Experiences in collaboration for regional adaptation and mitigation relevant to the MRC

Presentation: Prof. Jim Falk
<table>
<thead>
<tr>
<th>Country</th>
<th>Member Institutions</th>
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<tbody>
<tr>
<td><strong>Australia</strong></td>
<td>Australian National University, University of Melbourne, University of Sydney</td>
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<tr>
<td><strong>Canada</strong></td>
<td>University of British Columbia</td>
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<td><strong>Chile</strong></td>
<td>University of Chile</td>
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<td><strong>China</strong></td>
<td>Fudan University, Hong Kong University of Science &amp; Technology, Nanjing University, Peking University, Tsinghua University, University of Hong Kong, University of Science and Technology of China, Zhejiang University</td>
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<td><strong>Chinese Taipei</strong></td>
<td>National Taiwan University</td>
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<td><strong>Indonesia</strong></td>
<td>University of Indonesia</td>
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<td><strong>Japan</strong></td>
<td>Keio University, Kyoto University, Osaka University, Tohoku University, University of Tokyo, Waseda University</td>
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<td><strong>Korea</strong></td>
<td>Korea University, Seoul National University</td>
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<td><strong>Malaysia</strong></td>
<td>University of Malaya</td>
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<td><strong>Mexico</strong></td>
<td>National Autonomous University of Mexico, Tecnológico de Monterrey</td>
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<td><strong>New Zealand</strong></td>
<td>University of Auckland</td>
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<td><strong>Philippines</strong></td>
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<td><strong>Russia</strong></td>
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<td><strong>Thailand</strong></td>
<td>Chulalongkorn University</td>
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<td><strong>United States of America</strong></td>
<td>California Institute of Technology, Stanford University, University of California, Berkeley, University of California, Davis, University of California, Irvine, University of California, Los Angeles, University of California, San Diego, University of California, Santa Barbara, University of Oregon, University of Southern California, University of Washington</td>
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<td><strong>Invited Members</strong></td>
<td>Board of the Swiss Federal Institutes of Technology (ETH), Johns Hopkins University</td>
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Brief History

- AWI Workshop on Climate Change and Sustainable Cities
  San Diego, April 2007

- AWI Pacific Rim Cities: Climate Change Mitigation and Adaptation Strategies Project
  - approved by AWI Board, June 2007
  - $US 10,000 reserved per participating institution
Research question

“What are the optimal technical and organisational approaches for human settlements to manage their water futures in the face of climate change and under pressures of economic and population growth.”
CMAS Research Team Leaders (14 research teams)

- Fu Sun, Yang Dawen, Tsinghua U
- Wu Xiaole, Zheng Yi, Zha Daojiong, Peking U
- Rajib Shaw, Toshio Yokoyama, Kyoto U
- Govindan Parayil, United Nations U
- Choon-Nam Ong, National U of Singapore
- Jatna Supriatna, U Indonesia
- Azizan Samah, U Malaya
- Danai Thaitakoo, Chulalongkorn U
- Sudip Rakshit, Asian Institute of Technology
- Tony Jakeman, Australian National U
- Jim Falk, U Melbourne
- Robert Wilkinson, U California at Santa Barbara
- James Haw, Richard Drobnick, U Southern California
- Paul Linden, Lisa Shaffer, Illya Zaslavsky, U California at San Diego
- Govindan Parayil, United Nations U
City based research nodes established

- **Tianjin** (Tsinghua University)
- **San Diego** (University of California San Diego)
- **Bangkok** (Chulalongkorn University)
- **Hanoi and Danang** (Kyoto University)
- **Melbourne** (University of Melbourne)
- **Singapore** (Singapore National University)
- **Kuala Lumpur** (University of Malaya)
INTEGRATED WATER RESOURCE MANAGEMENT & IMPACTS of CLIMATE CHANGE
Asia-Pacific Rim Urban Communities

I. CLIMATE SYSTEMS
Modeling, Projections, Assessment, etc

II. HYDROLOGIC SYSTEMS
System Design, Modeling, Projections, Allocation, etc

III. SOCIETY & GOVERNANCE
Resource Use and Allocations, Regulation, Policy, etc

IV. USER COMMUNITIES
Agriculture, Business, Commercial, Industry, Residential, etc

V. WATER USE:
- Emissions
- Reclamation
- Energy Systems
- Environment
I. **Climate Systems** - focuses on enhancing linkages between regional climate models (RCMs) and global climate models (GCMs) for the Pacific Rim case study cities.

