

防災と自然災害に強い社会構築  
のための国際活動の成果と課題

Achievements and Challenges in  
International Activities for Disaster  
Risk Reduction and Building  
Resilience to Natural Hazards

International Memorial Symposium on  
“Protecting Lives from Earthquake and Tsunami Disasters”  
BRI/GRIPS/UNESCO, Sokairo-Hall of GRIPS  
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[www.irdrinternational.org](http://www.irdrinternational.org), [www.preventionweb.net](http://www.preventionweb.net), [www.unisdr.org](http://www.unisdr.org)

全体構成  
Overview

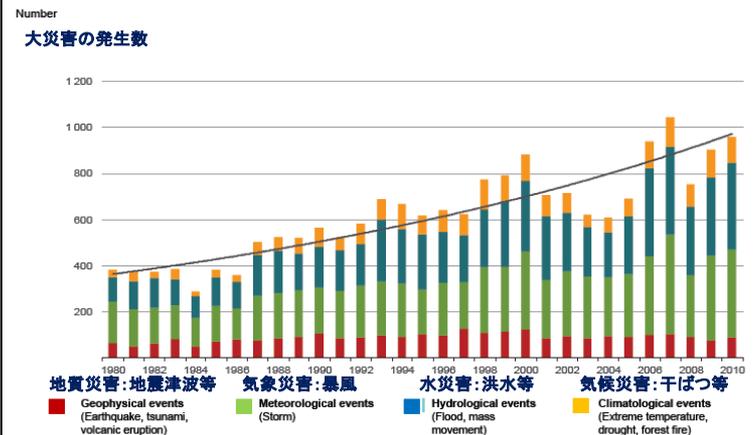
- I Global data and trends on “natural “ disasters, understanding key concepts  
「自然」災害の世界データと傾向、主な概念の理解
- II Key international instruments: UN International Strategy for Disaster Reduction and its Hyogo Framework for Action (2005-2015), and Integrated Research on Disaster Risk  
主な国際的しくみ: 国連国際防災戦略の兵庫行動枠組(2005-2015)と防災重点研究
- III Climate change, a main disaster reduction issue  
気候変動、重要な防災の課題

「自然」災害の世界データと傾向、  
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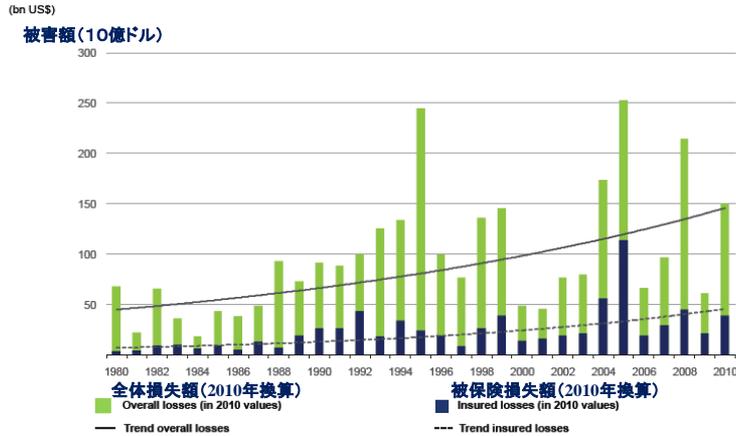
- I Global data and trends on “natural “ disasters, understanding key concepts

1980-2010年の世界の大きな自然災害: 発生数と傾向

Natural catastrophes worldwide 1980 – 2010  
Number of events with trend



1980-2010年の世界の大きな自然災害： 全体と保険の傾向  
Natural catastrophes worldwide 1980 – 2010  
Overall and insured losses with trend



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世界の大きな自然災害 1980-2010： 全体損失額の上位10災害

Significant natural catastrophes worldwide 1980 – 2010  
10 costliest natural catastrophes ordered by overall losses

