministry of Finance, Guatemala.



Analysis of public expenditure in 2010, based on *etiquetador* methodology shows that more than Quetzals 6.7 billion equivalent to USD 847 million was spent on disaster risk management. In absolute terms, this compares favourably with modelled annual average losses for earthquake and cyclonic wind - USD 156 million and USD 18 million respectively.⁴⁵ However, nearly 62 percent of total expenditure was assigned to responding to disaster events; and about USD 155 million was allocated to the National Program for Prevention and Disaster Mitigation 2009-2011, in which the Ministry of Communications, Infrastructure and Housing sought to mitigate the impact of disasters in vulnerable areas.

Mexico

Mexico is located in one of the world's most active seismic regions, prone to constant droughts in its northern cone and hurricanes and tropical storms originating in the Caribbean Sea, Atlantic and Pacific Oceans. This wide geographic exposure renders more than two thirds of the country's population and GDP at the risks of disasters. The modeled average annual loss due to earthquake and cyclone in Mexico is estimated USD 1.6 billion and 3.5 billion respectively.

To address disaster risk at the federal level, the Mexican Ministry of Finance and Public Credit (SHCP) has established a financial protection strategy that encompasses: (a) risk management ex ante investments for disaster prevention and mitigation, principally channeled through the Fund for the Prevention of Natural Disasters Program (FOPREDEN), (b) risk retention through the creation of budgetary instruments to restore damaged assets, principally the *Natural Disaster Fund* – FONDEN, and (b) risk transfer, in which the government transfers potential future losses to the financial markets, primarily through *reinsurance* schemes and *catastrophe bonds*.

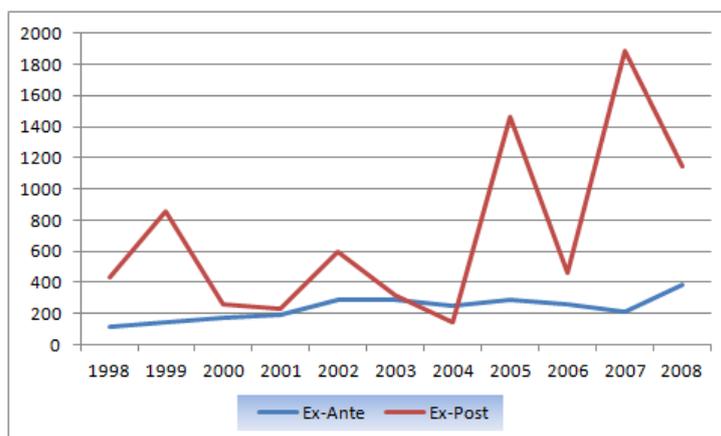
The SHCP also sponsored studies to assess risks of federal infrastructure and has built an inventory of key public goods, housing and replacement value by geographical location. This is supplemented by the *National Risk Atlas*, managed by the National Disaster Prevention Centre (CENAPRED), which is the closest thing to a DRR planning tool for decision-makers seeking to develop effective prevention and mitigation measures. It is a comprehensive information system which enables the overlay of multiple data sets and facilitates analysis of risk and vulnerability at national, regional, state and municipal levels, and simulate disaster scenarios.

⁴⁵ UNISDR, Global Risk Model – Global Assessment Report on Disaster Risk reduction, 2013

Without indicators for the identification of DRR expenditure, Mexico has limited capability to track DRR expenditure at either the federal or state levels. However, in a new initiative with the World Bank, the Government of Mexico will: i) analyze DRR investments including source, volume and mechanisms of financing, ii) appraise the use of hazard risk information in federal investment decision-making, iii) analyze the impact of these investments through sectoral case studies, iv) design a mechanism for follow-up and monitoring of future DRR investments.⁴⁶

During 1998 to 2008, the Mexican government spent USD 2.6 billion to cope with disasters against USD 2.6 billion spent to prevent or mitigate them. In fact, expenditures on emergency responses, rehabilitation and reconstruction have always exceeded the resources dedicated to risk management prior to disasters, the only exception being 2004, which was a mild year in terms of disasters. However what is significant is that public expenditures on ex-ante measures has more than tripled from USD 114.6 million in 1998 to USD 387 million in 2008.

Figure - 6
Ex-Ante and Ex-Post Investment on DRM
Mexico, 1998-2008 (USD millions)⁴⁷



Since 1996 the Mexican government has been setting aside a National Fund for Natural Disasters (FONDEN) to hold reserves and provide last-resort funding for emergency response and disaster relief. But the amount of resources allocated to the Fund has fluctuated increased or decreased in proportion to the exercise of the preceding year so the Fund does not counts with a fix budget for each year.

While FONDEN continues to operate, risk financing through insurance has gained prominence, especially given the permanent threat of earthquakes in the country. A 3-year catastrophic bond designed to finance emergency responses in case of earthquakes was issued in 2005, thereby transferring risk to the international market. And a similar catastrophic bond has followed for multiple risk coverage between 2009-11- earthquakes in three regions around Mexico City, Pacific hurricanes in two areas on the west coast, and Atlantic hurricanes around Cancun in the Mexican Caribbean.

⁴⁶ Ishizawa, O., Assessment and monitoring of public investments in prevention and disaster risk reduction in Mexico, Government of Mexico and the World Bank, 2012.

