

ESCAP Technical Paper
Information and Communications Technology and
Disaster Risk Reduction Division

Policies and strategies in incorporating and using available new ICT, including space-based applications, in multi- sectoral regional cooperation for resilient, inclusive and sustainable development

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Abbreviations

ADRC	The Asian Disaster Reduction Center
ASEAN	Association of Southeast Asian Nations
CRED	Centre for research in Epidemiology of Disasters
CRISP	Centre for Remote Imaging, Sensing and Processing
CSSTEAP	Centre for Space Science and Technology Education in Asia and the Pacific
DaLA	Damage and Loss Assessment
DHN	Digital Humanitarian Network
DST	Department of Science and Technology
EM-DAT	Emergency Events Database
EPEDAT	Early Post-Earthquake Damage Assessment Tool
ESCAP	United Nations Economic and Social Commission for Asia and the Pacific
GIS	Geographical Information System
GISTDA	Geo-Informatics and Space Technology Development Agency
GLOF	Glacial Lake Outburst Flood
GNSS	Global Navigation Satellite Systems
GPS	Global Positioning Systems
GRIP	Global Risk Identification Program
GSDI	Global Spatial Data Infrastructure
HFA	Hyogo Framework for Action
ITU	International Telecommunication Union
ISRO	Indian Space Research Organization
JAXA	Japan Aerospace Exploration Agency
KARI	Korea Aerospace Research Institute
NARL	National Applied Research Laboratories
NDMO	National Disaster Management Organisation
NDMA	National Disaster Management Agency/Authority
NETP	National Emergency Telecoms Plan
NGO	Non-Governmental Organisation
NOAA	National Oceanic and Atmospheric Administration
NSDI	National Spatial Data Infrastructure
OCHA	The United Nations Office for the Coordination of Humanitarian Affairs
OpenDRI	Open Data for Resilience Initiative
PDNA	Post-Disaster Needs Assessment
RESAP	Regional Space Applications Programme for Sustainable Development
SAARC	South Asian Association for Regional Cooperation
SDGs	Sustainable Development Goals
SOPAC	Applied Geoscience and Technology Division of the Secretariat of the Pacific Community
SPARRSO	Bangladesh Space Research and Remote Sensing Organization
SBTF	Standby Volunteer Taskforce
UN-GIMM	United Nations initiative on Global Geospatial Information Management

UN-SPIDER United Nations Platform for Space-based Information for Disaster
Management and Emergency Response
UNDP United Nations Development Programme
UNEP United Nations Environment Programme
UNITAR United Nations Institute for Training and Research
UNOSAT The Operational Satellite Applications Programme of the United
Nations Institute for Training and Research
USGS The United States Geological Survey

Table of Contents

Abbreviations	2
Table of Contents	4
List of Figures	5
List of Tables	5
1. Introduction	6
1.1. Disaster events	6
1.2. Economic loss	7
1.3. Disaster fatalities	8
1.4. ICT and space-based applications	9
2. Policy approaches to building resilience	11
2.1. Understanding vulnerability and exposure	13
2.2. Planning for disaster risk reduction	14
3. Strategies for building resilience	16
3.1. Geo-referenced information systems for disaster risk management	17
3.2. Rapid impact assessment	19
3.3. Data needs	21
3.4. Challenges to using geo-referenced data	26
4. Sources of information	27
4.1. Disaster databases	27
4.2. Hazard and risk data	29
5. Building institutional capacity	30
5.1. Identified priorities and requirements	30
5.2. Capacity development	31
6 Regional and South-South cooperation	33
References	35

List of Figures

Figure 1: Trends of occurrence of Natural Hazard	7
Figure 2: Trends of occurrence of Natural Hazard Events by Sub-region (1973 – 2012)	7
Figure 3: Economic losses from Natural Hazards by type (1973 – 2012)	8
Figure 4: Economic losses from Natural Hazards	8
Figure 5: Total Deaths from Natural Hazards by type (1973 – 2012)	9
Figure 6: Total Deaths from Natural Hazards	9
Figure 7: ICT sector’s adaptation framework: Resilient pathways	11
Figure 8: Disaster Risk Management Framework	12
Figure 9: Higher exposure corresponds to greater losses in Samoa	13
Figure 10: Comparison of the cost–benefit ratios of improved land use planning, relocating exposed settlements, and retrofitting and mitigation measures in Colombia	14
Figure 11: The percentage reduction of mortality in Colombia due to different risk reduction strategies	15
Figure 12: Architecture and framework for Geo-DRM systems	18
Figure 13: Interaction between geo-DRM and different types of users	19
Figure 14: Rapid assessment using geospatial technologies	20
Figure 15: Risk information scale for policy planning and project implementation	22
Figure 16: Integrating risk assessment from planning to investment for DRM	26