期間 Period	災害 Event	影響地域 Affected Area	全体損失	被保険分	死者数 Fatalities
			Overall losses	Insured losses	
			百万米ドル US\$ m, original values		
25-30.8.2005	Hurricane Katrina カトリーナ	USA: LA, New Orleans, Slidell; MS, Biloxi, Pascagoula, Waveland, Gulfport	125,000	62,200	1,300
17.1.1995	Earthquake 阪神・淡路	Japan: Hyogo, Kobe, Osaka, Kyoto	100,000	3,000	6,400
12.5.2008	Earthquake 四川地震	China: Sichuan, Mianyang, Beichuan, Wenchuan, Shifang, Chengdu, Guangyuan, Ngawa, Ya'an	85,000	300	84,000
17.1.1994	Earthquake ノースリッジ	USA: Northridge, Los Angeles, San Fernando Valley, Ventura, Orange	44,000	15,300	60
6-14.9.2008	Hurricane Ike イクエ	USA: Cuba, Haiti, Dominican Republic, Turks and Caicos Islands, Bahamas	38,300	18,500	170
May-September 1998	Floods 中国水害	China: Jangtsiekiang, Songhua Jiang	30,700	1,000	4,200
27.2.2010	Earthquake, tsunami チリ地震	Chile: Bio Bio, Concepción, Talcahuano, Coronel, Dichato, Chillán, Del Maule, Talca, Curicó	30,000	8,000	520
23.10.2004	Earthquakes 中越地震	Japan: Honshu, Niigata, Ojija, Tokyo, Nagasaki, Yamakoshi	28,000	760	50
23-27.8.1992	Hurricane Andrew アンドリュー	USA: FL, Homestead; LA, Bahamas	26,500	17,000	60
27.6-13.8.1996	Floods 中国水害	China: Guizhou, esp. Guiyang; Zhejiang; Sichuan; Hunan; Anhui; Jiangxi; Hubei; Guangxi; Jiangsu	24,000	445	3,050

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17.1.1994	Earthquake ノースリッジ	USA: Northridge, Los Angeles, San Fernando Valley, Ventura, Orange	44,000	15,300	60
7-21.9.2004	Hurricane Ivan	USA: Trinidad and Tobago, Venezuela, Colombia, Mexico	23,000	13,800	130
19-24.10.2005	Hurricane Wilma	USA, Bahamas, Cuba, Haiti, Jamaica, Mexico	22,000	12,500	40
20-24.9.2005	Hurricane Rita	USA: LA, Lake Charles, Holly Beach, Cameron, New Orleans; MS; TX, Houston	16,000	12,100	10
27.2.2010	Earthquake, tsunami チリ地震	Chile: Bio Bio, Concepción, Talcahuano, Coronel, Dichato, Chillán, Del Maule, Talca, Curicó	30,000	8,000	520
11-14.8.2004	Hurricane Charley	USA: Cuba, Jamaica, Cayman Islands	18,000	8,000	40
26-28.9.1991	Typhoon Mireille, 1991台風	Japan: Kyushu, Hokkaido, Hakata	10,000	7,000	60

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世界の大きな自然災害 1980-2010： 死者数の上位10災害