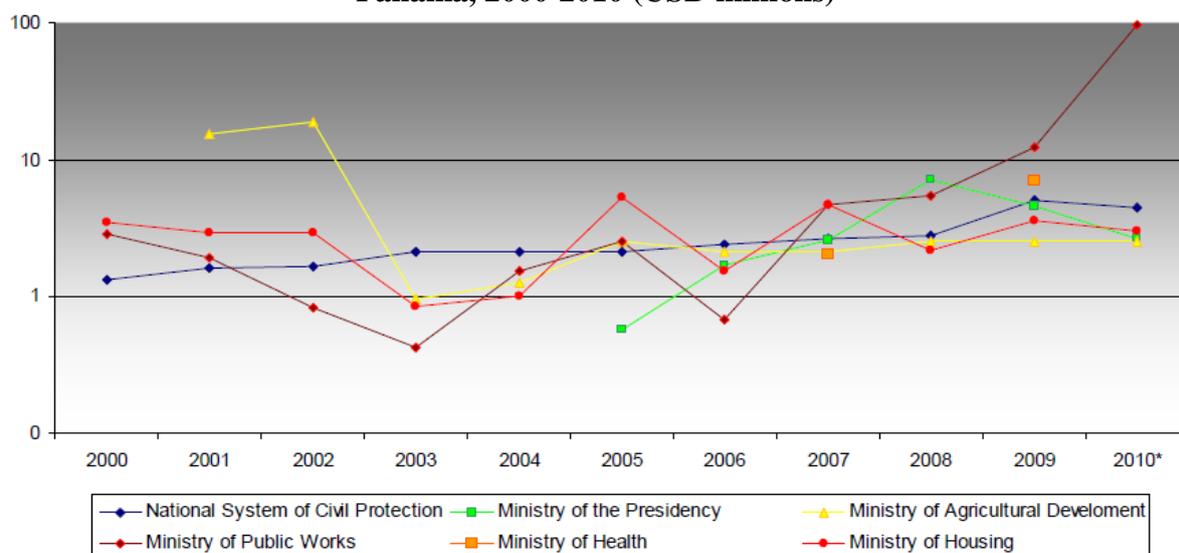
⁴⁷ Ministry of Economy and Finance, Government of Panama

Panama

Panama, which faces the risks of earthquake, drought, tsunami, landslide and flood, has developed a comprehensive National DRM Policy (PNGIR) for assessment of disaster risks and reduction of risks through programs of prevention, mitigation and preparedness. The Ministry of Economy and Finance (MEF) through its Directorate of Investment Planning (DPI) is responsible for development of criteria for the integration of DRR in the public investment planning process, as well as tools for financial protection against disasters, and the design of approved methods of economic evaluation for the inclusion of risk management in public investment. DPI runs the computational tool, the ‘Comprehensive System of Planning, Monitoring and Evaluation of Projects’ (SIPMEP), which incorporates DRR at the pre-investment stage.

A DRR tracking and accounting exercise was undertaken in 2010 as a requirement in the negotiation of a line of disaster credit (CAT-DDO) with the World Bank. Using the same categories as those employed by Guatemala, the DPI used the *clasificador presupuestario*, which estimated investment allocations on DRR by various Ministries during 2000-2010.

Figure - 7
Budgetary Allocation on Disaster Risk Management
Panama, 2000-2010 (USD millions)⁴⁸



As the budgetary system did not provide detailed guidelines for the identification and classification of prevention and mitigation activities, tracking DRR expenditure was extremely difficult. MEF officials were expected to hand-hold sectoral officials through a manual identification of DRR expenditure but this did not take place due to shortage of skilled personnel. The results of the analysis do not appear to be convincing. Average annual allocation of USD 24.5 million to the DRR budget for the period 2000-2010 is grossly inadequate considering that the annual average losses and probable maximum loss for a single hazard of earthquake has been modelled at USD 44 million and USD 869 million respectively.

⁴⁸ Ministry of Economy and Finance, Government of Panama

Currently, the Budget Directorate (DIPRENA) of the MEF is undertaking an exercise that allows it to assign budgets to specific DRR activities, and thereby service the National DRM Plan. This is the first step in the development of a budget classifier that allows resources allocated to DRR to be identified. The Guatemalan experience is being examined closely in this respect.

Peru

Peru faces multiple risks of earthquake, tsunami, flood and landslide. The incorporation of risk analysis in the national system of public investment (SNIP) of Peru is led by the Directorate of Investment Policy (Dirección General de Política de Inversiones – DGIP) of the Ministry of Economy and Finance (MEF). The methodology developed by the MEF for disaster risk analysis comprises interrelated aspects: hazard analysis, vulnerability analysis, risk estimation, cost estimates for alternative risk reduction schemes, evaluation of alternatives and best option selection. It is currently applied in the pre-investment and project formulation stage, although it can and eventually should also be used in the investment and post investment stages of the investment cycle.⁴⁹

DRR tracking is undertaken by another branch of the MEF, the Directorate of the National Public Budget (DNPP). Despite belonging to the same ministry, coordination with DGIP is limited and so linkage between the budget system and planning system is inadequate. In 2012, the DNPP introduced a new *budget category* for disaster prevention (Reduction of the Disaster Vulnerability and Emergency Assistance), estimated at approximately USD 70 million for the year (equivalent to less than 0.2% of the total public budget and approximately USD 2.3 per capita). The preceding budget category - Risk and Emergency Management – allocated approximately USD 120 million to disaster prevention in 2011. Allocations for both years could be considered inadequate, when observing that modeled average annual losses and probable maximum loss to earthquake stand at USD 447 million and USD 9.5 billion respectively.