List of Tables

Table 1: Scales of hazard assessment, with indication of basic mapping units and the optimal scale for different types of hazards	21
Table 2: Disaster Types and Data Needs	23
Table 3: Spectral bands and temporal resolution of major satellites frequently used in DRM and DRR	25
Table 4: Global data sources for inventory of hazardous events, and hazard assessment	29

1. Introduction

It is well known that the Asia-Pacific suffers the most from disasters due to the growing population and economies becoming more exposed to disaster hazards. For decades, international agreements have advocated building resilience to disasters, including the implementation of disaster risk reduction strategies. Many countries have developed policy instruments to address disaster risk reduction. However, the information, tools and technologies necessary to develop and implement such policies and strategies in an informed manner are not yet universally accessible and not being utilized to their full potential.

This paper discusses the status of availability of data and information which can support informed policy making for disaster risk management. It builds on recommendations from various intergovernmental and expert meetings organized by the Economic and Social Commission for Asia and the Pacific (ESCAP), and includes not only statistics on disasters and demographics, but the expanding use of ICT and space-related applications, which have significantly increased the availability and accessibility of data, information, knowledge and expertise.

Worldwide there has been a paradigm shift in disaster management moving away from emergency response to a holistic view of disaster risk reduction and management. Considerable progress in disaster risk management has been achieved in the Asia-Pacific region over the past decade resulting in lower mortality risks from extreme weather-related hazards, even though economic losses have been on an upward trajectory (UNESCAP, 2013). The lessons learned since the establishment of the Hyogo Framework for Action (HFA) and MDGs is now being reflected in negotiations of new international agreements in the beyond 2015 development agenda, such as HFA2 and the Sustainable Development Goals (SDGs).

1.1. *Disaster events*

Over the last four decades, the world witnessed a total of 9,812 significant natural hazard events, of which 4,293, or 44 per cent, were reported in Asia and the Pacific. The most frequently occurring hazards in the region are hydro-meteorological (UNISDR, 2012) affecting more than 1.2 billion people since 2000 alone. (Theme Study – Building Resilience to Natural Disasters and Major Economic Crisis (UNESCAP, 2013). Considering the occurrence of natural hazards by type, floods and storms have been the most frequent, accounting for 67 per cent of the events occurring between 1973 and 2012 (Figure 1). Across the various subregions, South and Southwest Asia has experienced the largest number of natural hazard events over the last four decades, followed by Southeast Asia and East and Northeast Asia (Figure 2).

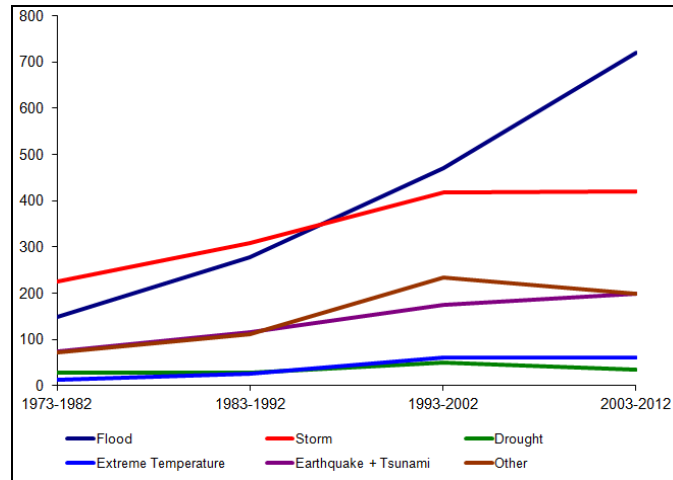


Figure 1: Trends of occurrence of Natural Hazard

Source: UNESCAP: ESCAP Statistical Database; and EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be [accessed on 15 September 2014].

