

Mission Report for Future Earth in Asia

Hong Kong Polytechnic University, Hong Kong, China

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2 Aug 2013, Hong Kong, China — The Monsoon Asia Integrated Regional Study (MAIRS) organised a meeting to input into Future Earth and to develop a strategic science plan for a “Future Asia” under the Future Earth umbrella. The meeting was hosted by the Hong Kong Polytechnic University, Hong Kong, China. Representatives from APN, RIHN, ICSU-ROAP and key natural and social scientists in Asia attended the meeting.

To date, there have been several Future Earth meetings and workshops in the region. Following the release of the Future Earth initial design report in April 2013, the present meeting was organised to discuss a draft strategic plan for Future Earth in Asia, which will be announced at the MAIRS Open Science Conference (OSC) in Beijing in 2014, at which Future Earth and MAIRS will report to China about MAIRS future involvement in Future Earth, and provide suggestions on how China can contribute, via Future Earth (or Future Asia), to the international research community.

Opening and Introduction

ICSU-ROAP explained that the issues in the Future Earth initial design report are very broad and referred to various appendices in the initial design report. The governing structure of Future Earth will include a scientific committee (formed in July 2013), an engagement committee (not formed to date) that will engage with funding bodies, implementing bodies and organisations. Currently only the science committee has been formally established. A call has gone out for bids to host the Secretariat of Future Earth. Recent meetings and workshops have also included South Pacific (Suva, Fiji) and additional workshops will be conducted in Kuala Lumpur in August, in Sri Lanka and China in September, and India in January 2014.

Dr. Stevenson introduced APN and its mandate as an inter-governmental network developing capacity for regional research on global environmental change in Asia and the Pacific. She highlighted the recent climate book and APN’s upcoming evaluation and strategic planning that will address its involvement in Future Earth.

Dr. Yasunari, of RIHN, talked about Future Earth and the importance of a strategic science plan for Asia. He stressed that in Japan, national activities are being discussed and Japan understands its importance in engaging with Future Earth. He stated that January would be a good time to have more discussions on the development of a Future Earth plan for Asia and this will be hosted by RIHN in Kyoto, Japan. He highlighted that Future Earth is established by the Science and Technology Alliance for Global Sustainability comprising the Belmont Forum, IGFA, ICSU, ISSC, UNEP, UNESCO, and WMO as an observer. The main themes are dynamic planet, global development, and transformation towards sustainability. The governance of Future Earth includes Governing Council (Alliance members), supported by an engagement committee and a science committee, which are supported by the Secretariat.

Future Earth is particularly important in Asia and there is a long history of sustainable lifestyle existing in Asia through, for example, the landscapes (paddy fields, etc). Asia as a whole is characterised by rapid population and economic growth and urbanisation, great disparities of wealth both within and between countries and social and ecological vulnerability to the potential impacts of climate change. Associated with this rapid population and economic growth, Asia has become a huge hot spot of increasing GHG emissions.

There is a need for international and multi-national collaboration, and scientists and stakeholders in the region need to tightly collaborate to construct a sustainable Asian society in the Asia-pacific region as part of the Future Earth initiative.

The meeting discussed in detail the structure and content of a science plan and devised a zero draft strategic science plan that will be developed over the ensuing months and announced/published at the MAIRS Open Science Conference in 2014.

Structure of the Strategic Plan for Future Asia

A detailed discussion ensued over the three days with various plenaries and breakout sessions to develop the plan, taking the initial design report of Future Earth as the base document. Some of the issues discussed are outlined in the following paragraphs.

1. Purpose of the plan

There are particular aspects that are key and unique and we need to identify key issues of sustainability, review the current status of the issues and outline the basis of moving forward. One of the other things is to provide a regional background for national plans to be developed.

2. *Timetable of the plan*

- 1) A zero order draft is to be prepared by the end of the present three-day meeting.
- 2) Need to identify experts on the region to comment on the draft and identify some of the gaps and input to the report.
- 3) Develop further for the broader community: late September in Beijing on the way forward for Future Earth in China. Another opportunity to develop the draft further is in January at a Future Earth Asia meeting. There is also a meeting in India for Future Earth. Second is to launch the document at the MAIRS OSC in April in 2014.
- 4) The Science Committee in November 2013 will be provided with a draft of the document. There needs to be an endorsement by the “Alliance” or “Governing Council” of Future Earth before any launch of the document at the MAIRS OSC in April 2014.