Under 2012 classification each *budget category* of the national budget contains a set of *projects* (investment expenditure), and *activities* (current expenditure), essentially equating to capital and recurrent expenditure. This budgetary distinction allows an approximation of investment in physical infrastructure, but it does not include expenditure on subjects other than infrastructure as investments. For example, education and training is accounted as activities (not as projects), when it could be argued that a number of similar activities create new capital and should be considered an investment. If public investment is defined only as the expenditure on projects, leaving activities aside, the 2012 total shrinks to some US\$ 6 million, which is rather unrealistic. Therefore the methodology of budget classification needs further introspection and review.

Tracking DRR Investment within ODA

As investments on disaster risk reduction in most of the developing countries are still financed by the donor assistance it may be worthwhile to look into the system of tracking DRR investments within the bilateral and multi-lateral Official Development Assistance (ODA). The Organization for Economic Cooperation and Development (OECD) has

⁴⁹ Lavell, A., Disaster Risk Reduction and Public Investment Decisions: The Peruvian Case – Working Paper, 2012 Commissioned by the project “Public Investment and Climate Change Adaptation - IPACC” of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH.

developed Creditor Reporting System (CRS) which records each aid activity using a five-digit purpose code to identify the specific areas of the recipient's economic or social development that the aid is intended to achieve. Since 2006 'Disaster Prevention and Preparedness' (DPP) has been added as a purpose-code within the ODA sub-category of humanitarian aid. As per the CRS database official humanitarian aid of USD 1.5 billion was released for DPP during 2006-2010, of which 80 percent came from OECD donor governments. However there is no further sub-division of DRR within the DPP purpose-code. Therefore a forensic method of referencing key terms of DRR has been used to pull out relevant investments, which has always been difficult and challenging.

Participants at the second session of Global Platform for Disaster Reduction recommended that the equivalent of 10% of humanitarian funding and 10% of post-disaster reconstruction funding should be allocated towards DRR work. They also proposed that DRR should constitute at least 1% of all development funding. Some donors have actively earmarked a proportion of their annual humanitarian budget towards DRR. For example, in December 2004, the UK's DFID announced a commitment to allocate approximately 10% of the funding it provides in response to natural disasters on DRR to lessen the impact of future disasters. In 2012, the Netherlands Ministry of Foreign Affairs expressed its desire to earmark 10% of its emergency aid budget for increasing the resilience of people in developing countries in order to help prevent humanitarian disasters. Tracking such investments is still a daunting task, as admitted in a recent publication of GHA:

Volumes of ODA funds invested in DRR are very difficult to track and assess, and data on financing for DRR is poor. Quantifying the total amount spent on DRR is difficult. DRR activities are commonly hidden within wider programmes and projects, including those relating to food security, health systems, and environmental management. Because DRR projects have emerged relatively recently, the data on DRR funding is limited and donors are still unsure how to report it. Current donor reporting methods therefore fail to capture adequately the full nature and extent of financing for DRR, and it is only on the basis of this limited data that we are currently able to examine donor commitments to financing DRR.⁵⁰

FRAMEWORK FOR TRACKING DRM INVESTMENT

Based on our study of the existing systems and practices of tracking public investments we suggest a framework for classification, measurement and accounting of public investments on disaster risk management for further debate and discussion among the stakeholders. The framework does not make the fine distinction between 'disaster management' and 'disaster risk reduction', and uses the generic term 'disaster risk management' to cover both ex-ante prevention, mitigation and preparedness and ex-post response, recovery and reconstruction. This approach is both scientific (as it conforms to the globally accepted meaning and definition of 'disaster risk management') and practical (as it is in accordance with the processes and practices of most of the countries around the world). It is also inclusive as it incorporates every allocation related to disaster risk reduction and management.