Significant natural catastrophes worldwide 1980 – 2010  
10 deadliest events

期間 Period	災害 Event	影響地域 Affected Area	全体損失	被保険分	死者数 Fatalities
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12.1.2010	Earthquake ハイチ地震	Haiti: Port-au-Prince, Petionville	8,000	200	222,570
26.12.2004	Earthquake, tsunami インド洋津波	Sri Lanka, Indonesia, Thailand, India, Bangladesh, Myanmar, Maldives, Malaysia	10,000	1,000	220,000
2-5.5.2008	Cyclon Nargis ナルギス	Myanmar: Ayeyawaddy, Yangon, Bugealay, Irrawaddy, Bago, Karei, Mon, Laputta, Haing Kyi	4,000		140,000
29-30.4.1991	Tropical cyclon バンダラ1991	Bangladesh: Bay of Bengal, Cox's Bazar, Chittagong, Bala, Noakhali districts, esp. Kutubdia	3,000		139,000
8.10.2005	Earthquake ガンジール地震	Chikistan, India, Afghanistan	5,200		88,000
12.5.2008	Earthquake 四川地震	China: Sichuan, Mianyang, Beichuan, Wenchuan, Shifang, Chengdu, Guangyuan, Ngawa, Ya'an	85,000	300	84,000
July-August 2003	Heatwave, drought 欧州熱波	France, Germany, Italy, Portugal, Romania, Spain, United Kingdom	13,800	20	70,000
July-Sept. 2010	Heatwave, drought ロシア熱波	Russia	2,000	20	56,000
21.6.1990	Earthquake イラン地震	Iran: Caspian Sea, Gilan Provinz, Manjil, Rudbar, Zanjan, Sefid, Qazvin	7,100		40,000
8-19.12.1999	Floods, flash floods 南米水害	Venezuela: Vargas, La Guaira Punta de Mulatos, Miranda, Nueva Esparta, Yaracuy, Kolumbien	3,200	220	30,000

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## 災害リスク軽減(防災)とは何か？

### What is Disaster Risk Reduction (DRR)?

方法と手段からなる概念的枠組み

- A conceptual framework consisting of ways and means:

脆弱性を減らし能力を増やす災害リスクの最小化

- To minimize disaster risks (hence, loss of lives, livelihoods and property) by reducing the degree of vulnerability and increasing resilience capacity
- To avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of natural hazards with a sustainable development approach

持続可能な開発アプローチで危険要因を避けるか制限すること



## 世界の傾向 — 災害は自然(現象)ではない

### Global Trends - Disasters are NOT natural

自然または人為的な危険要因(ハザード)、気候変動など  
Greater exposure to natural and human-induced hazards, climate change and variability

危険要因+極端事象  
HAZARDS + EXTREME EVENTS

社会経済的: 貧困、無計画な成長、リスク認識欠如など

Socio-economic: poverty & unsustainable development styles, unplanned urban growth and migrations, lack of risk awareness & risk governance institutions & accountability...

物理的: 不十分な土地利用、危険地域の住宅建設など

Physical: insufficient land use planning, housing & critical infrastructure in hazard prone areas, little safety awareness...

生態系悪化と自然資源の枯渇 (マングローブ、湿地など)

Ecosystem & natural resource depletion (coastal -coral reefs, mangroves..., mountains, watersheds, wetlands, forests...)



## 防災ビジョン: 持続可能な開発に向けたレジリエントな社会構築

### The vision of disaster risk reduction: Building resilient communities towards sustainable development

持続可能性の6つの原則

The six principles of sustainability

[www.colorado.edu/hazards/publications/informer/informer3c.htm](http://www.colorado.edu/hazards/publications/informer/informer3c.htm)



## これまでの災害に対する認識とアプローチ

### Traditional perceptions and approaches on disasters... priorities have been and still are...

人々のあきらめ

- Public fatalistic perception: « natural » disasters = acts of god = focus on preparedness for response, not understanding disasters as a human creation through wrong or incomplete development, not focused on building resilience and reducing human and social vulnerability, as it has happened in health and accidents prevention, among other hazards
- Governance & policy processes focused on preparing for the emergency and the short-term: 短期・緊急対応が政策の中心
  - EMERGENCY MANAGEMENT: disaster management & humanitarian action: politically sensitive, « CNN syndrome » with DRR still a small complementary/secondary function
  - SECTORIAL AND SHORT-TERM development with policy integration, long-term sustainable development vision and holistic approach still mainly theoretical
- Fragmented knowledge transmission in academic institutions: NATURAL SCIENCES, ECONOMICS & QUANTITATIVE ANALYSIS and not enough social sciences, psychology, anthropology, sociology, communications, management and leadership, ethics, governance, « new economics »... or knowledge-based and applied research (DRIP syndrome)