3. *Research Themes*

Dynamic planet	<ul style="list-style-type: none">• Monsoon climate change• Regional climate variability and extreme events• Biodiversity and coastal, marine and terrestrial ecosystems and vulnerabilities• Social systems: population, land-use change and urbanisation
Global development	<ul style="list-style-type: none">• Rapid urbanisation• Water security• Food security• Ecosystem services• Energy and transportation
Transformations	<ul style="list-style-type: none">• Technology and innovation to adapt to climate change• Equity and gender• Traditional knowledge• Environmental governance• Regional security• Education and capacity building

4. *Cross-cutting Capabilities*

- 1) Observations and Data systems (accessibility)
 - Stewardship
 - Standards
 - Accessibility

- 2) Analysis and theory
- 3) Modelling
- 4) Communication
- 5) Education and Capacity Development
- 6) Networking and GCR community

Transformations/Transitions to Global (Regional) Sustainability

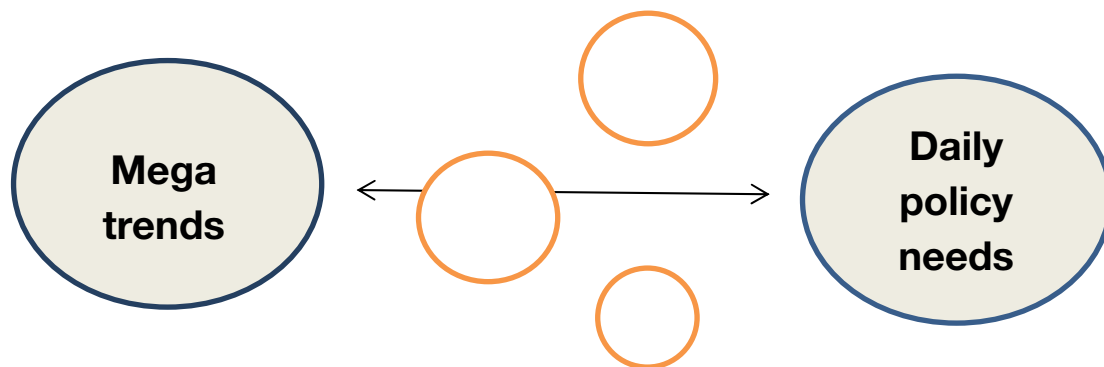
A Future Earth Asia Science Plan requires a vision that provides targets and a roadmap to these targets that draws from the Initial Design Report of Future Earth but in the Asian context. Shared problems across boundaries and regional collaboration are key to success. Issues discussed among the group include:

- Understand how we got here — historical research questions — specific institutions, specific examples like mega-city formation and the problems associated with them;
- Sensitive to the diversity of Asia;
- Help contribute to systems of terminology and there is a need for flexibility and to develop shared understanding;
- Analysis of existing systems;
- Impacts of national decisions across borders: trans-national implications;
- Transition to a Low Carbon Society: This is relevant for Asia and there is a need to engage with LCS-RNet/LoCARNet on Low Carbon issues;
- Define what “co-design” means for Asia and how it can be implemented in the Region; i.e., who are the best stakeholders that could be involved;
- Regional accountability.

Best Practices/Good Examples

- Provide a set of optimal solutions;
- What are the best options and scenarios;
- There are case studies from single areas; but bringing these together is an issue.

Co-designing — how do we do it?



- Map what is being done
- Asia scenarios; IPCC
- Timescales
 - 21st century?
 - Will there be disastrous tipping points?

Transitions are needed from unsustainable to sustainable patterns. Good practices need to be identified. The issue of co-design for Asia was particularly problematic, particularly in terms of good examples. Going back to discussions at the Kuala Lumpur meeting in November, 2012 the following was reiterated:

What do we mean by co-design in the Asia context? Co-production-participatory research; and specific issues will attract different levels at community — local, national and regional levels.

From the Asia-Pacific consultation workshop, the following issues of co-design where raised:

- Demonstrating successful case studies on co-design and trans-disciplinary research could be an effective approach in strengthening stakeholders' interest in Future Earth.
- As a way of promoting a different type of research that involves co-design and co-production we should explore opportunities to include other stakeholder groups, rather than solely focusing on the scientific community.
- Document case studies of successful integration and interdisciplinary work in the region and create guidelines on how to do co-design and co-produce research;

Some of the initial activities that would aid co-designing were discussed in the break-out groups and included:

- Conduct a scoping, synthesis activity that provides a meta-analysis report of case studies on co-benefit analysis and integrated assessment, including all practices, both successful and unsuccessful;
- Develop guidelines for co-design and co-production (at the project level) based on consultation processes with all stakeholders from local, community through to national levels.
- Design and implement a plan and process that ensures ownership of all stakeholders.
- Develop broad regional ownership for Future Earth in Asia report (“joint framing”) that may include:
 - Engagement committee
 - ICSU national meetings
 - January RIHN Co-Design meeting, January 2014
 - MAIRS Open Science Conference, April 2014

Who would be engaged depends on the specific issues

- Governments
- End-users
- Private sector
- Civil society
- Natural and social scientists

Identify research

- Shared resources — competition for water across international boundaries
 - Dams
 - Regional governance
 - Within and across boundaries
- Shared resources – Competition for fisheries across boundaries

- Fishing
- Rights/ownership
- Responsibilities
- Shared responsibilities – pollution
 - Air pollution
 - Water pollution from different sources across boundaries
 - Non-point sources pollution from different countries to cause eutrophication
- Movement of fisheries to adapt changes in habitat characteristics resulting from climate change and human disturbances
- Acidification/Acid rains (need international collaboration in Asia; few factories install desulphurisation devices).

Discussion on Transnational (regional) Issues

- Lack of strong coordination and communications within and across communities
- What conservations and protection measures can be implemented?
- Enrichment of nitrogen
- Biodiversity loss
- Infectious disease resulting from climate change, globalisation, mobility, outbreaks of disease vector-borne diseases.
- Mega-city issues are major for sustainability; how and why did we get here? Can the trajectory continue? Is it sustainable? Cities at risk programme.....
- Collaboration with stakeholders (co-design) together to address these issues

Draft Contents of Strategic Science Plan for Future Earth Asia

Following the three-day workshop, draft contents of a strategic science plan were compiled and all participants were allocated sections to write, with a view to providing a draft report by September 2013.

Chapter 1: Introduction

- Audience (Future Earth SC and EC; researchers, broader stakeholder community)
- Vision, mission, goals, strategies
- Adding Asian “spirit” – cultural values, etc.

- Where are we now (present status; stock-taking)?
- Where do we want to go (issues)?
- How do we get there (issues, gap analysis, solution)?
- Sustainable Development Goals (SDGs).
- Recommendations

Chapter 2: Dynamic Asia (FE: Dynamic Planet) – planetary systems

Gaps and Key Science Questions (boxed)

- 2.1 Geophysical System
- 2.2 Ecosystems and Biodiversity
- 2.3 Human System
 - 2.3.1 Statistics and demographs; urbanisation, deforestation, land-use,
 - 2.3.2 Green society
 - 2.3.3 Blue society

Chapter 3: Asian Development (FE: Global Development)

Focusing and including drivers of ecosystem change

- 3.1 Introduction
- 3.2 Ecosystem drivers and pressures
 - Ensure that governance is included
- 3.3 Human security
 - 3.3.1 Food Security
 - Agriculture
 - Fisheries
 - Livestock
 - 3.3.2 Water security
 - 3.3.3 Energy security
 - 3.3.4 Health and wellbeing– pollution, disease, microbial resistance
- 3.4 Inter-relation among water, food and energy nexus

Chapter 4: Transformation to Asian Sustainability

- 4.1 Introduction to Asia in transition (gaps, challenges and examples) (YT Lee)
 - 4.1.1 Case studies showing successful transformations to sustainability
 - 4.1.2 Traditional knowledge
 - 4.1.3 Asian style solution
- 4.2 Co-design and co-production
 - Will require significant resources and multiple groups will be needed to analyse these questions
 - Multiple approach to the problem
 - Relevant stakeholders
- 4.3 Regional interactions
- 4.4 Socio-economic development
 - Economic drivers and sustainability

- Equality and socio-economic factors
 - Analysis of the roles of Governance
 - Transitions from closed to open economies
- 4.5 Asian sustainability
- 4.6 Asian urbanisation

Chapter 5: Crosscutting capabilities (Ailikun)

- 5.1 Observation and data
- 5.1.1 Geophysical data
 - 5.1.2 Socio-economic data
 - 5.1.3 Gaps in socio-economic data
 - 5.1.4 Data access and sharing
- 5.2 Analysis and theory
- 5.3 Modeling
- 5.3.1 Climate
 - 5.3.2 Ecosystem
 - 5.3.3 Integrated Assessment Modeling
- 5.4 Communication
- 5.5 Education and Capacity Development
- 5.6 Networking and existing GEC frameworks

Chapter 6. Summary and Key Issues/Recommendations