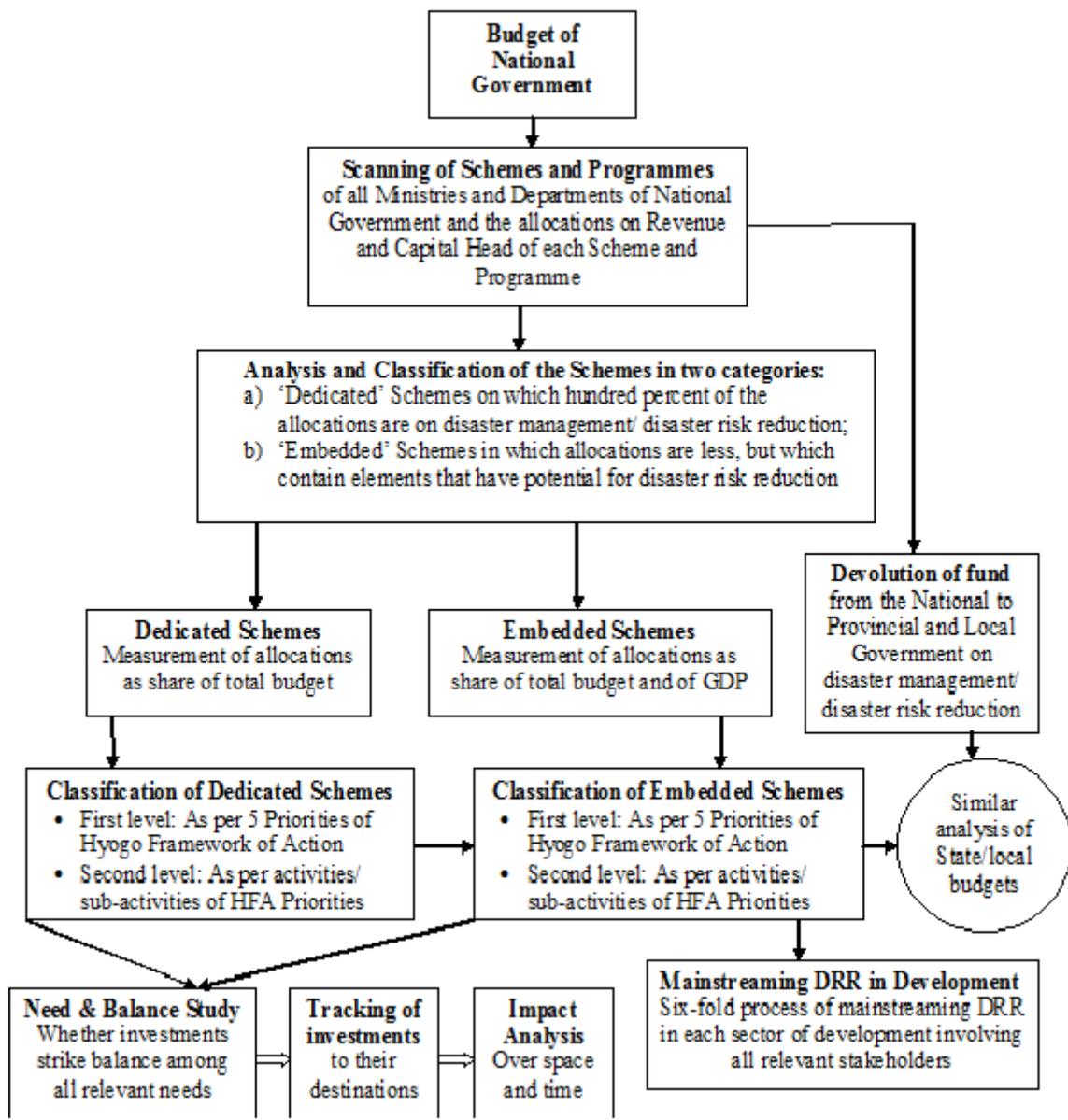
The first step in the process of application of this framework is the scanning of all the programs, activities and projects (PAP) of all the ministries and departments of the national

⁵⁰ Aid Investments in Disaster Risk Reduction- Rhetoric to Action, Global Humanitarian Assistance, 2012, page 6-7

government that are related, directly or indirectly, to disaster risk management and computation of the budgetary allocations on both recurrent and capital head of each scheme.

The second step is the analysis of the PAPs and their division in two broad categories: (a) ‘Dedicated’ schemes on which hundred percent of the allocations are on disaster risk management; and (b) ‘Embedded’ schemes on which allocations are less than hundred percent, but which contain elements that have potential for disaster risk management. The funds that are devolved or transferred from the central government to the provincial and local governments can be similarly divided under both ‘dedicated’ and ‘embedded schemes’.

Figure – 8
Framework for Tracking
Public Investments on Disaster Risk Management



In the next stage both the ‘dedicated’ and ‘embedded’ schemes should be classified in different categories according to the nature of the schemes. In the country case studies

different methods of classification have been adopted. In order that there is a common framework of classification it is suggested that the five Priorities of Action of the Hyogo Framework of Action may be adopted for classification with the proviso that allocation on disaster response, relief and reconstruction may be included under the HFA Priority Action 5 on 'Strengthening Disaster Preparedness for Effective Response at all Levels'.

Such classifications may take place in two levels. In the first level of classification only the five priorities of action shall be considered, while in the second level the activities and sub-activities of the each of the priority of action may be considered. Typically most of the allocations on 'dedicated' schemes are on HFA-1 and HFA-5, while allocations on 'embedded' schemes are on HFA-2, HFA-3 and HFA-4. The first level of classification would be relatively simple as there would be only five boxes in which the schemes shall be classified. The second level analysis would be rather complex as allocations would overlap on number of activities and sub-activities and many of the activities may not need any budgetary allocations at all.

The next step would be the computation of allocation and expenditure under each category and sub-category. The resultant figures can then be analyzed from various angles, such as percentage share of allocation on DRM in overall national budget, percentage share of such allocations in GDP, relative share of allocations under each category and sub-category, percentage of share of allocations that are actually spent etc. The analysis can also be made in terms of sectors and regions, relating the same to spatial distribution of hazards, vulnerabilities and risks.

These may be further analyzed as per the felt needs of investments in particular sectors to see whether the investments are need based or there are critical gaps. There may be further examination whether there is balance in investments across sectors on the cross-cutting issue of disaster risk management.

The most difficult part of the exercise would be to uncover the hidden investments on disaster risk management in the 'embedded' schemes. This involves not only identification of the schemes and classification under appropriate category and sub-category, it further involves determination of the relative share of disaster risk management in the allocations on the 'embedded' schemes which is not stated explicitly and therefore has to be inferred by analysis and interpretation.

In order that such interpretations do not become subjective it would be necessary to make sector specific analysis of the schemes with the involvement of the sector specialists. The best way to do this is to institutionalize the analysis within the sector, develop outcome indicators for each sector and relate the investment with the output. Once the elements of disaster risk management in sectoral allocations are identified and the relative share is determined it would be appropriate to segregate such share and earmark separate budget code for such allocations.

This process can be facilitated through the exercise of mainstreaming of disaster risk management in various sectors of development. A six-fold process of mainstreaming may be followed. These are:

- 1) identification of the existing systems, processes, schemes and programmes in each sector that can have a potential role for risk reduction;

- 2) review of how such role is being performed at present;
- 3) analysis of the shortcomings and critical gaps;
- 4) prescription of how such gaps can be addressed within the framework of the systems and processes;
- 5) suggestion of changes in the systems or processes by way of additions, amendments or revisions that can optimally utilize the available resources; and
- 6) evaluation of impact of these changes.