学術の世界での断片的な知識の伝達

## 2つの主要文書

### Two key documents

自然のハザード、自然でない災害(人災) 世界銀行  
*Natural Hazards, Unnatural Disasters – The Economics of Effective Prevention* by World Bank and ISDR system

- 様々な防災政策・対策のコスト便益分析、防災に関する幅広い影響など
- Evaluates economic arguments related to DRR, through a cost-benefit analysis of different DRR policies and measures
  - Influences the broader thinking related to disaster risk, awareness of the potential to reduce the costs of disasters, and guidance on the implementation of disaster risk-reducing interventions
  - The study was issued in Nov 2010 and is available at: <http://www.gfdrr.org/gfdrr/nhud-home>

2011 世界災害リスク軽減評価報告書  
*2011 Global Assessment Report on Disaster Risk Reduction by ISDR system partners*

- 2011年5月の第3回グローバルプラットフォームで発表、新しいアプローチを含む
- Report was launched at the 3rd session of the Global Platform for DRR, Geneva, 8-13 May 2011
  - It contains new approaches, mainly requesting for radical reform of institutional mechanisms for managing risk among other
  - Available at [www.preventionweb.net](http://www.preventionweb.net) and [www.unisdr.org](http://www.unisdr.org)

主な国際的しくみ： 国連国際防災戦略の  
兵庫行動枠組(2005-2015)と防災重点研究

II Key international instruments: UN International Strategy for Disaster Reduction and its Hyogo Framework for Action (2005-2015), and Integrated Research on Disaster Risk

## 減災 — 進行中の事項

### Disaster Reduction – An Agenda in Progress

#### 国際防災の十年

1989: IDNDR 1990-1999 – *promotion of disaster reduction, scientific development*  
1994: 1<sup>st</sup> WCDR - Yokohama Strategy and Plan of Action – *Mid-term review IDNDR, first disaster reduction policy guidance*  
1998: UNDP inherits DRR function from DHA (former OCHA) for supporting capacity development on DRR at national level  
2000: International Strategy for Disaster Reduction (ISDR) – *for increased public awareness, link to sustainable development, enlarged coordination at int'l and regional levels, networking and partnerships ISDR secretariat, UN Trust Fund*  
2002: Johannesburg Plan of Implementation- WSSD Includes a new section on "An integrated, multi-hazard, inclusive approach to address vulnerability, risk assessment and disaster management..."  
2005: 2<sup>nd</sup> WCDR - Hyogo Framework for Action 2005-2015: *Building the Resilience of Nations and Communities to Disasters*  
2007: 1<sup>st</sup> session Global Platform for Disaster Risk Reduction (GP2007) *Monitor HFA progress, facilitate further actions and partnerships, take stock, identify gaps and obstacles and share lessons and good practices*  
2009: 2<sup>nd</sup> session Global Platform for DRR (GP2009) *Monitor HFA progress, identify gaps and priorities*  
2010: *Mid-term review of the HFA and links with CC Adaptation COP-16, MDGs 2010 review and 2012 Sustainable Development Rio Summit*  
2011: 3<sup>rd</sup> session Global Platform for DRR (GP2011, Geneva, 8-13 May 2011) *Monitor HFA progress, identify gaps and priorities; 4<sup>th</sup> session, Geneva, 19-23 May 2013...*

第3回グローバルプラットフォーム、第4回は2013年5月19日ー23日

## 減災のための国際戦略

### International Strategy for Disaster Reduction

国際防災の10年IDNDR1990-1999を継承する国連総会決議A/54/219により開始

Launched in 2000 by UN General Assembly Resolution A/54/219 as successor of the International Decade on Natural Disaster Reduction – IDNDR, 1990-1999:

The ISDR aims at building disaster resilient communities by promoting increased awareness of the importance of disaster reduction as an integral component of sustainable development, with the goal of reducing human, social, economic and environmental losses due to natural hazards and related technological and environmental disasters.

