

Part Three: Where Do We Go From Here?

Policies for Safer Cities

Reducing the impact of disasters in urban areas is not something that will happen overnight, nor even within the time span of the International Decade for Natural Disaster Reduction (1990-2000). The cases in this book illustrate that solutions are available. What is needed is a change in people's attitudes, based on the conviction that cities can organize themselves to resist disasters, and the will to act on this conviction. Here one may draw a parallel with the gradual changes in environmental awareness over the last 25 years. To make cities safer from disasters, what is needed is to build a "culture of prevention" among society at large.

When crises and negative trends persist, it is because the solutions may not be easy, and require tradeoffs. Each year, building codes are ignored and zoning laws are overlooked as communities continue to expand in areas prone to earthquakes, landslides, floods, tidal surges, volcanic eruptions, high winds and other natural hazards. Already, at least a quarter of the world's population lives in high-risk areas. Each year, choices are made at many levels in society, that make people ever-more vulnerable to disasters.

Today the dominant approach to disasters is relief-oriented, whether one speaks of villages, towns or cities. Partly, this is due to fatalism, a belief that disasters are "acts of God." Nevertheless, more organizations (at all levels in society) are undertaking post-disaster reconstruction with long-term development in mind.

It takes just one more step to make cities safer – *before* the next disaster strikes. While early, targeted responses to natural hazards and socioeconomic vulnerabilities are more cost-effective and administratively manageable than large clean-up operations, it is never too late to start. Paradoxically, the post-disaster period is often a good time to launch disaster and vulnerability reduction programmes, because public awareness and political will is high. Those are the two elements that keep these policies from becoming reality.

Policy Guidelines for Safer Cities

The most important precondition is political commitment – locally and nationally – to address urban disaster risks. International support for local capacity building in

high-risk areas is also important – but first it is the responsibility of individuals, city authorities, and national authorities to guarantee safer cities.

1. Encourage development policies that reduce vulnerability to disasters.

- ▶ **Land-use.** Introduce/update regulations for faults, slopes, wetlands, and other disaster-prone areas. Ban dense settlements and infrastructure development in hazard-prone areas, and replace them with urban agriculture and/or recreation areas.
- ▶ **Risk assessment.** Carry out hazard and vulnerability assessments for the urban areas in question. Use findings to develop special programmes that reduce local vulnerability to disasters, and use the results in development projects.
- ▶ **Disaster Impact Assessment.** Make disaster impact assessments a routine measure in feasibility studies for development projects. An option: make disaster impact assessments a part of environmental impact assessments (better known and more widely used).
- ▶ **Design, Construction, Maintenance.** Train community members and give financial incentives to encourage safe, cost-effective, culturally appropriate construction. Enforce design and construction regulations. Protect household belongings and office equipment through maintenance and by securing objects.
- ▶ **Integration.** Link projects and policies for environmental management, disaster reduction and urban planning. Develop sustained partnerships between different professions and parts of the community to streamline ad-hoc, short-term or competing efforts.



Rapidly built new constructions were first to collapse in the 1988 Spitak earthquake in Armenia

R. Koch/Corbis

2. Prepare city managers to cope with emergency situations.

- ▶ **Emergency Management Planning.** Clarify roles and responsibilities in advance through municipal, provincial and national plans. Include all partners in the community that may have a role.
- ▶ **Institutional Strengthening.** Train professionals to carry out new responsibilities, and include refresher courses. Budget enough money to enforce regulations, hire extra staff (if needed) or obtain new equipment and supplies. Maintain and update equipment and databases. Strengthen legal mandates for institutions with key disaster management roles. Legally decentralize responsibilities (and resources) to municipalities
- ▶ **Communications Channels and Warnings.** Establish channels in advance for authorities to announce early warning, evacuation and/or relief measures. Make scientific warnings available to local

decision-makers and the public in a way that is understandable and timely

3. Prepare community members to address emergency situations.

- ▶ **Public awareness and education.** Make people aware of their responsibility to protect themselves. Launch and institutionalize public education campaigns. They should raise awareness about disaster risks, and preventive/preparatory measures that people can act upon. Local media, the formal education system, professional training programmes and NGO activities should be part of the process.
- ▶ **Community-based programmes and solutions.** Consult regularly with community members (especially those most at risk) to identify feasible solutions. Carry out community-based hazard and resource mapping, as a basis for programmes suited to local needs

