

International Memorial Symposium  
"Protecting Lives from Earthquake and Tsunami Disasters"  
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## 自然災害による人命損失を減らす国際協力 International cooperation to reduce the loss of lives due to natural disasters

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国際社会が防災の関与を表明すればするほど、災害でより多くの人々が亡くなる。  
The more international communities express their commitment  
for disaster reduction, the more people are killed by disasters

最近30年間の死者数の多い災害 上位10  
10 most deadly disasters in the last 30 years

Nation	Disaster	Year	Death
Armenia	Earthquake	1988	25,000
Iran	Earthquake	1990	35,000
Bangladesh	Cycl/flood	1991	140,000
Venezuela	Flood	1999	30,000
Iran	Earthquake	2003	27,000
Indonesia, others	Eq/tsunami	2004	280,000
Pakistan	Earthquake	2005	80,000
Myanmar	Cycl/flood	2008	130,000
China	Earthquake	2008	90,000
Haiti	Earthquake	2010	230,000

国連などの国際的活動

UN and International activities

UN/IDNDR: 1990 -1999  
1994: Yokohama Principles  
横浜戦略

UN/ISDR: 2000 -  
2005: Hyogo Framework  
for Action 2005-2015  
兵庫行動枠組

- Deadly disasters occur in developing countries (10/10)
- Deadly disasters occur mostly in Asia (7/10)
- Deadly disasters are mostly caused by earthquakes (7/10)
- Deadly disasters have been increasing (6 in 2000's)

## 災害による人命の損失は、いかに軽いのか Human lives lost by disasters: how cheap?

「一人の死者は悲劇だが、百万人の死者は統計である。」(スターリン)  
"One death is a tragedy. A million of deaths are statistics."  
(Stalin)

Thousands of tragedies behind thousands of deaths.

- 人命の経済的価値は、災害による経済被害額に含まれていない。  
Economic value of human lives are not included in the economic loss due to disasters

Economic loss of 3.11 Great East Japan Earthquake: Total 17 trillion yen (Value of lost human lives: zero)

「市民の生命を守る」ことは政府の最高の優先事項である。

- "To protect the lives of citizens" is the highest priority of the governments.  
Are governments making every effort to protect people's lives from disasters?

## 防災に関する国際活動 International activities for disaster management

- Most international resources focus on response (rescue and recovery) activities
  - Urgent and humanitarian
  - Covered by mass media because such activities are dramatic



However:

- Relief activities cannot recover the lost lives.  
Thousands of people are instantly killed in disasters.
- If people survive, recovery and reconstruction would be much easier and less costly.
- Donor countries cannot fund for response any more after repeating super disasters recently

More focus on protecting lives before disasters hit !!

## Inappropriate resource allocation for disaster risk management

災害リスク管理における不適当な資源の配分

- Post-disaster > Pre-disaster  
災害後 > 災害前
- Engineered > Non-engineered  
工学的 > ノンエンジニアド(在来的)
- Hardware (infrastructure and modern technologies)  
> Software (human power/education)  
ハード(インフラや近代技術) > ソフト(人間の力や教育)

## The most important lesson of 2011 Great

### East Japan Earthquake Disaster

#### 東日本大震災による最も重要な教訓

“Thousands of people would not have been killed if they would have evacuated promptly”

「適切な避難がなされていれば、何千人の人の命が救われたはずである」

- People in this region knew the tsunami would strike after a strong earthquake. 繰り返される津波  
Repeated Tsunamis – Meiji Sanriku Tsunami (1896), Showa Sanriku Tsunami (1933), Chile Earthquake Tsunami (1960), etc.
- Most people in this region knew “Tsunami Tendenko” (in case of tsunami, you should evacuate promptly by yourself without taking care of other family members) 地域は皆「津波でんでんこ」を知っていた。
- Tsunami warning was issued 3 minutes after the earthquake. People had approx. half an hour or more before the tsunami stroke.
- Municipalities instructed people to evacuate promptly.

Yet, they had many reasons not to evacuate promptly

適切に避難できない多くの理由があった。

## The most important lesson of 1955

### Hanshin-Awaji Earthquake Disaster

#### 阪神・淡路大震災による最も重要な教訓

“Thousands of people would not have been killed if they would have retrofitted their vulnerable houses”

「脆弱な住宅の改修がされていれば、何千人の人の命が救われたはずである」

- Most of the victims were killed by collapse of their houses
- Currently, most of Japanese citizens know that vulnerable houses may collapse and kill the residents in earthquakes.
- Japan has severe building codes.
- Techniques for retrofitting are available.
- Financial assistances for retrofitting are available.

