

Annual Nepal Engineers' Day 2009

Nepal Engineers' Association Japan Chapter (NEA-JC)

18-19 July 2009

Summary of Proceedings

Kyoto University (Yoshida Campus), Kyoto (18 July 2009)
The University of Tokyo (Komaba Campus), Tokyo (19 July 2009)

Prepared by:

NEA-JC EXCOM

SUMMARY

On the auspicious occasion of the Nepal Engineers' Day, the Event Management Committee (EMC) of NEA-JC 4th Executive Committee organized two-day seminar during 18-19 July 2009. The seminar on the first day was organized on 18th July at the Yoshida Campus of the Kyoto University, and on the second was organized on 19th July at the Komaba Campus of The Tokyo University. Senior Nepalese engineers, planners, researchers, and experts from various sectors presented their research papers, and shared their experiences/views from the perspective of infrastructure development and environment conservation in Nepal.

The participants of the program were research students, experts and planners from various engineering, architecture, agricultural, environmental and social science field. Eighteen participants representing six organizations/institutions participated on 18th July (KYOTO program); while forty-two participants representing twenty-four organizations/institutions participated on 19th July (TOKYO program).

Local organizing committees with advisory panel were formed at Kyoto and Tokyo regions to conduct the program successfully. The local organizing committees in both regions are detailed in APPENDIX - I.

The summaries of presentations/discussions made on each day are detailed as Part-I & II in the subsequent sections; and detail program schedules of both days are attached as APPENDIX – II.

PART - I

“A One-Day Seminar on the Auspicious Occasion of Engineers Day Celebration-Kyoto”

18 July 2009, Kyoto University (Yoshida Campus)

INTRODUCTION

The program was conducted in two stages: opening ceremony and technical session. The opening ceremony was chaired by Mr. Roshan Bhakta Bhandari (Vice-President of NEA-JC 4th EXCOM). Er. Ram Krishna Regmi (Coordinator EMC of NEA-JC 4th EXCOM) delivered a short welcome speech to all the participants as a coordinator of the program. Issues emerged on the seminar were briefly summarized by Dr. Basanta Gautam. Finally, Mr. Roshan Bhakta Bhandari expressed vote of thanks to all the participants. The program was conducted by Dr. Basanta Gautam and Er. Netra Prasad Gyawali.

PRESENTATIONS AND DISCUSSION

Six papers, technical as well as non-technical, were presented. The papers were focused on Nepalese context, and include flood estimation techniques, sediment disasters and their countermeasures, sustainable urban drainage, and role of engineering education and engineers for coupling hazard management and sustainable development, photochemical oxidation of pharmaceuticals and personal care products (PPCPs) in mixed aqueous solution, and Nepalese politics and its possibilities. Brief summary of each of the presentations is given below in order of presentation.

1. Flood estimation techniques and issues in Nepal

Er. Binaya K. Mishra [PhD student/ Kyoto University]

Er. Mishra discussed about ineffectiveness of levee construction and flood hazard mapping in reducing the flood losses in Terai region of Nepal; and suggested the importance of accurate design flood estimation and enforcement of locality-based flood mitigating regulations in reducing the flood damage. Then, Er. Mishra shed light on flood estimation techniques and issues in relation to Nepal.

2. Photochemical oxidation of pharmaceuticals and personal care products (PPCPs) in mixed aqueous solution using low pressure UV lamp and H₂O₂

Dr. Rabindra R. Giri [Researcher/ New Industrial R & D Center of Osaka Sangyo University]

Dr. Giri highlighted serious consequences of widespread detections of pharmaceuticals and personal care products (PPCPs) in the water environment on human health, aquatic ecosystem and other living beings. Then, he discussed about investigation of oxidation potentials of fourteen commonly used pharmaceutical compounds and two personal care products in mixed aqueous solutions by UV/H₂O₂ process using low pressure UV lamp.