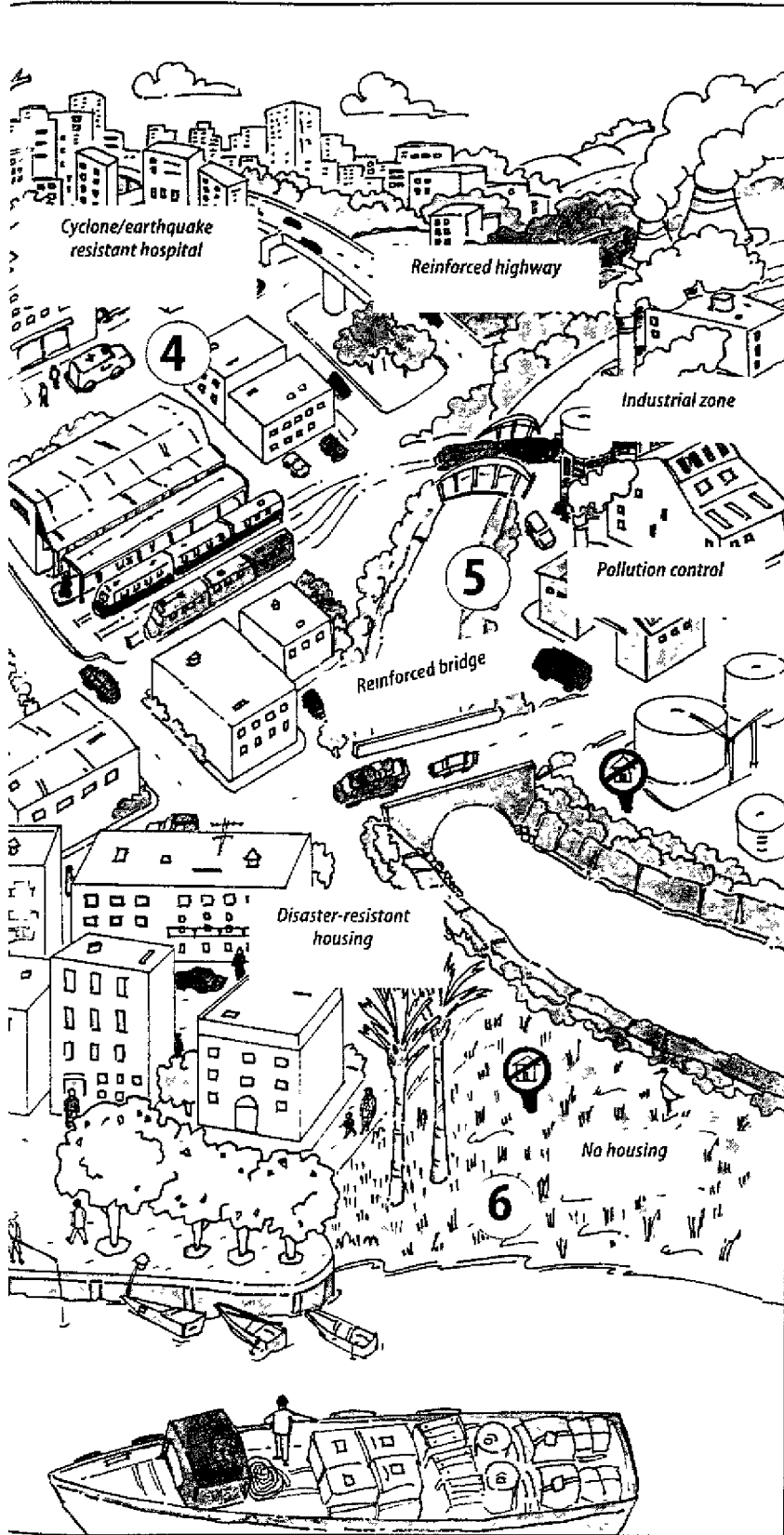
4. Have special programmes for high-risk situations.