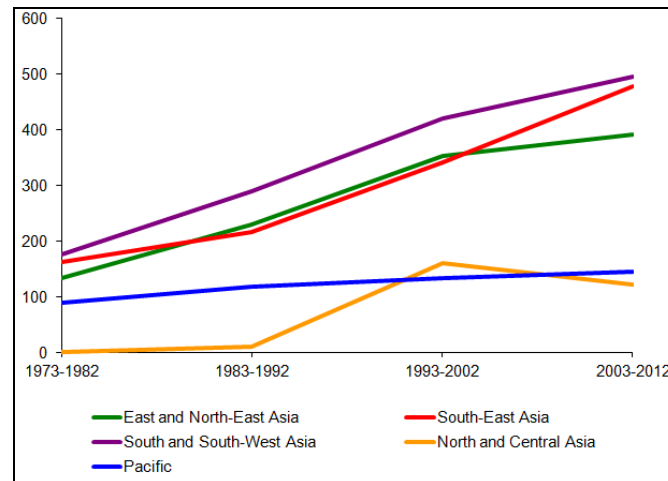


Figure 2: Trends of occurrence of Natural Hazard Events by Sub-region (1973 – 2012)

Source: UNESCAP: ESCAP Statistical Database; and EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be [accessed on 15 September 2014].

1.2. Economic loss

Over the past four decades, Asia-Pacific total economic losses due to disasters accounted for \$1.14 trillion, or 46 per cent of global losses. Four types of natural hazards (floods, earthquakes, storms and tsunamis) were responsible for approximately 90 per cent of the total economic losses in Asia and the Pacific (Figure 3). East and Northeast Asia alone suffered approximately 70 per cent of the total economic losses of the region (Figure 4).

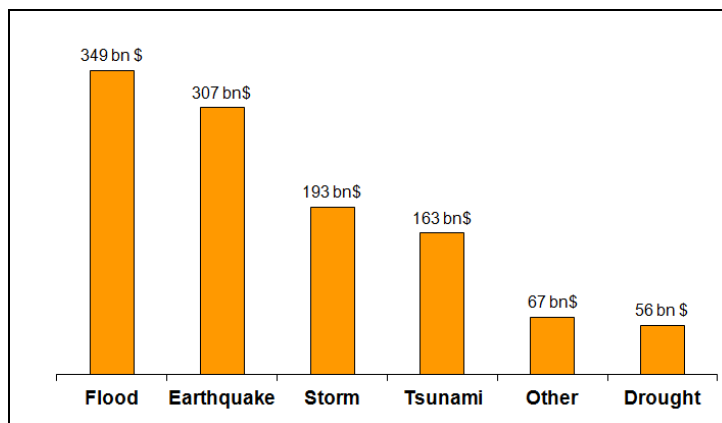


Figure 3: Economic losses from Natural Hazards by type (1973 – 2012)

Source: UNESCAP: ESCAP Statistical Database; and EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be [accessed on 15 September 2014].

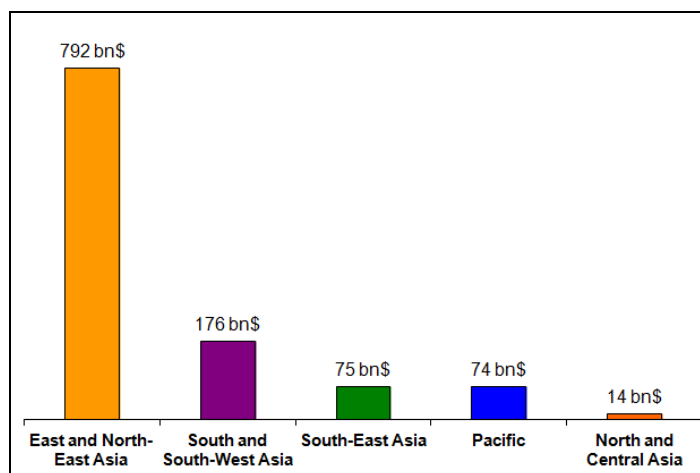


Figure 4: Economic losses from Natural Hazards

Source: UNESCAP: ESCAP Statistical Database; and EM-DAT: The OFDA/CRED International Disaster Database – www.emdat.be [accessed on 15 September 2014].

1.3. Disaster fatalities

In addition, over 1.5 million people died in disasters during this period in Asia-Pacific. The highest fatalities were caused by earthquakes (42 per cent) followed by storms, tsunamis and

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