Networking Academic Institutions for the Enhancement of Disaster Management Efforts

- The Efforts of Ehime University in Nepal -

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Ehime University – Brief Introduction

One of the top 20 nation-established universities

Established: 1949
Number of Academic Faculties: 6 (Education, Law and Letters, Science, Agriculture, Medicine, and Engineering)
Graduate Schools: 6 (under each academic faculty)
Research Centers: 7 (with 3 world class research centers)
Academic and Administrative Staffs: 2000
Students: 10000 (including 200 International Students)
Academic Exchange Agreement: with 28 universities

Returned Nepalese: 12
Current students: 11
Academic Exchange Agreements

**University Level**

- 34 universities (Asia: 22 (Including 5 Nepalese universities), Europe-America 12)

**Faculty or Research Center Level**

- 16 universities (Asia: 8, Europe-America: 8)

**Major activities:**
- Exchange of education and research publications and other relevant materials
- Exchange of academic and research staffs
- Graduate, undergraduate student exchange
- Joint academic and research programs

Activities, Plans, and Purpose in Asian Nations

**What?**
Research, Disaster Education, Knowledge Transfer, Networking of former foreign students

**Where?**
Most Asian Nations (Nepal as a model nation)

**Why?**
Reduce disaster loss; protect nature, environment, and human life; maintain follow-up program for Japanese university alumni

**How?**
Direct involvement, network formation (involving Ehime Univ. graduates), fund demand from Japan Govt.
Why Academic Institutions (A)

- Academic institutions: a place of expertise network
- Academic institutions: in most cases non-profitable organizations; the activities can be conducted at fairly low cost
- Especially the pre-disaster activities such as research and investigation, awareness enhancement, information dissemination, etc. can be more effective through academic institutions
- Academic institutions: often play a role in between the government and non-government organizations, making things easier while dealing with various concerned organizations
- Formation of institutional network much easier due to widely spread graduates in various government and non-government organizations

Why Disaster Management in Nepal?

Economic Loss

Average Loss:
788 million per year

Fatal Loss
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Human deaths in landslides and floods

Earthquake Disaster Risk in Kathmandu Valley

Table 1: Damage potential of a high intensity earthquake (IX-MMI) in Kathmandu Valley (Source: KVERMP/N-SET)

<table>
<thead>
<tr>
<th>Impact</th>
<th>Extent</th>
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<tbody>
<tr>
<td>Human deaths</td>
<td>&gt;40,000</td>
</tr>
<tr>
<td>Injuries</td>
<td>&gt;95,000</td>
</tr>
<tr>
<td>Building destruction/collapse</td>
<td>&gt;60 %</td>
</tr>
<tr>
<td>Homeless people</td>
<td>&gt;700,000</td>
</tr>
<tr>
<td>Bridge collapse/damage</td>
<td>&gt;50 %</td>
</tr>
<tr>
<td>Road length damage</td>
<td>&gt;10 %</td>
</tr>
<tr>
<td>Water supply pipeline damage</td>
<td>&gt;95 %</td>
</tr>
<tr>
<td>Telephone exchange building</td>
<td>Most</td>
</tr>
<tr>
<td>Telephone lines</td>
<td>&gt;60 %</td>
</tr>
<tr>
<td>Electric substations</td>
<td>Most</td>
</tr>
<tr>
<td>Electric lines</td>
<td>40 %</td>
</tr>
</tbody>
</table>

Source: Google Earth
Old buildings/houses

Slender buildings/houses (Improper design??)

