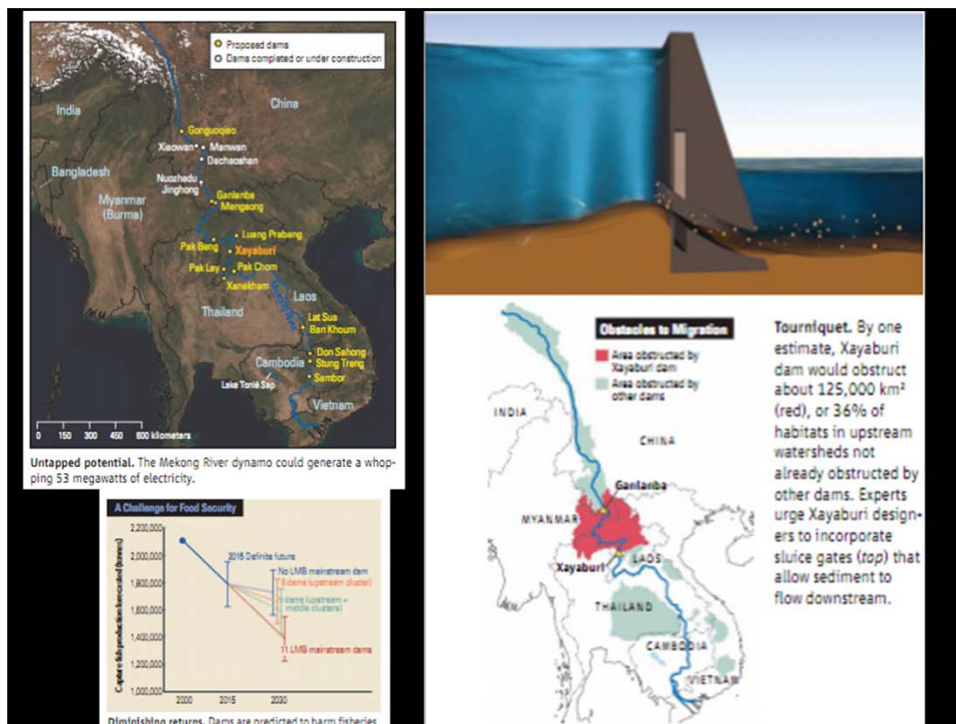




**And contribute to research outputs and outcomes, in this case to Earth System Partnership's Global Carbob Project**



Here I note a particular concern related to our work on vulnerability, community-based adaptation, regional hydrology and carbon cycle, as well as ecosystem services and livelihood issues – one related to dam building in the context of development and its ramifications. At this symposium we have noted issues related to such large infrastructure development. This is a case recently highlighted in the journal *Science*, under the title: *Mayhem in the Mekong!* Note the challenges of development and interacting forces of national as well as regional strategies for dealing with energy needs as well as becoming low-carbon societies.

## Look Ahead for START: Three thrust areas

### ***1. Knowledge generation-related***

- ***Strengthen and expand multi-disciplinary and trans-sectoral expertise in integrated research and assessment that foster stronger and more engaged south-north and south-south research networks.***

The complexities inherent in global environmental change require that research and assessment approaches more fully integrate the biophysical, social and behavioral sciences and that networks are positioned to capture opportunities for collaboration. We believe that much more effort is needed to ensure that research communities in the global south become more robust, better interconnected within and across regions, and more innovative with respect to producing knowledge that catalyzes action. In response to this need, START will intensify its current efforts to foster interdisciplinary research through collaboration with our regional and international partners to develop and facilitate multi-year research and assessment programs that improve understanding and management of interactions between global change and development. Moreover, recognizing the imperative to produce relevant and actionable knowledge, START will promote new approaches for knowledge generation that engage a wide range of academic and non-academic partners in processes of co-learning. Areas where we see opportunities for such engagement are disaster risk reduction, adaptation and urban development planning,

**food security in the changing urban-rural continuum, ecosystem services under a changing environment, and human health and well-being.**

## Look Ahead for START: Three thrust areas

### *#2: Knowledge sharing and informed action-related*

*Promote effective communication between communities of research, policy and practice that enhance the ability of countries and regions to generate demand-driven knowledge and to catalyze the translation of research into action.*

More effective communication pathways are needed through which partnerships between researchers and communities of policy and practice are formed that foster multi-directional communication of knowledge in socially relevant and actionable terms. In the coming decade, START will promote multi-stakeholder dialogues between communities of research, policy and practice that enable knowledge sharing,

interpretation and synthesis and identify strategies and actions for building demand-driven

knowledge systems. START will also expand the scope and availability of its training opportunities to more effectively engage scientists and other professionals in the development and application of innovative communication tools, methods and approaches targeted at a wide range of decision makers. We will also seek out new partnerships between our organization, anchored in the research community, and other organizations active at the interface of communication, development and global change to enhance opportunities for innovative communication.