3. Coupling hazard management and sustainable development: role of engineering education and engineers in Nepal

Dr. Netra P. Bhandary [Assistant Professor/ Ehime University]

Dr. Bhandary highlighted overview of natural disasters such as landslides and floods in terms of annual financial losses, post-disaster maintenance practices towards making them functional rather than service oriented, and achievements in the field of hazard management and infrastructure development in last 30-40 years in Nepal. Dr. Bhandary further discussed inadequate consideration of natural hazard management in civil engineering course curriculum as one of the main problem; and suggested to revise civil engineering course in Nepal to include greater content of natural hazard/disaster science and techniques to deal with their management. He also gave examples on how infrastructures need to be designed with adequate consideration for natural hazard: building a road may need to be coupled with proper design of slope management technique; legal enforcement of building code all over the nation may be equally important for the reduction of earthquake disaster risk; and appropriate river training work as well as damming of rivers may be immediately required to overcome ever increasing problem of flood in Terai plains. He also suggested that an integrated network of academic institutions, government organizations, professional societies, and all stakeholders including involvement of international agencies and academic and research institutions towards this effort may largely change the current practice of dealing with natural hazards, thereby leading to an exemplary practice of sustainable development in Nepal and similar nations.

4. Numerical simulation of unsteady storm storage into granular road sub-base for sustainable urban drainage

Er. Bidur Ghimire [PhD student/ Kyoto University]

Er. Ghimire highlighted most obvious effects of chaotic urbanization and corresponding increase in impervious area on hydrological behavior of a catchment, such as, increase in quantities of runoff, higher peak flow rates and increase in flash floods, decrease in local groundwater table and corresponding effect on stream base-flows etc.; and discussed Best Management Practices (BMP) techniques to reduce the impact of urban runoff on the receiving watercourse and downstream catchment.

He further discussed porous pavements as very common control measures for effective infiltration which use porous macadam, permeable concrete surface, grass concrete surface, porous concrete block surfaces etc.; and their efforts to assist by modeling in the design guidelines for such source control systems. The approach include application of porous media flow model to simulate the unsteady storage of stormwater in the granular road sub-base as a free-surface flow of viscous and incompressible fluid through both the porous and bulk fluid region are described by a single set of continuity and Navier-Stokes type equations extended with porous media drag resistance terms. Finally, he suggested the usefulness of the model in hydrological decision making for event based calculation.

5. Sediment disasters and their countermeasures as sabo technologies in the context of Nepal

Er. Badri Bhakta Shrestha [PhD student/ Kyoto University]

Er. Shrestha highlighted various major aspects of sediment disasters such as soil erosion, stream channel variations, reservoir sedimentation and mass movement. He focused on the several,

current in practiced, cost effective structural counter measures as well as nonstructural counter measures and their effectiveness in the context of Nepal.

Finally, Er. Shrestha discussed on the capturing process of debris flow and driftwood carried by the debris flow by an open type check dam such as grid or slit type check dam with the results of his numerical and experimental research. His numerical model is developed with an interacting combination of Eulerian expression of the debris flow and the Lagrangian expression of the driftwood, in which the fluctuation components of the position and the rotational angular velocity of the driftwood are dealt with stochastically; and the jamming of the drift wood on check dam is evaluated based on the geometric conditions and probabilistic approaches.

6. The politics of possibilities in Nepal: constitution-writing and beyond

Mr. Bhaskar Gautam [PhD student/ Kyoto University]

Mr. Gautam presented critical review on pre- and post-1990 political developments; Maoist armed struggle and several social movements during post-1990 political scene, and discussed how and why the politics in Nepal is full of possibilities and transitory in nature.

CONCLUDING REMARKS AND DINNER PROGRAM

Finally, the seminar was formally closed with concluding remarks from the NEA-JC vice-president and the participants headed towards the Nepali restaurant for dinner.