Priorities include:

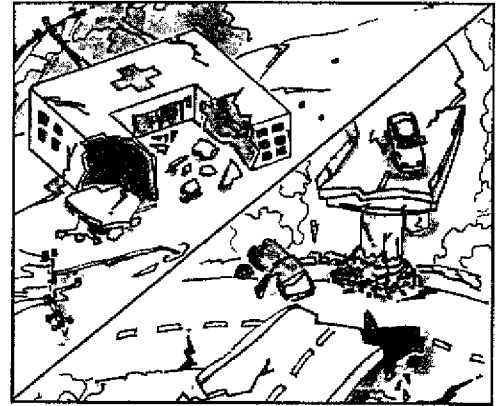
- ▶ **Informal settlements.** Address issues such as land tenure, equity, job creation, provision of basic services
- ▶ **Essential facilities.** (Water, gas, phone, hospitals, schools, community shelters, ...) Retrofit existing buildings. Include disaster-resistant measures in new buildings. Build backup systems. Train personnel providing essential community services for alternative disaster scenarios.
- ▶ **High-risk groups.** Focus on: children, the elderly, handicapped, low-income groups. Sample programmes: targeted education campaigns, income-generating projects, specialized health care, specific construction measures (such as ramps), etc.
- ▶ **Cultural treasures.** Retrofit important architectural sites; secure objects, maintain buildings
- ▶ **Buildings with hazardous substances.** Retrofit and maintain buildings and secure objects. Relocate buildings and/or substances in densely populated residential areas

Adapted from: Disaster Reduction in Urban Areas: IDNDR Secretariat Policy Paper November 1995. Contact the IDNDR Secretariat for the full version of this paper by L. Votawski with G. Pahn

before disaster strikes



Cities at Risk (unsafe practices)



4 Inappropriately built and poorly maintained essential facilities and services.



5 Housing and industry too close to each other. Bad management of industrial wastes. Technological disaster risks.



6 Inappropriately constructed buildings in high risk locations.

Contacts on Urbanization and Disasters

The following organizations can be contacted for further information on various aspects of urbanization and disasters. The list is divided into three parts. The first part contains contacts of relevant organizations which provided information for this publication and/or produced reference materials used in this publication

The second part is a list of city networks which can provide further contacts or information on the topic. The third part is a selected list of organizations which have information about disaster mitigation on the internet.

1. Local, National, International Contacts

This section contains individuals and organizations which were information sources for Cities at Risk (excluding those listed separately in Part II). They include a wide range of professions (health, housing, risk mapping, education, public awareness, etc.) and include a mix of organizations at local, national, regional and international level. Most of the individuals listed provided advice in interviews and/or provided books, articles, conference recommendations, further contacts, etc. In a few cases, organizations were added that were not contacted, but were publishers of recommended materials used in this publication.

Asian Disaster Preparedness Centre
G P O Box 2754
1051 Bangkok, Thailand
Tel: (66 2) 524 5354
Fax: (66 2) 524 5360
E-mail: davholl@ait.ac.th
Contact: David Hollister, Shelter & Urban Development Officer

Australian IDNDR Coordination Committee
P.O. Box 1020, Dickson ACT
2602, Australia
Tel: (61-6) 2665408
Fax: (61-6) 2571490
Contacts: Trevor Hatchard and Susan Whitby

Bogazici University
Kandilli Observatory and Earthquake Research Institute
Department of Earthquake Engineering
81220 Cengelkoy, Istanbul, Turkey
Tel: (90 216) 3326560
Fax: (90 216) 3080163
E-mail: erdik@boun.edu.tr
Contact: Mustafa Erdik, Professor and Chairman

British Geological Survey
Murchison House, West Mains Road
Edinburg EH9 3LA, U.K.
Tel: (44-131) 6671000
Fax: (44-131) 6620216

Bureau de Recherches Géologiques et Minières - SGN/VPE
Savoie Technolac
B.P. 221, 73374 - Le Bourget du Lac
France

Tel: (33) 79253132
Fax: (33) 79253130
Contact: Philippe Masure, Director (Natural Hazards)

Department of Social Welfare and Development
Batasan Pambansa Complex, Constitution Hills
Quezon City, Philippines
Fax: (63-2) 7416939
Contact: Lina Lago, Secretary (Minister)

Egyptian Red Crescent Society
29 El Galaa Street, Cairo, Egypt
Tel: (202) 5750558
Fax: (202) 5740450
Contact: Prof. Mamdouh Gabr, Secretary General

For those seeking additional contacts, please see also Part II of this publication. It contains full contact information for each case example.

For additional contacts in specific countries, IDNDR National Committees (which exist in about 140 countries) can provide more information.

(All lists are in alphabetical order by organization.)