These involve very comprehensive and incisive exercise within each sector with complete participation of all the stakeholders. Budgetary allocations within each sector can be revised, re-appropriated or supplemented on the basis of such exercise. There are inhibitions within each sector for such exercises which is seen as interference in the normal functioning of the sectoral ministries and departments. Therefore designated national authorities on disaster management with clear mandate of coordination across sectors can take up such exercises in a systematic manner

Another difficult task is tracking of investments from the source to their destinations. It is relatively easy to track the movement of funds from the central to the provincial and local governments, and from governments at each level to the programs, activities and projects, but it is infinitely more complex to track investments from the schemes to the beneficiaries. The system generates information but the system does not capture all the information on a computable tracking format. If the programmes, activities and projects and further downstream beneficiaries are coded and the entire process is computerised the task of tracking can become a reality. Such a computerised tracking system is being developed in a limited scale in some countries and once these are tested and made operational the task of classification, measurement, tracking and monitoring of public investments on disaster risk reduction would become easy.

The framework suggested above is simple, transparent and easy to be followed in any national government irrespective of the systems and processes of budgetary protocol followed by the government. However the framework would require suitable adaptation and modification according to the specific contexts and requirements of the countries concerned.

APPENDIX-A

**ALLOCATIONS ON
DEDICATED SCHEMES ON DISASTER RISK MANAGEMENT IN INDIA
UNION GOVERNMENT - BUDGETS 2011-12**

(INR 10 million)

	Plan	Non-Plan	Total
Ministry of Agriculture, Department of Agriculture and Cooperation			
Strengthening & Modernization of Pest Management	70.94	24.96	95.90
Crop Insurance Scheme	1150	0	1150.00
Ministry of Agriculture, Department of Animal Husbandry, Dairying and Fisheries			
Preparedness, Control and Containment of Avian Influenza	64.23	0	64.23
Ministry of Earth Sciences			
Tsunami and Storm Surge Warning System	12.00	0.00	12.00
Multi-hazards Early Warning Support System	5.00	0.00	5.00
Ministry of Finance, Department of Expenditure			
Grants in Aid to States for CRF/SDRF	0.00	4911.70	4911.70
Grants in Aid to States for Capacity Building	0.00	105.00	105.00
Grants in Aid for NCCF/NDRF	0.00	4525.00	4525.00
Tsunami Rehabilitation Programme	0.00	0.00	0.00
Brihan Mumbai Storm Water Drain Project	0.00	0.00	0.00
Long Term Reconstruction of flood damages, 2005-06	0.00	0.00	0.00
ACA for Drought mitigation in Bundelkhand Region	0.00	0.00	0.00
Ministry of Health and Family Welfare, Department of Health and Family Welfare			
Health Sector Disaster Preparedness & Management	80.50	0.00	80.50
National Integrated Disease Surveillance Programme	55.00	0.00	55.00
Ministry of Home Affairs			
National Disaster Management Authority	0.00	33.31	33.31
National Institute of Disaster Management	0.00	14.00	14.00
National Disaster Response Force	0.10	181.47	181.57
National Disaster Management Programme	0.00	0.36	0.36
Capacity Development of Engineers	0.00	0.00	0.00
Capacity Development of Architects	0.00	0.00	0.00
National Cyclone Risk Mitigation Project	246.00	0.00	246.00
National Earthquake Mitigation Project	10.00	0.00	10.00
Landslide Risk Mitigation Project	2.00	0.00	2.00
National Flood Disaster Management Project	2.00	0.00	2.00
Disaster Management Communication Network	15.00	0.00	15.00
Other Disaster Management Projects	39.90	0.00	39.90
USAID Assisted Disaster Management Support Project	0.00	0.10	0.10
UNDP Assisted Disaster Risk Reduction Project	0.00	15.00	15.00
Building Capability for Rapid Intervention in Disasters	0.00	0.23	0.23
Civil Defence	2.00	4.14	6.14
National Civil Defence College	0.00	2.81	2.81
National Fire Service College	0.00	4.76	4.76

Strengthening of Fire and Emergency Services	20.00	0.00	20.00
Home Guards	0.00	39.39	39.39
Department of Space			
Disaster Management Support	34.37	0.00	34.57
Ministry of Water Resources			
Flood protection works in Eastern & Western Sectors	0.00	3.00	3.00
Flood Forecasting	34.00	0.00	34.00
Grand Total	1843.24	9865.23	11708.47

CLASSIFICATION OF EMBEDDED SCHEMES ON DRM IN INDIA UNION GOVERNMENT – 2011-12

HFA Priority 1

Ensure that DRR is national and local priority with strong institutional basis for implementation

Nil

HFA Priority 2

Identify, assess and monitor disaster risks and enhance early warning

Department of Agricultural Research and Education

- 1 Climate Resilient Agriculture Initiative
- 2 Agricultural Research and Education

Department of Health Research

- 1 Health Research including Research on Epidemics

Ministry of Earth Sciences

- 1 Oceanographic Research
- 2 Meteorology
- 3 Centre for Climate Change

- 4 National Centre for Medium Range Weather Forecast
- 5 Indian Institute of Tropical Meteorology

Department of Science and Technology

- 1 Modernization of Mapping Organisations
- 2 National Programmes on Science and Technology

Department of Scientific and Industrial Research

- 1 Assistance to National Laboratories under CSIR

Department of Space

- 1 Space Applications

HFA Priority 3

Use knowledge, innovation and education to build a culture of safety and resilience at all levels