事務局長





## 減災 — 進行中の事項 (つづき)

### Disaster Reduction – An Agenda in Progress, cont...

次なる挑戦 2015年とそれ以降

#### Next challenges, to 2015 & beyond...

より強力なリスク・ガバナンスの仕組み

- **Stronger risk governance institutions**, including integration of DRR into various sectors: issue management; team building; stronger local implementation with greater participation, decentralization, transparency and accountability at all levels...
- **DRR recognized as urgent first step for CC adaptation** in successor agreement to Kyoto Protocol (Doha 2012...), urgency to start planning for future relocations due to sea-level rise, glacier melting and water pressures...
- **Hazard risk as essential requirement in MDGs and future SDGs (UNCSD, Rio+20) & development planning & sectors (land-use, urban & sectorial planning)**

防災を気候変動適応の緊急な第一段階と認識すること

危険要因をミレニアム開発目標や将来の持続可能な開発目標の基本要素事項とすること

## 減災 — 進行中の事項 (つづき)

### Disaster Reduction – An Agenda in Progress, cont...

危険要因の削減を基本的な生態系サービスと認識

- **Hazard risk reduction recognized as essential ecosystem service** by environmental policies & legislation
- Greater awareness-raising programmes for wider public understanding of risk & vulnerability, in particular of **building safety for homes, schools, offices...**; 住宅、学校事務所の建築安全性
- **Greater leadership by high-level authorities** in public & private sectors & civil society to ensure a paradigm shift; risk knowledge, a regular feature in educational programmes at all levels, same as health or traffic prevention... 上級機関の指導性の発揮
- Enhanced **ethical perspective of disasters & risk reduction** as part of sustainable development (6 sustainability principles), including rights-based approach, accountability & transparency for disaster losses & impacts, participation, decentralisation. 防災の倫理的展望
- **Urgency in building resilience** in those countries whose **economy & trading capacity** are dependent on exports that are especially affected by recurrent natural hazards such as tropical storms, floods or drought  
輸出経済や貿易に依存する国の特に洪水などへの緊急な備え

## ICSU/ISSC/ISDR災害リスク計画の重点研究: 主な質問と反応

### The Integrated Research on Disaster Risk

#### programme of ICSU/ISSC/ISDR

#### Key questions and a response:

- Why, despite advances in the natural and social science of hazards and disasters, do losses continue to increase?  
The IRDR Science Plan: addressing the challenge of natural and human-induced environmental hazards with an integrated approach to research on disaster risk through: an international, multidisciplinary (natural, health, engineering and social sciences, including socio-economic analysis) collaborative research programme. To be found at:
- To what extent is the world-wide growth in disaster losses a symptom and indicator of unsustainable development?  
科学の進歩にも関わらず、なぜ被害は増え続けるのか

どの程度世界の災害被害額は持続可能な開発の現象であり、またその指標となるのか

**IRDR Science Plan at:**  
[www.irdrinternational.org/](http://www.irdrinternational.org/)

## 災害調査の論点

### Forensic Disaster Investigations – FORIN & IRDR Legacy

- Probe further into complex and underlying causes of growing disaster loss
- Fundamental cause of disasters
- Trace out and assign causal explanation of losses
- Intervening conditions that increased or reduce losses
- Series of case studies
- Common template and methodology as a standard for research on disaster risk
- An enhanced capacity around the world to address hazards and make informed decisions on actions to reduce their impacts.  
世界のハザード対策や実行能力の向上
- Societies to shift focus from response-recovery towards prevention-mitigation, building resilience and reducing risks, learning from experience and avoiding past mistakes.  
事後対応・復興から事前予防・強化・減災へ