GeoHazards International
Blume Earthquake Engineering Ctr
Stanford, CA 94305-2215, USA
Tel: (1 415) 7233599
Fax: (1 415) 7233624
E mail: tucker@civ.stanford.edu
Contact: Brian E. Tucker, President

INMARSAT
99 City Road
London EC1Y 1AX, UK
Tel: (44-171) 7281382
Fax: (44-171) 5280020
E mail: eugene.staffa@inmarsat.org
Contact: Eugene Staffa, Manager, Disaster, Emergency and Aid Communications

Institution of Mechanical Engineers
Great George Street
Westminster, London SW1P 3AA, U.K.
Tel: (44-171) 2227899
Fax: (44-171) 2224557
Contact: Stuart Mustow

Institution of Civil Engineers
1 Great George Street, Westminster
London SW1P 3AA, U.K.
Tel: (44-171) 8399963
Fax: (44-171) 2331806
Contact: Ian Moore

Inter-Agency Network for Disaster Response
3/E, p/o PBSP, PSDC Bldg.
Real cor. Magallanes Str
Intromutos 1002, Manila, Philippines
Tel: (63-32) 95676
Fax: (63-32) 2311970
Contact: Juan Bienn Huelgas

Intermediate Technology Development Group
Myson House
Railway Terrace
Rugby CV21 3HT, U.K.
Tel: (44-1788) 560631
Fax: (44-1788) 540270
E-mail: itdg@gn.apc.org
Contact: John Twigg

International Association for Earthquake Engineering (IAEE)
Kenchuku Kaikan 3rd Floor
5-26-20 Shiba
Minato-ku
108 Tokyo, Japan
Tel: (81 3) 453 1281
Fax: (81 3) 453 0428
Contact: Prof. Tsuneo Katayama

International Federation of Red Cross and Red Crescent Societies (IFRC)
P.O. Box 372, Geneva 19, Switzerland
Tel: (41-22) 7304222
Fax: (41-22) 7330395
Contact: Yasmin Aysan, Director, Disaster Preparedness Department

International Institute for Environment and Development (IIED)
3 Endsleigh Street, London WC1H 0DD, U.K.
Tel: (44-171) 3882117
Fax: (44-171) 3882826
E-mail: humansiied@gn.apc.org
Contact: David Satterthwaite, Director Human Settlements

International Institute for Environment and Development (IIED America Latina)
(Specialization - squatter settlements)
Avenida Corrientes 2835
Cuerpo A - 6 piso B
1193 Buenos Aires, Argentina
Tel: (54 1) 961 3050
Fax: (54 1) 961 1854

**International Union of
Local Authorities (IULA)**

Wassenaarseweg 39
2595 CG Hague, Netherlands
Tel: (31-70) 3244032
Fax: (31-70) 3246916
Contact: Astrid Van Der Veer

LA RED

PO Box 18-0620
Lima, Peru
Tel/Fax: (5114) 466621
Contact: Andrew Maskrey,
General Coordinator

Mega-Cities Project

The Institution of Civil
Engineers
1 Great George Street, London
SW1P 3AA, U.K.
Tel: (44-171) 2227722
Fax: (44-171) 7991325
Contact: Louis Solway, Project
leader

**National Survey of Seismic
Protection**

Government of the Republic of
Armenia
Davidashen - Massiv IV, 375054
Yerevan, Republic of Armenia
Tel: (7-8852) 282811
Fax: (7-8852) 266813
E-mail
ansysp@adonis.ias.msk.SU
Contacts: Prof. Dr. Sergey
Balassanian, President and Dr
Michael Melkumian

**Natural Hazards Research
and Application Centre**

Institute of Behavioural Science
No. 6 University of Colorado at
Boulder
Campus Box 482, Boulder
Colorado 80309-0482, USA
Tel: (1-303) 492 6818
Fax: (1-303) 492 2151
E-mail:
butler@spot.colorado.EDU
Contact: David L. Butler, Editor,
Natural Hazard Observer

**Office of Disaster
Preparedness**

City of Yokohama, Japan
Tel: (81-45) 6712171
Fax: (81-45) 6411677
Contact: Shizuya Kuriya

**Organization of American
States (OAS)**

Department of Regional
Development, Natural Hazards
Project
1889 F. Street, N.W., Washington
DC 20006, USA
Tel: (1-202) 4586295
Fax: (1-202) 4583560
Contact: Stephen Bender,
Project Chief

**Oxford Centre for Disaster
Studies (OCDS)**

Oxford Brookes University
Gipsy Lane, Headington
Oxford OX3 0BP, U.K.
Tel: (44-1865) 202772
Fax: (44-1865) 516865.
Contact: Dr Ian Davis,
Managing Director