Yet, people have many reasons not to retrofit their vulnerable house. それでもなお、脆弱な住宅を改修しない様々な理由がある。

## People are risk-takers in disaster risk management

### 災害リスク管理において人々はリスクの方を選ぶ

- People are risk-seekers when the choice involves loss (Prospect theory, Kahneman & Tversky).  
Question : Choose between: 質問: AとBのどちらを選ぶ  
A. Sure loss of \$3,000 A 3000ドルを確実に失う  
B. 80% chance of losing \$4,000 and 20% chance of losing nothing.  
Result: 92% selected B 結果: 92%がBを選択 B 4000ドルを失う確率80%で20%は無損失
- Future uncertain loss is psychologically much discounted.
- Investment (retrofitting) for safety would be waste if a large earthquake would not occur soon.
  - Life expectancy of a house: approx. 30 years (Japan)
  - Remaining life expectancy of an investor: 20-50 years
  - Return period of a big earthquake: hundreds or more years

It is rational for people not to take actions to avoid future disaster risk.

人々が将来の損失を避ける行動をしないのは合理的である。

## How can we convince people to take actions before a disaster hits

災害がくる前に人々に行動を起こさせるにはどうしたらよいか

- Education, training, and awareness raising  
教育、研修訓練と意識啓発
- Community-based disaster management  
コミュニティ(地域社会)主体の防災
- Policy development and institutionalization for safer communities  
安全な地域社会のための政策策定と制度化

## Disaster education can play an important role 防災教育は重要な役割を果たす

- Capacity building and awareness raising **能力構築と意識啓発**  
- Local people, particularly children, should understand better their disaster risk and take appropriate actions to reduce the impact of disasters
- Technology and policy development **技術と政策の開発**  
- Experts should develop affordable and applicable technologies, and develop policies for disaster reduction, reflecting the local conditions.
- Risk communication **リスクコミュニケーション**  
- Experts should be able to communicate with local people with trust in laymen's language with professional knowledge.

## 政策研究大学院大学による防災専門教育 Education for Disaster Management Professionals by GRIPS

Master's degree programs on "Disaster Management"

English program since 2005

「災害管理」修士号のプログラム

- Conducted jointly with BRI (Building Research Institute), PWRI (Public Works Research Institute), and JICA
- 3 courses: Seismology/Earthquake Engineering, Tsunami, Water-related disasters  
開発途上国の技術官や研究者
- Target Groups: Technical officials, or researchers in developing countries
- Course Duration: 1 year  
(October–September)
- Approx. 50 students in 2012-2013

Japanese program since 2012

- Target groups: national and local government officials
- Course Duration: 1 year (April–March)

Accepting application for 2013 entrance!!



GRIPS Roppongi campus

## コミュニティ主体の防災 (CBDM) Community Based Disaster Management (CBDM)

- Local people are potential victims and assume responsibility in managing the risk
- Disasters reflect local conditions, of which local people are well ware  
地域の人は災害のリスクとその避け方をよく知ることができる。
- Local people can better understand disaster risk and how to avoid such risks through risk communication
- Participatory decision making process leads to ownership of risk and actions  
参加型の決定プロセスは、リスクと行動を自らのものとできる。



RADIUS project by IDNDR



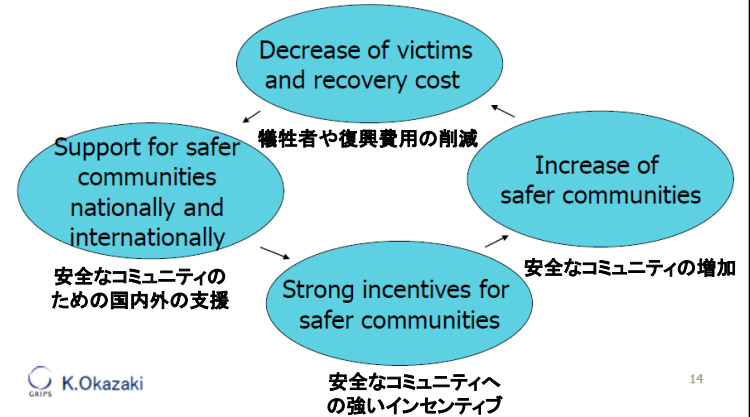
Shake table demonstration by UNCRD

政策のパラダイムシフト(転換)が必要  
Policy paradigm shift is necessary

現在の安全でないコミュニティの悪循環  
Current vicious cycle for unsafer communities



安全なコミュニティのために提案するサイクル  
Proposed cycle for safer communities



Recommendation for international cooperation  
to reduce the loss of lives due to disasters  
災害による人命損失を減らす国際協力のための提言

- International commitment to promote proactive efforts **国際支援**  
International communities (international organizations such as UN and UNESCO and donor countries like Japan) should assist more explicitly those countries which are making proactive efforts.
- Fostering more experts who can develop appropriate policies for disaster reduction and have good skills for risk communication with local people **適切な防災対策を講じられるより多くの専門家の育成**
- Financial and technical assistance to promote community-based disaster management **コミュニティ防災のための財政的・技術的な支援**
- More researches to investigate how to motivate people and local governments to take actions against disaster **防災対策・政策研究推進**
- Establishing multi-disciplinary academic approach for disaster risk management, incorporating economics, politics, sociology, psychology, engineering, etc.

経済・政治・社会・心理・技術の学際的アプローチ

ありがとうございます

Thank you !

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