GLIMPSE OF THE KYOTO PROGRAM



Participants



Participants



Presentation



Refreshment



Participants and guests in group



Enjoying dinner after seminar

PART – II
“Infrastructure Development and Environmental Conservation in Nepal”
19 July 2009, the University of Tokyo (Komaba Campus), Tokyo

INTRODUCTION

The program was conducted in two stages: opening ceremony and technical sessions. The opening ceremony was chaired by *Dr. Ved P. Kafle* (President of NEA-JC 4th EXCOM); and His Excellency *Dr. Ganesh Yonjan* (ambassador of Nepal to Japan) delivered an opening address as a chief guest. Representatives from various organizations in Japan (*Mr. Bhavan Bhatta* from Non-Residence Nepalese Association-Japan, *Mr. Rajendra Parajuli* from Nepal Student Association-Japan, *Prof. Fumihiko Nakamura* from Japan Society of Civil Engineers (JSCE), and *Prof. Hideyoshi Tominaga* from Waseda University/IEICE Japan) expressed their best wishes for the success of the program. Prof. Nakamura from JSCE and Prof. Hideyoshi from IEICE-Japan expressed their willingness for further strengthening ties with NEA-JC and contribute to infrastructure development in Nepal. Finally, *Dr. Bhoj Raj Pantha*, chair of local organizing committee, expressed vote of thanks to all the participants and guests on behalf of the organizing committee. The program was conducted by *Dr. Jhabindra Ghimire*.

Two technical sessions and panel discussion were convened after the opening ceremony. Five papers were presented in total and lively discussion was made during panel discussion.

PRESENTATIONS AND DISCUSSION

Five papers were presented in two technical sessions and detailed discussions were made during panel discussion. The topics of presentation were very relevant to the present context, and include prospects and challenges of railway development in Nepal, application of GIS in transportation planning, potential benefits of global warming that Nepal can get from carbon trading, seriousness of Glacial Lakes Outburst Floods (GLOFs), and groundwater management issues in the Kathmandu Valley. Brief summary of each of the presentations is given below in the order of presentation.

1. Transport development and role of railway in Nepal: prospects and challenges

Dr. Surya Raj Acharya [Senior Research Fellow/ Institute for Transport Policy Studies, Tokyo]

In the context of recent policy emphasis for railway development in Nepal, Dr. Acharya presented broad overviews on Nepal’s transport sector and international experiences on railways to assess relevance of railway to Nepal. Dr. Acharya started his presentation with history of railway development in Nepal, recent initiatives towards railway development, and discussed a vision of railway-dominated transport system in Nepal with reference to learning from international experience. Finally, Dr. Acharya discussed the factors supporting railway development in Nepal, strategic issues and shared railways benefit to Nepal with aid of a hypothetical scenario.

2. An assessment of Nepal’s carbon mitigation potentials from key sectors

Dr. Shobhakar Dhakal [Executive Direction/Global Carbon Project, Tsukuba, Japan]

In the context of escalating climate change debates, Dr. Dhakal discussed about flourishing international carbon markets since last one decade to contain carbon emissions globally; and provided the quantitative assessment of the potential of various sectors of Nepal to mitigate carbon emissions and the accompanying opportunities and bottlenecks of Nepal to tap into the global carbon market such as Clean Development Mechanism (CDM). Dr. Dhakal also highlighted difficulties in tapping into carbon market and suggested recipe for the Nepalese context as: a better and coordinated institutional response, detail study of mitigation potentials, awareness raising to the private sectors, shouldering a few initial costs for CDM market uncertainties, building capacity of stakeholders, and international negotiation to re-orient rules and procedure that reflects Nepalese concerns for CDM, REDD and other mechanisms.

3. Transport planning and decision support system using Geographic Information System (GIS) for mountainous country like Nepal

Dr. Bhuwanswar Prasad Sah [Senior Consultant/ PASCO Corporation, Tokyo, Japan]

Dr. Sah started his talk by detailing the complexity (spatial, geophysical, geopolitical, economic viability etc.) in transportation planning and demonstrated how countries like Nepal can be benefited using Geographic Information System (GIS) based tool for decision making on transportation planning, and educating planner, decision maker and general public. He also shared how such transportation planning were made using GIS in one of the African country under World Bank supported project.

4. How serious are the Glacial Lake Outburst Floods (GLOFs) to mountain societies?

Dr. Rabindra Osti [Senior Researcher/International Centre for Water Hazard and Risk Management (ICHARM) , Tsukuba, Japan]

In the context of rapid melting of glaciers fueled by global warming, which contributes to the development of glacial lakes that may burst due to variety of reasons; Dr. Osti highlighted difficulties associated with thorough understanding of Glacial Lake Outburst Floods (GLOFs) and discussed a detail study that comprises field survey, numerical modeling, remote sensing etc., conducted in Mt. Everest region in Nepal. Dr. Osti discussed that GLOFs with heavy sediment loads is much more vulnerable than ordinary GLOFs.