**Pan American Health
Organisation (PAHO/
WHO)**

525, 23rd Street, N W
Washington DC 20037, USA
Tel: (1-202) 861-4325
Fax: (1-202) 775-4578
Contact: Dr. Claude de Ville de
Goyet, Director, Emergency
Preparedness and Disaster
Relief Coordination
Programme

**Prefeitura da Cidade do Rio
de Janeiro**

Coordination of International
Relations and Protocol
Palacio da Cidade, Rua Seo
Clemente, 360,
22260-000 Rio de Janeiro, RJ,
Brazil
Tel: (55-21) 2863040
Fax: (55-21) 2869246
Contacts: Claudio Garcia de
Souza, Coordinator,
International Relations and
Protocol and Maria Isabel de
Vasconcelos Porto Tostes,
Architect, Municipal Secretariat
for Housing, Rio de Janeiro City
Hall

**Prefeitura do Municipio de
Sao Paulo**

Gabinete do Prefeito,
Sao Paulo, Brazil
Contact: Vera Simao, Chief of
Protocol and International
Relations

School of Earth Sciences

Macquarie University, North
Ryde, NSW 2109, Australia
Fax: (61-2) 8509394
Contact: Russell Blong, Director

**Sir Alexander Gibb and
Partners**

Early House, 427 London Road,
Reading, U.K.
Tel: (44-1743) 635000
Fax: (44-1743) 491054
Contact: Scott Steedman

**United Nations Centre for
Human Settlements
(UNCHS)**

PO Box 30030, Nairobi, Kenya
Tel: (254-2) 621234
Fax: (254-2) 624266

**United Nations Centre for
Regional Development
(UNCRD)**

Nagono 1-47-1, Nakamura-ku
Nagoya 450, Japan
Tel: (81-52) 5619377
Fax: (81-52) 5619375
Contact: Mr. Kaji Hideki,
Director

**United Nations Educational
Scientific and Cultural
Organisation (UNESCO)**

7 Place de Fontenoy
75007 Paris, France
Tel: (33-1) 45684120
Fax: (33-1) 45669096
Contact: Mr. Badaoui Rouhban,
Programme Specialist - Bureau
for the Coordination of
Environmental Programmes

University of Tsukuba

Urban Disaster Prevention
Laboratory
1-1-1 Tennoudai, Tsukuba City
Ibaraki 305 - Japan
Contact: Jose Sato

**University of the Western
Cape**

Private Bag X17 Bellville 7535
South Africa
Tel: (2721) 9593243
Fax: (2721) 9593242
E-mail: ifrc@mango.zw
Contact: Ailsa Holloway,
Disaster Mitigation-Sustainable
Livelihoods Programme

U.S. Geological Survey

Office of Earthquakes,
Volcanoes and Engineering
905 National Center, Reston, VA
22092
Tel: (1-703) 6486714
Fax: (1-703) 6486717
E-mail: rhamilto@usgs.gov
Contact: Dr. Robert Hamilton,
Acting Coordinator, Earthquake
Hazards Programme

Wellington City Council

2 Turnbull St. Thorndon
PO Box 2199, Wellington, New
Zealand
Tel: ((644) 4600650
Fax: (644) 4737982
E-mail: Britton_N@wcc.govt.nz
Contact: Dr. Neil Britton, Chief
Adviser, Emergency
Management Office

**World Health Organization
(WHO)**

20 Avenue Appia
CH 1211 Geneva 20,
Switzerland
Tel: (41-22) 7912752
Fax: (41-22) 7914844
Contact: Dr. Samir Ben Yahmed,
Coordinator, Emergency
Preparedness Programme

**World Meteorological
Organization (WMO)**

Case postale 2300
CH-1211 Geneva 2
Switzerland
Tel: (41-22) 7308111
Fax: (41-22) 7342326

2. City Networks

This section provides contact information on international city networks. Some of the headquarters of these networks have information or programmes about urban disaster mitigation. All of these networks have member organizations interested and/or knowledgeable about various disaster mitigation aspects.