Department of Agriculture and Cooperation

- 1 Agriculture Extension and Training

Department of School Education and Literacy

- 1 Elementary Education
- 2 Secondary Education
- 3 Adult Education

Department of Higher Education

- 1 General Education
- 2 Technical Education

Ministry of Information and Broadcasting

- 1 Information and Publicity
- 2 Broadcasting

Department of Health and Family Welfare

- 1 Medical Education, Training and Research

Ministry of Environment and Forests

- 1 Education and Training on Forestry and Wildlife

Ministry of Urban Development

- 1 Capacity Building for National Urban Renewal Mission

HFA Priority 4

Reduce the underlying risk factors

Department of Agriculture and Cooperation

- 1 National Programmes on Crop Husbandry
- 2 Soil and Water Conservation
- 3 Agriculture Extension and Training
- 4 National Food Security Mission
- 5 National Rainfed Area Authority
- 6 Rainfed Area Development Programmes
- 7 Other Agricultural Programmes
- 8 Cooperatives

Department of Agricultural Research and Education

- 1 Climate Resilient Agriculture Initiative

Department of Animal Husbandry, Dairying & Fisheries

- 1 Veterinary Services and Animal Health
- 2 Other National Programmes on Animal Husbandry

Department of Financial Services

- 1 Financial & Trading Institutions- Social Security and Welfare

Department of Health and Family Welfare

- 1 Public Health
- 2 Hospitals and Dispensaries

- 3 National Programmes on Dairy Development

- 4 National Programmes on Development of Fisheries

Ministry of Environment and Forests

- 1 National Afforestation and Eco Development Programme
- 2 Forest Conservation, Development and Regeneration
- 3 Research and Ecological Regeneration
- 4 Mangroves Eco-Systems and Wetlands
- 5 Climate Change Project
- 6 National Coastal Management Programme

Ministry of External Affairs

- 1 Aid for Disaster Relief

Department of Economic Affairs

- 1 Technical and Economic Cooperation with Countries

Department of Drinking Water and Sanitation

- 1 National Rural Drinking Water and Sanitation Programme

Ministry of Textiles

- 1 Village and Small Industries
- 2 Consumer Industries

Ministry of Transport and Highways

3	National Rural Health Mission	1	Construction and Maintenance of Roads and Bridges
	Ministry of Housing and Urban Poverty Alleviation		Ministry of Tribal Affairs
1	Integrated Low Cost Sanitation Programme	1	Central Assistance for Tribal Sub Plans
2	National Schemes on Housing and Urban Poverty Alleviation		Ministry of Urban Development
	Ministry of Micro, Small and Medium Enterprises	1	Programmes on Urban Development
1	Micro, Small and Medium Enterprises	2	Jawaharlal Nehru National Urban Renewal Mission
2	Khadi and Village Industries		Ministry of Water Resources
	Ministry of Panchayat Raj	1	Major and Medium Irrigation Programmes
1	Rashtriya Gram Swaraj Yojana	2	Minor Irrigation Programmes
2	Mission Mode Project on e-Panchayats	3	Flood Control and Drainage Programmes
3	Backward Regions Grants Fund	4	Central Assistance for Irrigation for Water Resources
	Department of Rural Development		Ministry of Youth Affairs and Sports
1	Swaranjayanti Gram Swarozgar Yojana	1	Nehru Yuva Kendra Sangathan
	Department of Land Resources	2	National Service Scheme
1	Integrated Watershed Management Programme		

HFA Priority 5

Strengthen disaster preparedness for effective response at all levels

Nil

Source: Expenditure Budget 2011-12, Volume-II, Ministry of Finance, Government of India

