

Higher Education and Research Agenda for Implementation

Panel Cluster 3 (19 January 2005)

"KNOWLEDGE, INNOVATION AND EDUCATION:
BUILDING A CULTURE OF SAFETY AND RESILIENCE"
UN-World Conference on Disaster Reduction

Hiroyuki Kameda

Professor Emeritus, Kyoto Univ.

Visiting Researcher, NIED

Focus area (b): Increased Knowledge Base:

- *Information management and exchange
- *Multi-dimensional/cross-sectoral cooperation
- *Field-based knowledge development and implementation oriented research policies.
- *Includes research, academic and scientific agendas as well as emphasizing the importance of creating linkages

1. The Issue to be Addressed: Innovate research communities and academia under "implementation strategies"

- * It does not work that "Academics offer proper knowledge and technologies for disaster reduction, but practitioners do not use them, which is the problem." They are not good technologies.
- * Disaster reduction research should be based on the facts and evidences in the practical fields and relevant stakeholders. Academics often do not think very much how to make their outputs useful to practice. This barrier must be removed: academics are responsible to take actions.

2. Research Community Should be Innovated upon Implementation Strategies

Background - important lessons from the past:

- 1) A huge gap between the high technological caliber and level of social safety should be recognized.
- 2) An effective mechanism is needed for application of research outputs to practice.
- 3) The research & development programs should incorporate "implementation strategies" within themselves. Innovation of researchers and research communities is needed.
- 4) Science policy should be enhanced from the viewpoint of implementation strategies.
- 5) The above issue is a common agenda for both developed and developing countries. Therefore, it should be a key factor in the international collaboration.

How should "implementation strategies" be defined in R&D? -from EqTAP Project (1999-2004)

- (1) Researchers' creativity
- (2) Problem identification and methodology development involving direct communication with stakeholders and end-users
- (3) Stakeholders will have recognition and ownership
- (4) Regional characteristic properly incorporated
- (5) Proper quality control of R&D to generate high-quality products
- (6) Implementation strategies to be discussed substantially in the planning stage of R&D projects.

Thematic Session 3.6

"Implementation strategies for application of research and development on disaster reduction"

The Session will address:

- (1) Innovation of research communities
- (2) Enhancement of science policies of member countries to be coordinated in this principle

3. An Action - Proposal to Develop "Disaster Reduction Technology List on Implementation Strategies" with Perspective to a "World List"

- * Visualizing R&D efforts under implementation strategies by highlighting relevant R&D outputs and develop their catalog.
- * Japanese group (MEXT WG) has compiled such data and arranged them in a consistent format.
- * The Japanese Government is to propose to internationalize this activity
- * Thematic Session 3.6 will include a proposal to launch activities to extend it to a "World List".

DISASTER REDUCTION TECHNOLOGY LIST ON IMPLEMENTATION STRATEGIES

A Contribution from Japan

Compiled for the
United Nations World Conference on Disaster Reduction

Thematic Cluster
Knowledge, innovation and education to build a culture of safety and resilience

Thematic Session
Implementation Strategies for Application of
Research and Development on Disaster Reduction

January 2005, Kobe-Hyogo

Office for Disaster Reduction Research, MEXT, Government of Japan
Committee on Research and Development for Disaster Reduction
Working Group for Development of Disaster Reduction Technology List

illustration)

nd it may be
ated that the
in the south

suka, Japan

H_2

H_1

countermeasure than in the case with no protection. The numerical test results demonstrated that the greenbelt with specified tropical trees was applicable as a sustainable tsunami prevention method in the south Pacific region. Figure 3 shows the representative output points for the tsunami flow pressure variation. Figure 4 shows the variation of maximum tsunami flow pressure for various greenbelt density.

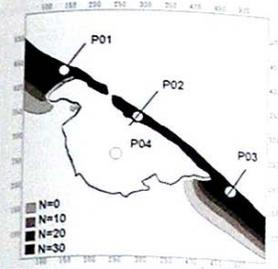


Figure 3. Representative point.

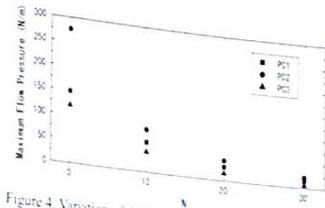


Figure 4. Variation of the maximum tsunami flow pressures.

2. ILLUSTRATIVE EXAMPLES

Several type coastal trees are planted in the Indonesia coasts. Figure 5 shows the "Waru" tree planted in the central Java. Figure 6 shows the Mangrove greenbelt constructed in the south Sulawesi.



Figure 5. Planted "Waru" tree in Java island.



Figure 6. Mangrove greenbelt.

3. SPECIFIC OBSERVATIONS IN THE DEVELOPMENT PROCESS

Tsunami mitigation and risk assessment should be completed with the correct information of earthquake frequency in the target region. The earthquake forecasting and warning methods developed in the other projects are employed for the tsunami countermeasure projects. The greenbelt is composed of regional trees like mangrove, mango and "waru". The vegetation of coastal forests is applicable to protect the shoreline and marine environment. The project becomes effective to raise not only the safety in target but also the humanity in coastal zone.

REFERENCES

- Hiraishi T. (2000) : Characteristics of Aitape Tsunami in 1998 Papua New Guinea. Report of the Port and Harbor Research Institute, Vol.39, No.4, pp.3-23.
- Hiraishi T. and K. Harada (2003) : Greenbelt tsunami prevention in South-Pacific region. Report of the Port and Airport Research Institute, Vol.42, No.2, pp.3-25.
- Home page of Port and Airport Research Institute, <http://www.pari.go.jp>

4. Incorporation of Implementation Strategies in Higher Education

- * Higher education be organized under implementation strategies: an essential issue in promoting sustainable efforts to the future
- * Thematic Session 3.2
"Innovations in risk reduction, education for young professionals: field campus and case stations for implementation sciences" will focus on higher education: a roadmap to "implementation science".
- * Thematic Session 3.1
"Education for sustainable development" to share the same goal in education but in a different context of discussion.

5. Conclusions

- (1) Innovation of research communities and academia under "implementation strategies" is critically addressed.
- (2) Science policies for research and development on disaster reduction should be enhanced in member countries so that implementation strategies are incorporated in research planning and execution stages.
- (3) Higher education is of critically important for sustainable activities. Development of a new field "implementation sciences" should be pursued.