## 気候変動、重要な防災の課題



### III Climate change, a main disaster reduction issue

## 気候変動と災害リスク

### Climate change and disaster risks

- より激しい事象は既に証拠がある(IPCC評価)
1. Evidence of more extreme events already found (IPCC Assessments) – temperatures rising, loss of glaciers and polar ice, droughts, heavy rainfall, heat and cold waves, stronger tropical cyclones, floods...
  2. 海面上昇に対し、人口集中デルタや開発途上島嶼国(SIDS)が最も危険である  
Populated deltas as well as small island developing states (SIDS) are most at risk to sea-level rise
  3. Impacts in 3 ways: (i) more extreme events (increased frequency and intensity) in same areas (ii) more extreme events in new areas, not prepared for them and (iii) new impacts from sea level and temperature rise, glacier melting and greater stresses on ecosystems and water  
3通りの影響 i)より激しい事象、ii)新しい場所での事象、iii)新しい事象 がある
  4. 災害リスクの増加は、基本的に開発の実施に伴い生じる  
Increasing disaster risk is primarily due to development practices

## 災害リスク軽減のための気候政策

### Climate policy to reduce disaster risks

- 2007年COP13のバリ行動計画に防災が含まれる
1. UNFCCC COP 13 2007 Bali Action Plan proposed “risk management and risk reduction strategies, including risk sharing and transfer mechanisms”... and ... “disaster reduction strategies and means to address loss and damage in developing countries”...
  2. 2010年COP16で気候変動対策と防災の合意を確認(合意は前年のCOP15)した  
UNFCCC Ad-hoc Working Group on Long-term Cooperative Action agreed on DRR & HFA for CC adaptation at 2009 COP 15 Copenhagen, confirmed at 2010 COP 16 Cancun Adaptation Framework and Durban 2011...
  3. 防災は国家の開発計画や気候変動適応計画で有効である  
Disaster risk reduction & CC adaptation have the most leverage when placed at the centre of national development planning, DRR still to be integrated in national CC adaptation plans (NAPAs & other), & in criteria for all adaptation funding
  4. IPCC 2012 気候変動適応を進めるための極端事象と災害のリスク管理特別報告(SREX)  
IPCC 2012 Special Report on Managing the Risk of Extreme Events & Disasters to advance CC Adaptation (SREX), available at <<http://ipcc-wg2.gov/SREX/>>

- **Climate change and disaster risk are intertwined issues** 気候変動と災害は結合
- **Important opportunity to achieve reductions in disaster risk** 災害軽減の重要な機会
- **HFA as an important available tool for adaptation to climate change and other hazards (earthquakes, etc.)** 気候地震等に有効 HFA
- **ISDR, IRDR, GFDRR, GNDR in place, more partnerships to take actions and work together** 関係組織はより多く連携

## 結論としてのいくつかの反省

### Some reflections as conclusions

- Need to avoid using « natural » disasters and use instead 'natural hazards' and 'disasters' or preferably, 'disasters caused by vulnerability to natural hazards' or 'disasters triggered by natural hazards'... 「自然」災害と言わず「自然ハザード」や「災害」を使う
- Need to promote and develop a policy focus on risk reduction and management (prevention, mitigation, preparedness) as essential requirement for SD, also of interest to private sector for ensuring business continuity, not only as CSR 減災に焦点をあてる
- Use comparisons with health prevention policies for advocacy and policy-making 運動の提唱や政策決定で、健康予防政策を比較参考にする
- A main common objective of DRR and CCA policies is to advocate for the urgent need to reduce risk and vulnerability to current climate variability as a first step or basis for adaptation to the longer-term effects of CC... 防災と気候変動適応政策は共通目的がある

ありがとうございます

**THANK YOU**

[www.irdrinternational.org](http://www.irdrinternational.org)

[www.preventionweb.net](http://www.preventionweb.net)

[www.unisdr.org](http://www.unisdr.org)

[www.globalquakemodel.org](http://www.globalquakemodel.org)