APPENDIX-B

CLASSIFICATION OF PROGRAMS, ACTIVITIES AND PROJECTS
ON DISASTER RISK REDUCTION IN INDONESIA

Priority 1: DRR as National and Regional Priorities as well as Institutional Capacity Building							
Program A: Laws and Regulations							
Activities / Projects	2006	2007	2008	2009	2010	2011	2012
1. Coordination of authorities, duties, resources							
i. Coordination of disaster preparedness	-	-	-	-	-	1.54	2.24
ii. Coordination of CCA policy preparation	-	-	-	-	-	1.05	1.25
iii. Preparation of national DRR system	-	18.89	9.50	36.02	39.45	120.92	82.76
iv. Improvement of CC performance	-	-	-	-	-	35.00	35.00
v. Planning & monitoring of DM							
Program B: Disaster Management Planning							
1. Introduction and assessment of hazards							
i. Evaluation of climate change impact	-	-	-	-	-	-	0.37
ii. Survey and field study	-	-	-	-	-	0.54	-
iii. Development of remote sensing for DM	-	-	-	-	-	2.00	0.17
2. Implementation of disaster risk analysis							
i. R&D on geological disaster technology	-	1718	18.13	11.68	19.53	18.21	25.08
ii. Study on DRR in disadvantaged regions	-	-	-	-	-	0.60	1.31
iii. Research on climate geo-technology	-	-	-	-	-	2.00	2.50
3. Identification of DRR actions							
i. DM Policy in disadvantageous regions	-	-	-	-	-	0.15	0.60
ii. Research on DM technology	-	-	-	-	-	4.00	2.00
iii. Disaster preparedness for coastal areas							
4. Establishment of planning documents as well as laws and regulations							
i. Improvement of assessment regulations	-	1.29	0.13	-	-	-	-
ii. Disaster mitigation guidelines for islands	-	-	-	-	-	0.40	0.17
iii. DRR action plan for 11 regencies	-	-	-	-	-	-	2.25
Priority 2: Use of Knowledge, Innovation, and Education to Build Safety Culture and Resilience							
Program C: Research, Education and Training							
1. Development of disaster awareness culture							
i. Disaster studies in disadvantaged regions	-	-	-	-	-	0.45	0.61
ii. Safer communities through DRR	-	-	-	-	-	2.50	-
iii. Tsunami research to promote awareness	-	2.63	-	-	-	-	-
2. Monitoring technologies creating disasters							
i. Supervision of nuclear utilization	-	124.43	110.49	71.66	112.55	221.36	24.13
ii. Advancement of technology for CCA	-	-	-	-	-	3.05	2.50
iii. Research on DRR technology	-	-	-	-	-	1.75	1.55
iv. R&D on remote sensing for DRR	-	2.83	3.98	3.00	3.00	2.42	3.41
3. Organizing education, counseling and training							
i. Capacity building for regional government	2.42	5.54	6.50	8.75	13.75	49.16	40.97
ii. Spatial planning in disaster regions	-	-	0.85	-	1.18	20.93	-
iii. Education for disasters and riot regions	257.08	57.20	315.57	82.50	170.06	101.10	-
iv. Disaster prone housing management	-	-	1.04	-	-	-	-
Priority 3: Reduction of Disaster Risk Causing Factors							
Program D: Disaster Mitigation and Prevention							
1. Identification and monitoring of disaster risks							
i. Research on climate change adaptation	-	-	-	-	-	4.00	2.00
ii. Research on geo-technology for DM -	-	-	-	-	-	1.13	4.72
iii. Provision of disaster geodetic system	-	1.88	2.00	2.00	2.00	-	-
2. Making physical and Non-physical of efforts as well as arrangements for disaster management							
i. Mitigation of geological disasters	9.24	13.91	17.18	4.93	9.24	95.57	110.08
ii. Construction of flood control infrastrucur	1912	1536	2246	2012	2413	2948	3807

iii. Construction of coastal infrastructure	-	573	284	493	230	555	973
iv. Volcano lava control infrastructure	-	75	153	163	124	264	456
v. Research on disaster mitigation	-	-	-	-	-	15.65	-
3. Mapping of multi-disaster areas							
i. Mapping of multi-disaster areas	-	3.50	3.00	3.70	3.70	0.26	1.00
4. Monitoring the control and management of natural resources that potentially trigger disaster							
i. Prevention and control of forest fire	30.45	91.7	61.04	57.40	189.58	55.99	217.38
ii. Mitigation and atmosphere preservation	-	-	-	-	-	15.70	6.88
5. Spatial layout control and management							
i. Land use planning based on geology	-	6.22	8.70	6.43	-	-	-
6. Environmental management							
i. Climate change & air quality management	-	-	-	-	3.60	20.80	20.63
ii. Forest and land rehabilitation	139	117	238	343	1175	2608	2279
iii. Climate change adptation	-	-	-	-	-	9.55	6.50
7. Arrangement for development and building code							
i. Housing construction procedure	-	1.49	-	-	-	1.12	-
ii. SAR communication management	-	-	-	-	-	47.26	95.69
iii. Training on earthquake resistant housing	-	-1.49	-	-	-	1.12	-
8. Development of facilities and infrastructure							
i. Application of research on physics for DM	-	-	-	-	-	0.38	0.53
Priority 4: Identification, Assessment, and Monitoring of Disaster Risks and Early Warning System							
Program E : Early Warning System							
1. Observation of disaster tendency							
i. Tsunami early warning system	-	56.10	-	30.00	-	-	-
ii. Meteorological early warning system	-	83.72	72.69	88.90	47.28	-	-
iii. Climate early warning system	-	-	-	-	9.52	-	-
iv. Tsunami early warning data management	-	87.65	103.48	25.00	101.93	80.01	82.42
v. Maintenance of tsunami EWS	-	39.50	-	13.17	-	6.50	6.50
2. Analysis on the outcome of disaster tendency observation							
Nil	-	-	-	-	-	-	-
3. Decision making on disaster hazard status							
Nil	-	-	-	-	-	-	-
4. Dissemination of disaster warning information							
i. ICT application for disaster risk reduction	-	5.28	-	13.50	13.50	28.76	132.14
5. Implementation of actions to address disaster hazards							
Nil	-	-	-	-	-	-	-
Priority 5: Preparedness and Strengthening of Disaster Response at all Levels of Community							
Program F : Improvement of Community Participation and Capacity for DRR							
1. Improvement of understanding on community vulnerability							
i. Community based disaster preparedness	-	-	-	-	-	5.91	16.17
2. Planning of involvement in disaster management							
Nil -	-	-	-	-	-	-	-
3. Improvement of the commitment of disaster management actors							
i. DRR evaluation in disadvantaged region	-	-	-	-	-	0.42	0.99
ii. Cooperation among govt and pvt agencies	-	-	0.81	-	-	-	-
4. Community social resilience capacity building							
i. Disaster resilience in small island	-	22.65	33.53	121.13	12.05	1.04	0.98
Program G: Preparedness							
1. Formulation of mechanism for preparedness and disaster risk reduction							
i. Management of drill and operation of SAR	-	-	-	-	-	82.00	91.50
2. Formulation and testing of emergency disaster management plans							
Nil	-	-	-	-	-	-	-
3. Organization, installation, and testing of early warning system							
i. Management of SAR facilities	-	-	-	-	-	635.37	518.20
4. Procurement and preparation of supplies to fulfill basic needs							
i. Provision of logistics in disaster areas	-	-	-	-	-	283.45	222.50
ii. Provision of equipments in disaster areas	-	-	-	-	-	25.46	80.07
iii. Basic necessities for disaster victims	182.5	57.4	400.0	104.0	390.4	311.7	315.9