Buildings/Houses Extremely Prone to Collapse

Kathmandu Durbar Square

Bhaktapur Durbar Square

Patan Durbar Square

World Cultural Heritage Sites
Destruction (1934 Great Earthquake)

Ghantaghar (Clock Tower) at present

Ghantaghar and Rajgriha 1920 AD (1977 BS)

Collapse of Ghantaghar in 1934 Great Earthquake

Ghantaghar (Clock Tower) at present

Dharahara before 1934 Earthquake

13 Storey □ 9 Storey

Collapse of Dharahara in 1934 Great Earthquake

Dharahara at present
Bhaktapur Durbar Square before 1934 Earthquake

What has been done so far?
Nepal Activities

**Research**
- Make Nepal a field for disaster research
- Landslides and floods
- Earthquakes
- Global warming and glacial lake outburst floods (GLOFs)

**Education**
- School- and community-based disaster education and awareness
- Model school concept for disaster education
- Graduate programs in disaster related courses at colleges and universities

**Knowledge transfer**
- Symposia and Seminars
- Trainings
- Acceptance of Nepalese students for graduate studies
- Invite university faculties

### Human Flow between Ehime Univ. and Nepal

<table>
<thead>
<tr>
<th>Year</th>
<th>1990</th>
<th>1995</th>
<th>2000</th>
<th>2005</th>
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<tbody>
<tr>
<td>1991</td>
<td>Nepalese Foreign Students to Ehime</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Researchers and Professors from Ehime University to Nepal</td>
<td></td>
<td></td>
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<td></td>
<td>ICIMOD</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>1997</td>
<td>Landslide field surveys and meetings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Nepalese Researchers and delegates to Ehime</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Organized Symposia, Seminars, Meetings, etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>Embassy visit and activity reporting</td>
<td></td>
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</tbody>
</table>

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Field Investigation, Research

- Person trip survey (Transportation) in Kathmandu and suburbs (2006)
- Road roughness (undulation) survey (2006)
- Travel time survey (vehicle) in Kathmandu (2003)
- Earthquake risk of Nepal (focusing on Kathmandu Valley) (2006~)

Field Investigation of Landslides and Slope Failures

- 2001
- 2003
- 2004
- 2006: Investigation for Earthquake and Landslide Hazard in World Cultural Heritage Sites

Japan Govt. funded
International Scientific Meets

2001
- International Symposium on Geotechnical & Environmental Challenges in Mountainous Terrain (GENSYM 2001)

2003
- 6 Int’l seminars and symposiums

2005
- Joint Projects with State-owned Nepal Television
  - NTV programs on landslide issues in Nepal

2006
- Roles of Government, Community, NGOs and Education for Disaster Management, JBIC Seminar, 8 May 2007, Kobe, Japan

Joint Projects with State-owned Nepal Television

Roles of Government, Community, NGOs and Education for Disaster Management, JBIC Seminar, 8 May 2007, Kobe, Japan
News in National Dailies

‘No geological conditions have been properly taken into account’, R. Yatabe/Ehime University

Japanese knowledge to prevent landslides

Japan, NEC to conduct landslide mgmt study

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Joint Programs with Japanese University Alumni

First meeting: Feb. 2005
Second meeting: July 2005
Seminar held: 20 November 2005

JUSAN and NESAJ members
Japanese Univ. Professors
Nepalese Univ. Professors
Nepal Govt. Officials
Japanese Embassy Officials

Second meeting, July 2005
First meeting, Feb 2005
Meeting with the Ambassador, July 2005
The Role of Japanese University Alumni in Nation Building

A One-day Seminar With JUSAN and NESAJ

Nepali graduates in Japan told to play role here

Japanese technical education benefits Nepalese students

Appealing the Activities to Nepal Government

Environment Minister participating in an International Conference

Education Minister participating in a Seminar with JU Alumni

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Publication of Education Material

A landslide awareness book distributed in various schools in Nepal

Disaster mitigation and river environment awareness books for schools and community in Ehime (to be made for Nepal too)

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Model School for Disaster Education

- Disaster Education
- Disaster Drills
- Support as a model school

A high school in outskirts of Kathmandu valley (Saraswati Madhyamik Viddyalaya, Lalitpur)
Memoranda of Understanding for academic exchange were signed on 28 May 2006 with the following Nepalese universities and college:

- Purvanchal University
- Pokhara University *(to be formalized)*
- Kathmandu University
- Institute of Engineering, Tribhuvan University
- Nepal Engineering College

Involving the following activities:

- Exchange of faculty members and students
- Acceptance of graduate students and researchers
- Undertaking joint research programs in Nepal
Establishment of Ehime University Satellite Office in Kathmandu (28 May 2006) with the following objectives:

- Disseminate information
- Communicate with various organizations
- Assist in research activities
- Facilitate exchange faculties and students
- Facilitate other Nepal activities
- Facilitate foreign student selection

Office place: Naya Baneshwor (minbhavan)

Staffs: Visiting Professors, Visiting Associate Professors, and Visiting Researchers (Total: 8)

Satellite Office Launching Ceremony (2006.5.28)
Further Plans

Disaster Mitigation Network in Asia (proposed)

- Tokyo University Professor
- Kyoto University Professor
- Pashupati University
- Ehime University Satellite Office
- Kathmandu University
- Nepal Engineering College
- DMS, MOHA, DoR, DWLP, DUBBC
- IoT, Tribhuvan University
- NGOs, INGOs, Media, Schools, Societies Etc.
- China
- India
- Indonesia
- Pakistan
- Malaysia
- Bangladesh
- Sri Lanka
- G. Korea

<Abbreviations> DMS: Disaster Management Section Ministry of Home Affairs; DoR: Department of Roads; DWLP: Department of Water-induced Disaster Mitigation; DUBBC: Department of Urban Development and Building Construction; INGO: Non Government Organization; NGO: International Non Government Organization; IoT: Institute of Engineering
**Major Research Fields**

- Appropriate road building technology *(with Department of Roads)*
- Protection of world heritage sites from natural disasters
- Transportation planning and traffic management
- Urbanization and earthquake hazard risk
- Political instability
- Environment and water quality
- Etc.

**Educational Support**

- Develop school- and community-based disaster education materials
- Run joint graduate programs with Nepalese academic institutions in disaster management, transport management, and other relevant subjects
- Train more Nepalese students at Ehime University
- Send Japanese students to Nepal to develop research interest
Major Achievements

- Abrupt increase in disaster management activities (such as research, disaster drills, awareness raising, media coverage, scientific meetings, etc.) ever since year 2001
- EU known to only its former students in Nepal until 5 years ago, but now known to many academic people and the government employees (involved in disaster management) as a Japanese academic institution involved probably the most in Nepal activities
- Establishment of Center for Disaster Risk Study at Nepal Engineering College under the technical support of Ehime University (2006.5)
- Recognition of the scientific meetings and disaster mitigation efforts by the Government of Nepal
- Informal institutional network already in function
- Strong expertise network already in existence

Major Achievements

- Publications in the form of proceedings of various conferences, symposiums, and seminars
- Reporting of the features of Nepal disasters in international publications
- Publication of reference books
- Television documentaries and awareness programs on landslide disasters in Nepal and media coverage of the activities
- Establishment of research center for disaster risk study at Nepal Engineering College (May 2006)
- Establishment of first foreign-based satellite office of Ehime University in Kathmandu
- Introduction of Special Graduate Course on Disaster Management in Asia at Ehime University under the Graduate School of Science and Engineering (from October 2007)
Concluding Remarks

- Most Asian nations need greater attention in the field of disaster risk management.
- Apart from the role played by government and non-government agencies, the involvement of academic society in disaster management from various aspects is inevitable.
- The academic institutions have tremendous potential for greater human and institutional networks, so involving former foreign students in not only disaster management activities but also in nation building efforts may be one way to create the network.
- The model activities in Nepal may be expanded to other Asian nations involving the Japanese university alumni.

Finally, one of the major problems has always remained the source of funds when it comes to involving academic institutions directly in community related works, so apart from the researches and investigations, the potential that the academic institutions possess may be exploited for the disaster education and awareness raising activities.