Habitat International Coalition (Main Office) (NGO network)

Cordobanes no. 24
COI.-San José Insurgentes
Mexico DF 03900, Mexico
Tel: (525) 5935194
Fax: (525) 5935194
Contact: Enrique Ortiz,
Executive Secretary

Local Authorities Confronting Disasters and Emergencies (LACDE)

Union of Local Authorities in Israel
3 Haftman Street, Tel Aviv,
61200 Israel
Tel (972) 36955024
Fax (972) 36967447

International Council for Local Environmental Initiatives (ICLEI)

City Hall, East Town, 8th floor
Toronto, Ontario M5H 2N2,
Canada
Tel. (1-613) 4163921462
Fax: (1-613) 4163921478

International City Management Association (ICMA)

777 N. Capital Street
Suite 500, N. E.
Washington D.C. 20002
USA
Tel. (1-202) 289-4262
Fax: (1-202) 9623500
Contact: Don Geis

International Federation for Housing and Planning (IFHP)

43 Wassenaarseweg
2596 CG The Hague
Netherlands
Tel: (31-70) 3244557
Fax: (33-70) 3282085
Contact: Marten Block,
Secretary General

International Society of City and Regional Planners (ISOCARP)

Mauritskade 23
2514 HD Den Hague,
Netherlands
Fax (3170) 3617909
Contact: Hein Struben, Vice
President

Metropolis

World Association of Megacities
61 rue de Babylone
75007 Paris
France
Tel: (33-1) 53856262
Fax: (33-1) 53856269

United Towns Organization (UTO)

22, rue d'Alsace
92532 Levallois-Perret, Cedex
France
Tel (33-1) 47393686
Fax: (33-1) 47393685
Contact: Jorge Sampaio

3. Internet Addresses for Disaster Mitigation

The following is a selection of internet addresses with information about disaster mitigation. Urban disaster mitigation issues are sometimes addressed. The addresses are drawn from IDNDR Secretariat sources and the following publication: *IDNDR -- Disaster Mitigation, Preparedness and Response. An Audit of UK Assets* (D. Sanderson, I. Davis, J. Twigg, B. Cowden), Oxford Centre for Disaster Studies in association with Intermediate Technology, 1995.

Emergency Preparedness Information Exchange (EPIX)

<http://hoshi.cic.sfu.ca/epix>

Environmental Organisation Web Division - Disasters

<http://www.wcb.directory.com/disasters>

Global Emergency Management Disaster Counselling Support Network

<http://tin.ssc.plym.ac.uk/gemc.html>

International Decade for Natural Disaster Reduction

<http://hoshi.cic.sfu.ca/hazard/idnдр.html>

Natural Hazards Research and Applications Information Centre, University of Colorado

<http://adder.colorado.edu/hazctr/home.html>

Quipunet

PO Box 4334, South Colby, WA
98384-0334, USA

E mail:
delgado@bach.taisei.co.jp
Contact: Alberto Delgado

US Agency for International Development (USAID)

<http://www.info.usaid.gov>

US Federal Emergency Management Agency (FEMA)

<http://www.fema.gov>

US National Oceanographic Administration (NOAA)

<http://hoshi.cic.sfu.ca/hazard>

Volunteers in Technical Assistance (VITA)

<http://www.vita.org>

References (Part One & Part Three)

(References and contacts for Part Two are indicated at the end of each case example)

Part One: Why Focus on Disasters in Cities?

Footnote sources:

1. Havlick, Spencer W., "Third World Cities at Risk, Building for Calamity", in *Environment*, Vol. 28, Number 9, November, 1986
2. Fischer, Henry W., "What emergency management officials should know about the media to enhance mitigation & effective disaster response", in: *Proceedings of the 2nd International Conference 'Local Authorities confronting Disasters and Emergencies'* 22-24 April, 1996

An Overview of Natural Hazards and Urban Concerns

Information drawn from the following sources:

- Alexander, David, *Natural Disasters*, UCL Press, London, 1993.
- DHA/UNDP Disaster Management Training Programme, *An Overview of Disaster Management*, 2nd edition, 1992.
- Dolan, Chris, *Hazard-Wise* Classroom Resources for Teachers on Natural Hazards and Disasters, Emergency Management Australia, 1995
- Domersen, Natalie, *Learning About Natural Disasters*, IDNDR Secretariat, Stop Disasters Special Issue, 1995.
- ICE (Institution of Civil Engineers), *Megacities, reducing vulnerability to natural disasters*, Thomas Telford Publications, London, 1995.
- Wijkman, Anders and Timberlake Lloyd, *Natural Disasters: Acts of God or Acts of Man?*, London, Earthscan, 1984

Rapid Urbanization Increases Disaster Risk

Footnote sources:

1. Masuro, Philippe, 'Risk Management and Preventive Planning in Mega-Cities: A Scientific Approach for Action', in *Regional Development Dialogue (RDD)*, vol. 15, No. 2, Autumn 1994.
2. UNCHS, *Global Report on Human Settlements 1996*, Oxford University Press, 1996
3. UNFPA, *The State of the World Population 1993*, United Nations Population Fund, 1993
4. UNCHS, *Global Report on Human Settlements 1996*, Oxford University Press, 1996.
5. Linden, Eugene, "The Escaping Cities of the Developing World", in *Foreign Affairs*, Jan/Feb, 1996
6. UNFPA, *The State of the World Population 1993*, United Nations Population Fund, 1993
7. Ibid
8. UNCHS, *Global Report on Human Settlements 1996*, Oxford University Press, 1996
9. Masuro, Philippe, 'Risk Management and Preventive Planning in Mega-Cities: A Scientific Approach for Action', in *Regional Development Dialogue (RDD)*, vol. 15, No. 2, Autumn 1994.
10. Munich Reinsurance, Annual Report, 1993.
11. Blaikie, P., Cannon, T., Davis, I. and Wisner, B., *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, Routledge, London, 1994.
12. OAS, *Primer on Natural Hazard Management in Integrated Regional Development Planning*, Department of Regional Development and Environment, OAS, Washington, D.C., 1990.
13. Cruz, A. M. F., *Vulnerability Study, Seismic Risk and Reinforcement of Hospitals in Costa Rica*, Paper presented at the International Conference on Disaster Mitigation in Health Facilities, Mexico City, 26-28 February 1996

What Makes Cities Vulnerable to Disasters?

Information drawn from the following sources:

- Blaikie, P., Cannon, T., Davis, I. and Wisner, B., *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, Routledge, London, 1994.
- ICE (Institution of Civil Engineers), *Megacities: reducing vulnerability to natural disasters*, Thomas Telford Publications, London, 1995
- Vrolijk, L. and E. Palm, *Disaster Reduction in Urban Areas*, Policy paper by the Secretariat of the International Decade for Natural Disaster Reduction, November 1995.
- Pan-American Health Organization/WHO, *A World Safe from Natural Disasters - The Journey of Latin American and the Caribbean*, 1994
- World Bank, *Environmental Management and Urban Vulnerability*, World Bank Discussion Papers No 168, Alicia Kremer and Mohan Munasinghe (ed.), Washington, D.C., 1992.
- UNCRD/UNDDSMS, *The Effects of Disasters on Modern Societies*, World Conference on Natural Disaster Reduction, Yokohama, Proceedings of the Technical Committee Session C, 1994.

How Disasters Affect Urban Areas, Large and Small

Footnote sources:

1. Population statistics are indicative only. Sources include Geneva-based diplomatic consulates, United Nations Population Fund and The State of World Population 1993.
2. Statistics for specific disasters were drawn from:
OFDA, *Disaster History: Significant Data on Major Disasters Worldwide, 1900-present*, Washington, D.C., June 1995
Munich Re, Topics: Natura! Catastrophes, *Annual review of natural catastrophes 1994*
World Bank, *Environmental Management and Urban Vulnerability*, World Bank Discussion Papers No 168, Alicia Kremer and Mohan Munasinghe (ed.), Washington, D.C., 1992

The Urban Poor are Most Vulnerable

Footnote sources:

1. ICE (Institution of Civil Engineers) *Megacities: Reducing Vulnerability to Natural Disaster*, Institution of Civil Engineers, Thomas Telford Services Ltd, 1995
2. Spencer Havlick "Building for Calamity", in: *Environment*, Vol. 28, November 1986
3. Blaikie, P., Cannon, T., Davis, I. and Wisner, B., *At Risk: Natural Hazards, People's Vulnerability, and Disasters*, Routledge, London, 1994
4. de Perez, Maria Oiga, based on a study by the University of San Carlos, Guatemala
5. Comparative analysis provided by H. Molin Valdes, IDNDR Regional Officer, on the basis of interviews in Guatemala City in 1995 and 1996

Natural/ Technological Disasters: Few Plans to Meet a Growing Threat

Footnote sources:

1. Wijkman, Anders and Timberlake Lloyd, *Natural Disasters. Acts of God or Acts of Man?*, London, Earthscan, 1984.
2. Quarantelli, F.L., "Projecting disasters in the 21st Century from present trends", in *Proceedings from the 2nd International Conference 'Local Authorities confronting Disasters and Emergencies'*, Amsterdam 22-24 April, 1996.
3. Selvadurai, Guna, *Corporate Earthquake Programs - Differences and Similarities between the USA and Japan*, Paper presented at the First U.S. - Japan Conference on Corporate Earthquake Programs, Sept. 24-26, 1991.
4. Silva, Christie, "Development-Promoted Technological Hazards to the Environment", in *Stop Disasters*, Number 27, 1/1996.
5. Quarantelli, E.L., "Projecting disasters in the 21st Century from present trends", in *Proceedings of the 2nd International Conference 'Local Authorities confronting Disasters and Emergencies'*, 22-24 April, 1996.