5. Organization of, counseling, training, and simulation on emergency response mechanisms							
i. Training and education about SAR	-	-	-	-	-	12.10	15.69
ii. Disaster preparedness drills	-	-	-	-	-	66.35	67.76
iii. Health crisis management	15.54	575.00	295.25	112.00	74.19	154.13	69.22
6.							
Nil	-	-	-	-	-	-	-
7. Compilation of accurate data and information and updating of procedures for disaster response							
i. SAR communication management	-	-	-	-	-	47.26	95.69
8. Preparation of materials, goods, and equipment for recovery of infrastructure and facilities							
Nil	-	-	-	-	-	-	-

Source: Bappenas and BNPB (2010), National Action Plan for Disaster Risk Reduction 2010-2012.

**PROPOSED DRR BUDGET ALLOCATION TRACKING SYSTEM FOR
PHILIPPINES**

	DRR BUDGET ITEMS	LOCATION	AGENCY	(YEAR)			
				PS	MOOE	CO	Total
	Total DRR Expenditure						
1. UNDERSTANDING HAZARDS							
1.1 Hazard Identification, Mapping and Assessment							
i.	Atmospheric-geophysical, astronomical hazard identification, mapping and assessment		PAGASA				
ii.	Volcanic and earthquake hazard identification, mapping and assessment		PHIVOLCS				
iii.	Geohazard identification, mapping and assessment		MGB				
iv.	Geohazard identification, mapping and assessment		NAMRIA				
v.	Others						
1.2 Hazard Monitoring, Forecasting and Warning							
i.	Flood forecasting, monitoring and warning		PAGASA				
ii.	Volcano and earthquake hazard monitoring, forecasting and warning		PHIVOLCS				
iii.	Construction, rehabilitation and maintenance of operations of Seismic Stations						
iv.	Others						
1.3 Research and Development							
i.	Atmospheric-geophysical, astronomical and space sciences research		PAGASA				
ii.	Agro-climatic research and farm weather services and climate variability and climate change studies		PAGASA				
iii.	Volcano eruption prediction research and development of active volcanoes and investigations of other volcano emergencies		PHIVOLCS				
iv.	Earthquake prediction studies		PHIVOLCS				
v.	Others						
2 MINIMIZING EXPOSURE							
2.1 Structural/Physical Measures							
i.	Construction of Flood Control/Seawall and Drainage Projects		DPWH, MMDA, PRC				
ii.	Maintenance, Repair and Rehabilitation of Flood Control and Drainage Systems, Structures and Related Facilities		DPWH, MMDA, PRC				
iii.	Forest Management		DENR				
iv.	National Arterial and Secondary National/Local Roads and Bridges (DRR critical infrastructure components)		DPWH				
v.	Various infrastructure including Local Projects (DRR critical infrastructure components)		DPWH				
vi.	School building program (DRR component)		DepEd				

vii.	Priority Development Assistance Fund (Flood control component)		Various agencies				
viii.	Others						
2.2	Technical Measures/non-structural						
i.	Risk mitigation services		PAGASA, PHIVOLCS				
ii.	Resettlement Program (DRR component)		NHA				
iii.	Land Use Planning Assistance (DRR component)		HLURB				
iv.	Development of the Crops Sector (EI Nino/La Nina mitigation component)		DA				
v.	Others						
2.3	Preliminary and Detailed Engineering of Disaster countermeasures						
i.	Detailed engineering of disaster countermeasures such as roads, bridges and flood control projects		DPWH				
ii.	Conduct of hydrological surveys		DPWH				
iii.	Feasibility study/master planning of river basins for purposes of flood control mitigation		DPWH				

	DRR Budget Items	Location	Agency	(Year)			
				PS	MOOE	CO	Total
iv.	Health Facilities Enhancement (DRR component)		DOH				
v.	Formulation of policies, standards, and plans for hospital and other health facilities (DRR component)		DOH				
3	Lessening Vulnerability/Building Resilience						
3.1	Preparedness						
i.	Planning and policy formulation		Various agencies				
ii.	Planning, direction and coordination for civil defense		OCD				
iii.	Barangay/community early warning		DILG				
iv.	Others						
3.2	Disaster Response						
i.	Response, Rescue and Relief Operations		DILG, PAF, PA, PN, DND OSEC				
ii.	Assistance to victims of disasters and natural calamities including handling and hauling of commodity donations		DSWD				
iii.	Quick Response Fund		DepEd				
iv.	Calamity Fund: Aid, Relief and Rehabilitation Services to Communities/Areas Affected by Calamities, including Training of Personnel, and Other Pre-disaster Activities		DBM				
v.	Others						
3.3	Sustainable Recovery						
i.	Calamity Fund: Repair and Reconstruction of Permanent Structures, including Capital Expenditure for Pre-disaster Operations, Rehabilitation and Other		DBM				

	Related Activities						
ii.	Disaster Related Rehabilitated Projects		DPWH, other agencies				
iii.	Others						
3.3	Risk Financing						
i.	Insurance Coverage for School Buildings		DepEd				
ii.	National Government subsidy for crop insurance premium of subsistence farmers under the Crop Insurance Program		PCIC				
iii.	Expansion of Crop Insurance Program		PCIC				
iv.	Others						

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