5. Groundwater development and sustainability in Kathmandu Valley, Nepal

Er. Vishnu Prasad Pandey [PhD student/ University of Yamanashi, Kofu, Japan]

Mr. Pandey discussed the groundwater development scenario in the Kathmandu Valley over the last four decades, and highlighted the situation of ‘infrastructures for sustainability in groundwater development’. The sustainability infrastructures were classified under five major groups – (i) groundwater monitoring, (ii) knowledge generation and dissemination, (iii) groundwater management plans/programmes, (iv) stakeholders’ participation, and (v) institutional responsibility to ensure the effective resource management – and discussed from the perspective of Kathmandu Valley aquifers.

PANEL DISCUSSION AND CLOSING

After the completion of two technical sessions, detail discussion on the presented papers and other relevant issues were made during the panel discussion, which was moderated by Dr. Ved Prasad Kafle. The speakers of the technical sessions and experts from the audience were involved in the panel discussion. Many comments/questions which were not raised during technical sessions due to time limitations were raised to the speakers, who tried their best to respond to the queries. The discussion was very much interactive, lively and impressive. Significant discussions were made on either road or railway is feasible in the Nepalese context in ground of level socioeconomic development, attitude of society, topographical circumstances, social justice etc.

Finally, the seminar was formally closed with concluding remarks from the NEA-JC president.

GLIMPSE OF THE TOKYO PROGRAM



Prof. Nakamura from JSCE



Prof. Hideyoshi from Waseda University/IEICE Japan



H.E. Dr. Ganesh Yonjan, ambassador of Nepal



Participants and guests in group



Panelist during panel discussion



Participants in the seminar hall

APPENDIX – I

LOCAL ORGANIZING COMMITTEE & ADVISORY PANEL

Advisory Panel	
Dr. Surya Raj Acharya Dr. Shobhakar Dhakal Dr. Taranidhi Lohani Dr. Basanta Kumar Gautam Er. Dinesh Manandhar Er. Phatta Bahadur Thapa	Er. Sunil Kumar Karna Dr. Netra Prakash Bhandary Dr. Akhilesh Kumar Karna Dr. Rabindra Giri Dr. Ved Prasad Kafle
Local Organizing Committee	
TOKYO	KYOTO
<p>Coordinator: Dr. Bhoj Raj Pantha</p> <p>Members: Dr. Jhabindra Ghimire Er. Sanjaya Kumar Jha Dr. Rabindra Osti Er. Rajesh Sapkota Er. Subash Chhatkuli Er. Kumar Shimkhada Er. Pradeep Shrestha Er. Kabir Shakya Er. Yadu Nath Pokhrel Er. Vishnu Prasad Pandey Er. Aman Shakya Er. Laxmi Prasad Suwal</p>	<p>Coordinator: Er. Ram Krishna Regmi</p> <p>Members: Mr. Roshan Bhakta Bhandari Er. Bidur Ghimire Er. Netra Prasad Gyawali Dr. Sudip Adhikari Er. Madhusudan Kyastha Er. Badri Bhakta Shrestha Er. Dhundi Raj Pathak Er. Sanjeev Pandey</p>

APPENDIX – II
DETAIL PROGRAM SCHEDULE

PART - I

Nepal Engineers Association, Japan Chapter (NEA-JC)
“A One-Day Seminar on the Auspicious Occasion of Engineers Day Celebration-Kyoto, 2009”
Kyoto University, Yoshida Campus, 18 July 2009, Kyoto