## Look Ahead for START: Three thrust areas

### ***#3: Education-related***

***Support efforts by universities in Africa and Asia to inform and engage society in development trajectories that are resilient and adaptive to global change***

Universities have a vital role to play in helping society to adapt to climate change and other impacts from global environmental change; yet, the potential of universities to be active agents of change is not fully realized. We believe that a well-informed citizenry, responsive institutions, and problem-focused knowledge generation are imperative to achieving a more sustainable future. In the next decade,

START will partner with African and Asian universities to develop and promote educational approaches that emphasize experiential learning that is problems-based

and solutions-focused. Efforts will include enrichment of existing curriculum and the development of new curriculum on global change, enhanced faculty and staff development programs to inspire and support excellence in teaching, and integration

of teaching, research and practice. START will actively promote intra- and interregional

university partnerships as well as university collaborations with a range of non-university partners to integrate knowledge and priorities of societal stakeholders

**with those of the research community. To advance these efforts in integrated learning, START will convene periodic regional fora to promote coordinated action on education, climate change and capacity building.**

## **Sustainability Science Core Questions & Major Themes**

- Long-term trends & transitions
- Human environment systems adaptability, vulnerability
- Integrative human environment theory and models
- Tradeoffs between human wellbeing and nature
- Limits or boundaries for effective warning
- Societal guidance of human environment systems
- Evaluation of sustainability trajectories

**All address issues of transformative change in our society and focus on “WEHABU” themes**

Adapted from Kates 2011 and presentations at this meeting

In this context then, what kinds of questions/issues related to the ICSU ESSI initiative that START might consider? Here is a wish list originally prepared by Bob Kates and refined a bit during this symposium; this is likely to be modified as ICSU's ESSI initiative gets more defined and need for specific capacity building also become better articulated. Note that this list addresses issues of transformative change and focus on WEHABU themes – themes that are embedded in MDG and rooted in need for development. Of course, all of these address issues of transformative change in our society. This requires...(next slide) ... us to act on what we already know (as was so well illustrated in a number of presentations made at this symposium)...



## Acting on what we already know—

- Increase trends in fertility reduction
- Reverse declining trends in agricultural production in Africa, sustain elsewhere
- Accelerate improvements in use of energy and materials
- Use opportunities for expanded urban systems to be habitable, efficient, and environmentally-friendly
- Restore degraded ecosystems, while conserving biodiversity elsewhere

**i.e., bring about transformative change in our society!  
>> requires transformative leadership!**

*Adapted from Kates'*

But, transformative change, i.e., acting on what we already know to be fundamental challenges to our well-being is unlikely to happen unless we nurture and promote leadership at all scales of our society.

Finally, on the need to foster  
transformative leadership:

cChange proposal recently  
submitted by  
Karen O'Brien/U. Oslo on behalf of  
an international group of  
collaborators

Finally, let me come back to a recent effort to foster transformative leadership. This is a “cChange” proposal developed in collaboration with a group of social and natural scientists as well as practitioners in the field; the proposal is led by Prof. Karen O'Brien of U. Oslo and seeks to develop a network of collaborating centers in many locations. The proposal has just been submitted to the Norwegian Research Council for this purpose; there is significant potential for engagement in this effort by centers, such as RINH/Japan, and others in Asia.

## cChange Proposal

### Priority objectives:

- **Develop a theoretical, empirical and practical basis for understanding transformation;**
- **Increase the capacities and competencies of individuals, groups and institutions to activate transformation towards a sustainable and resilient future.**

The vision for *cChange* is to create an inclusive, inspiring and productive research environment that will enhance society's capacity to address complex global challenges. This will be a (distributed) Centre of Excellence where scientists, decision-makers, politicians, students, activists, artists, business leaders, and citizens can engage in transformative learning and develop skills for "climate leadership." Through innovative research and capacity building, *cChange* will inspire and empower new approaches to climate change.