Contributors

Creative Direction, Writing: Natalie Domeisen
Research Management/Technical Advice: Elina Palm
Art Direction, Design, Layout: Marilyn Langfeld
Illustrations: Janet Petutpierre
Main Technical Advisor: Luc Vrolijk
Regional Advisor (Latin America/Caribbean): Helena Molin Valdes
Research Assistance: Rekha Gupta
Contrasto Sponsorship Management: Armando Mauro
Photo Research: Elina Palm, Natalie Domeisen
Operations Coordination: Armando Mauro
Promotion: Natalie Domeisen, Elina Palm

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Direttore Responsabile: Raffaele Corsica

Part Three: Where Do We Go From Here?

Policies for Safer Cities

Information drawn from the following sources:

- IDNDR Secretariat, *Disaster Reduction in Urban Areas*, Policy paper by the Secretariat of the International Decade for Natural Disaster Reduction (IDNDR), November 1995.
- Comments on IDNDR Secretariat Policy paper, by Mustafa Erdik, member of the IDNDR Scientific and Technical Committee, Professor and Chairman, Department of Earthquake Engineering, Bogazici University, Kandilli Observatory, Istanbul, August 1995.
- General conclusions from the Workshop 'Towards a City for Life - Latin America, the Caribbean and Habitat II', Quito 14-16 November 1995.
- ICE (Institution of Civil Engineers), *Megacities. Reducing Vulnerability to Natural Disaster*, Institution of Civil Engineers, Thomas Telford Services Ltd, 1995.
- First Latin American Conference 'Local Authorities confronting Disasters and Emergencies', *Santiago Declaration*, Santiago, Chile, April 1996.

► Contributors for each case example can be found in Part Two.

► Acknowledgement to all IDNDR Secretariat professional staff, who reviewed drafts, and provided contacts, references, information and administrative support; and to the following colleagues at the UN Department of Humanitarian Affairs who provided advice: John Tomblin, Nikolai Solomatini, Dusan Zupka, Masayo Kondo (Disaster Mitigation Branch); Ricardo Mena (DHA Regional Advisor); Maria Keating (Inter-Agency Support Branch)

► Advice and/or materials were also received from a wide variety of IDNDR partner organizations and are gratefully acknowledged. Contact information from these sources can be found in the first section of the Contacts chapter of this publication.

About the International Decade for Natural Disaster Reduction

As we approach the twenty-first century, population growth, ecological damage, rapid industrialization and socio-economic imbalances make the risk of major disasters around the world higher than ever. We need not, however, be fatalistic about the vagaries of nature.

To make people aware of how they can do to make themselves safer from natural disasters, the United Nations launched the International Decade for Natural Disaster Reduction (IDNDR, 1990-2000). The World Conference on Natural Disaster Reduction (Yokohama, 23-27 May 1994) was an important milestone in IDNDR's awareness-building process.

IDNDR works through IDNDR National Committees and Focal Points which exist in 138 countries. The IDNDR secretariat, located in Geneva, is part of the UN Department of Humanitarian Affairs. The IDNDR Scientific and Technical Committee is an advisory body of 25 experts from various fields. A UN inter-agency group works regularly with the IDNDR secretariat, as well as a contact group of Geneva-based diplomatic missions.

IDNDR publishes a quarterly magazine, STOP Disasters, and conducts an annual promotional campaign which culminates on the second Wednesday of each October, designated as the International Day for Natural Disaster Reduction.

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International Decade for Natural Disaster Reduction (IDNDR) Secretariat

UN Department of Humanitarian Affairs

Palais des Nations

1211 Geneva 10

Switzerland

Tel: (41 22) 798 6894, Fax: (41 22) 733 8695

E-mail: idndr@dha.unicef.org

Regional IDNDR Office, Latin America/Caribbean

Apartado 3745-1000

San José, Costa Rica

Tel: (506) 257 2141, Fax: (506) 257 2139

E-mail: pedcor@sol.racsa.co.cr

International Institute Stop Disasters

Via di Pozzuoli 110, 'Villa Medusa'

80124 Naples, Italy

Tel/Fax: (39 81) 570 6340