II. **Hydrologic Systems** - focuses on linking precipitation inputs and extreme weather events to impacts on the land masses of urban communities.

III. **Society and Governance** - focuses on tools and approaches to overcoming barriers to effective integrated water governance and to develop a clearer picture of how local knowledge may affect effective adaptation responses, and the role that education can play in shaping resilient urban communities in the face of water stress.

IV. **User Communities** – focuses on User Communities, ensuring they are both examined and participate in the shaping of the research questions and responses.

V. **Water Use: Emissions, Reclamation, Energy & Environment** – focuses on developing an array of technologies and approaches for water reclamation for integrated use with the overall project. The thrust will be an integration of four sub-areas: Emissions, Reclamation, Energy, and Environment.
Example: Climate Change Impact Study

Shie-Yui LIONG

Tropical Marine Science Institute
National University of Singapore
CMAS International Workshop Jakarta March 2010
Research + Application Links

1. **GCM**
   - Downscaled results using RCM/Empirical models
     - Assess Climate Change and its Vulnerability
       - Identify Hazards
         - Region of Interest
           - Calculate Risk
International Climate Change
Workshop on Research Priorities and Policy Development

Professor Lee Godden
Law School: The University of Melbourne

CMAS International Workshop Jakarta March 2010
Cities as Water Catchments

- Awareness of climate change in city water management
- Storm-water and flood management
  - Integration with legal and planning frameworks to produce adaptive governance.
Building capacity through collaboration…
Some CMAS Outcomes

1. Agreement from ABAC to collaborate with AWI research programs, at ABAC Meeting in Wellington (February, 2009)

2. Invited as partner for Regional Cooperation and Knowledge Hub Services for the National Hydraulic Research Institute of Malaysia (NAHRIM) NAHRIM Knowledge Hub and participated in NAHRIM’s “Workshop on Developing Water and Climate Change Adaptation Guidelines,” Kuala Lumpur (May, 2009)

2. Water quality work in Danang (Kyoto University), and Resilience in Bangkok (Chulalongkorn University)

- Co-organized with: UNESCAP, Aguajaring & Water Knowledge Hub for Climate Change Adaptation & NAHRIM
- Attracted 30 government agency participants from all across Southeast Asia
- Jointly conducted by AWI CMAS members: University of Malaya and University of California at San Diego
3. Stimulated the development of a “Sustainability Partnership” with the Asia Society Centers of Northern and Southern California and the University of California at Los Angeles (UCLA) and the University of Southern California (USC), to produce two workshops and public conferences per year, from 2009-2014, on sustainability issues, with “Year One” schedule shown below: (September, 2009)
   “Water & Energy Nexus,” Los Angeles, April, 2010

4. Invited by the President of the King Abdullah University of Science and Technology to help organize sessions for the inaugural “Red Sea Science & Innovation Forum,” which will be held in Jeddah in January, 2011. A tentative title for the 2011 forum is “Sustainable Cities in the Solar Belt” (September, 2009)
9. CMAS collaboration with the GWI led “Regional Climate Change Conference,” sponsored by Japan’s Science and Technology in Society Forum, Kyoto (October, 2009) – Potential collaboration with CSIRO on water in China.


10. CMAS participation in Global Water Initiative: Workshops in California and Cambridge on snow melt in Himalayas and California, climate impacts on water communities at regional scale in Africa
The 11 largest rivers in Asia have their headwaters in the Himalaya-Hindu Kush.

More than 1 billion people in these regions depend on the snow and ice for water storage.

Snow in both regions and glaciers in the Himalaya-Hindu Kush are responding to short- and long-term effects of climate change.