The objective of *cChange* is to catalyze both research and action on deliberate, ethical and sustainable transformation. *cChange* will work with a dynamic constellation of scholars and centers to expand research and capacity for understanding, communicating and responding to climate change in a diversity of socio-economic, cultural and political contexts.

The following sub-objectives will be prioritized:

**Develop a theoretical, empirical and practical basis for understanding transformation;  
Increase the capacities and competencies of individuals, groups and institutions to activate transformation towards a sustainable and resilient future.**

Not surprisingly, many of the transformations that are proposed in response to climate change are poorly understood, frequently contested and often challenged. For example, strategies that promote mitigation such as REDD are opposed by many social movements that see them as beneficial to agribusinesses and detrimental to indigenous people. *cChange* will analyze these tensions by focusing on the environmental, socioeconomic, political and ethical dimensions of transformation. More important, it will provide us and the global community with new tools and approaches to deliberate transformation.

### Key Research Questions...and....

- *What **types** of transformation are necessary?*
- *What **factors** facilitate transformation in theory and in practice, across different systems, sectors, and domains?*
- *What types of **capacities** and competencies need to be developed to initiate transformations that are both ethical and sustainable?*
- *How does science itself need to change, and how can new approaches to global change research contribute to transformation of both theory and practice?*

Here is a list of key research questions that cChange would work on:

....

That last one deals with Transforming paradigms:

cChange will focus on understanding how alternative paradigms contribute to new under-standings of transformation, including new cultural narratives and discourses on climate change.

Like democracy, science faces tremendous challenges in relation to climate change. On the one hand, difficulty in communicating the complexity, uncertainty, non-linearity and irreversibility of climate change has left many questioning the need for transformative responses. On the other hand, the deterministic approach of models often ignores the collective capacity of humans to deliberately change and create alternative futures. Although adaptation is necessary in response to inevitable changes, deliberate transformation involves changes in structures of meaning-making (e.g., adapting to the idea of climate change may challenge some prevailing worldviews). This entails new approaches to conducting and communicating science, for example by emphasizing experiential aspects or communicating to diverse developmental constructs.

### **....Research Domains:**

- Economics of Transformation
- Politics of Transformation
- Urban Transformations
- Coastal Transformations
- Community-based Transformations
- Transformative Learning
- Transformative Leadership
- Transforming Practices
- Transforming Paradigms

**Such an effort will require a broad effort across a number of research domains. This list captures the flavor of the domains.**

**Taken together, these domains will provide new and integrated knowledge on relationships between personal, cultural, institutional, and systems transformations. cChange will contribute not only to theories of transformation, but to practices that can contribute to a sustainable and resilient future.**

## **“Research as Unusual”**

- ***Commitment to self-transformative practices:*** include personal transformation as part of the transdisciplinary, action-research, including development of leadership capacities among CChange members.

Finally cChange will engage in researching the unusual, i.e., self transformation – an undertaking that is meant to promote transformative leadership.

Rather than only studying others, participants must be encouraged to “walk the talk” and reflect on how hard or easy transformation and change actually is, and what happens to the collective project group, research ideas and dissemination strategies as we ourselves change.

Given this emphasis in cChange to promote transformative leadership, I hope that centers and academic institutions in Asia will consider engaging in cChange.

Let me conclude then by recalling a transformative leader and scientist who changed paradigm of academic and social enquiry: It is fitting to recognize transformative Margaret Mede – a transformative leader who had major impact on science and our society

## Transformative Leaders:

- **Margaret Meade:** a transformative leader who fostered holistic vision of the human species



***A small group of thoughtful citizens can change the world; indeed, it is the only thing that ever has.***

***Margaret Mead***

Ultimately, all of us bear the responsibility and burden of fostering transformative leaders. While we all may not be like Margaret Meade, but surely we must aspire to be so in our own niche context whether it is at national, regional, local or personal levels. GC is a deeply troubling and challenging issue, but also offers exciting prospects for deep transdisciplinary scholarship, and for contributions to a transformed and resilient society with capable leadership at all scales. Ethical motivations suggest that a robust, resilient, equitable society with foresight must be codified as government policy. Clearly the intent in this regard is well articulated and the presence

**of the leaders at this conference lends great confidence on the will to act on the intent. But, ultimately, we all need to be the stewards of our environment and planet (the only home we have).**