Anchor: Er. Netra P. Gyawali

10:45-11:00	Chair (opening session): Mr. Roshan Bhakta Bhandari (NEA-JC Vice-President) Welcome speech and program layout: Er. Ram Krishna Regmi (Program Coordinator /Coordinator EMC, NEA-JC) Vote of thanks and closing the opening session by the Chairperson
11:00-11:30	Speaker: Er. Binaya Kumar Mishra Title: Flood estimation techniques and issues in Nepal
11:30-11:40	Q & A
11:40-12:10	Speaker: Er. Dr. Rabindra Raj Giri Title: Photochemical oxidation of pharmaceuticals and personal care products (PPCPs) in mixed aqueous solution using low pressure UV lamp and H ₂ O ₂
12:10-12:20	Q & A
12:20 – 13:20 Lunch Break (Campus Cafeteria) Program Anchor: Dr Basanta Gautam (miscellaneous refreshment – briefing on literary blog)	
13:20-13:50	Speaker: Er. Dr. Netra Prakash Bhandary Title: Coupling Hazard Management and Sustainable Development: Role of Engineering Education and Engineers in Nepal
13:50-14:00	Q & A
14:00-14:30	Speaker: Er. Bidur Ghimire Title: Numerical simulation of unsteady storm storage into granular road sub-base for sustainable urban drainage.
14:30-14:40	Q & A
14:40 – 14:50 Break (Refreshment)	
14:50-15:20	Speaker: Er. Badri Bhakta Shrestha Title: Sediment Disasters and their Countermeasures as Sabo Technologies in the Context of Nepal
15:20-15:30	Q & A
15:30-16:00	Speaker: Mr. Bhaskar Gautam Title: The Politics of Possibilities in Nepal: Constitution-writing and Beyond
16:00-16:10	Q & A

18:00 Departure for dinner at a Nepali Restaurant

PART – II

Annual Nepal Engineers' Day 2009

Nepal Engineers' Association Japan Chapter (NEA-JC) Seminar
“Infrastructure Development and Environmental Conservation in Nepal”
The University of Tokyo Komaba Campus, 19 July 2009, Tokyo

Welcome and Opening [*Anchor: Dr. Jhabindra Ghimire*]

10:00 – 10:10	Welcome and opening address by President Dr. Ved Prasad Kafle
10:10 – 10:20	Remarks by Non-Resident Nepalese Association Japan President Mr. Bhavan Bhatta
10:20 – 10:25	Remarks by Nepalese Student Association, Japan (NESAJ) President Mr. Rajendra Parajuli
10:25 – 10:35	Remarks by Prof. Fumihiko Nakamura, Japan Society of Civil Engineers
10:35 – 10:50	Inaugural address by chief guest Ambassador of Nepal to Japan H.E. Dr. Ganesh Yonjan
10:50 – 10:55	Vote of thanks by NEA-JC Secretary/Program Coordinator Dr. Bhoj Raj Pantha

10:55 – 11:10 Break

Session I [*Chair: Dr. Ved Prasad Kafle*]

11:10 – 11:40	Speaker: <i>Dr. Surya Raj Acharya</i> Title: Transport Development and Role of Railway in Nepal : Prospects and Challenges
11:40—11:50	Q&A
11:50 – 12:20	Speaker: <i>Dr. Shobhakar Dhakal</i> Title: An assessment of Nepal's Carbon Mitigation Potentials from Key Sectors
12:20 – 12:30	Q&A

12:30 – 14:00 Lunch Break

Session II [*Chair: Dr. Akhilesh K Karna*]

14:00 – 14:30	Speaker: <i>Dr. Bhuvaneshwor Prasad Sah</i> Title: Transportation Planning and Decision Support System using Geographic Information System for Mountainous Country like Nepal
14:30 – 14:40	Q&A
14:40 – 15:10	Speaker: <i>Dr. Rabindra Osti</i> Title: How Serious the Glacial Lake Outburst Floods to Mountain Societies?
15:10 – 15:20	Q&A
15:20 – 15:40	Speaker: <i>Er. Vishnu Prasad Pandey</i> Title: Groundwater Development and Sustainability in Kathmandu Valley, Nepal
15:40 – 15:50	Q&A

15:50 – 16:00 Break

16:00 – 17:00 Panel Discussion

Theme: Emerging issues on the theme raised during Technical Sessions

Panelists: Speakers of presentation sessions and experts from audience