Fig. 1. Change in the snow and glacier cover in the western Himalayan region as shown in Landsat multispectral scanner (1972), thematic mapper (1989), and Enhanced Thematic Mapper Plus (2000) images. Areas outlined in red indicate information from the GLIMS database.
12. With TERI (India), GWI, regional consultation workshop in Srinagar on impact of climate change and glacial retreat (Kashmir – November 2009). Now involved in multi party expanded GWI initiative with development of a further session of the 2010 Kyoto Conference in STS
Some CMAS Outcomes

13. Research Centre on Climate Change, Jakarta, from CMAS Meeting
• Submitted a draft proposal to the Asian Development Bank for funding support for CMAS (August, 2009) – discussions continuing

• Invited by the United Nations University to submit a proposal to develop a “UNU-Climate Transition Innovation Center in Melbourne. The Government of Victoria funded proposal development matching funding (September, 2009) Approved by UNU Rector (December). Now finalising host institution (Probably Monash University).

• Application for funding between CMAS TERI and other Indian research groups, and GWI under the Australia-India Strategic Research Fund.
CMAS “Pipeline”

• CMAS Conference on Regional Governance, Water, and Climate Change

Monash University
Melbourne, Australia
October (provisionally), 2010
Potential for developing CMAS Thrusts coherently in the Mekong. Eg regional studies and engagement focused on:

- information requirements for adaptive innovation: modes of facilitating sharing of relevant data and knowledge
- hydrological prediction in situations of sparse data
- community information needs, and community engagement
- regional approaches to water quality
- comparative work for effective innovation (water control, use, quality, reclamation)
- emissions and integrated water cycle
and more…
• Contact and more....
Indonesia meeting develops strong outcomes

Tuesday, 23 March 2010 00:59  Jim Falk

The 6th CMAS International research meeting concluded in Jakarta, Indonesia, with a range of important outcomes. Attended by researchers from 12 universities from across the Pacific Rim, it seemed to be the consensus that CMAS was poised for its next stage of development.

The two day team meeting was followed by a further two day workshop focusing on Indonesia and Climate Change. Speaking for Vice Chancellor of Indonesia, Professor Bambang is happy the meeting ended with...
Welcome to the awi-cmas Wiki

This is the most free and easy part of our collaborative workspace – with sensitive sections password protected from the outside world – and where we CMAS Researchers can develop documents together, creating a virtual encyclopedia of the CMAS project, its research thrusts and related topics. Any questions on how to use it should be addressed to Jim Falk, Director, AWI CMAS project.

Please note that access to some sections of this wiki is restricted to CMAS registered members. Registered users can create new restricted sections as described here.

Here are some of the topics we are in the process of developing:

1. Announcements – announcements about CMAS or CMAS related events
2. CMAS research areas – thinking through the research as a whole, and all the latest in the thrust area(s) you are concerned with. Please add material here (whether finalised or under development) for information and comment
3. Case study cities – information about work being carried out in the case study cities which have been chosen for comparative analysis within the research thrusts
4. CMAS strategy – the evolving strategy of the CMAS program, beginning with the paper approved at the Jakarta meeting but now open for evolution through improvements, or suggestions in the discussion section
5. CMAS meetings – accounts and outcomes of our meetings – most recently the Jakarta meeting, discussion of them, additional materials as they come to hand, and action agreements on work to be done
6. Member Pages – a place for you to create your own page with additional information, notes, observations, or even things to do for CMAS (restricted to CMAS members)
7. University research teams in CMAS – pages for the collaborating research teams (restricted to CMAS members)
8. Project proposals and opportunities – a place where we can describe opportunities and project proposals under development, solicit ideas and participants, and report successful steps towards full funding (restricted to CMAS members)

How to use

Getting around the wiki is easy. It is just a website with links to pages, in which you can easily edit or start new pages. Each page name shows in green as a link on every other page where that word occurs in double square brackets. Click on the link and you go to the named page. Note that there is an Index button at the foot of the page. Click on that and you see all the linked page names. Note also that once you move from this Wiki home page, there is a display at the top which shows you where you have been. You can click on any of these to go back.

You can create topics and links, pages, and amend them use the edit button at the top of this page, and the associated tool bar. One simple way to
Cảm ơn!
Ar kun!
Khawp jai lailai!
KhopKhunMak!
XieXie!
Jae Zu Din Pa De!

(Thank you!)