

Meeting notes

First Global Climate Change Collaborative (G3C) conference March 4-6 2008, MIT

Day one, March 4th, Coordinating committee closed session

Kirk Emerson, Director of the U.S. Institute for Environmental Conflict Resolution is facilitating. Chairs: H. Karl, M. Davidson and R. Sandford.

H.Karl welcomes the audience and asks for a round-table introduction. Each participant should clarify his/her expectation from G3C collaboration.

The tri-chairs and K. Emerson say a few words of the fact that the project plans should be generally put in 3-year period.

- Introduction of participants and their expectations:

1. Charles Curtin (US)

Interest: Resilience to climate change and looking at intersections between different ecosystems (e.g. coastal and terrestrial). Charles interest is also arid land management.
Expectation: Working internationally with these issues through G3C.

2. Walter Sleeth, Chairman of the advisory board of MUSIC (US)

Water is expert in fundraising techniques and his expertise has been applied to MUSIC to broaden goals and mission of MUSIC. He will share this expertise with G3C

3. Clive Lipchin (Israel)

Director of research at the Arava Institute for Environmental Studies (NGO).

Clive's research focuses on the Middle Eastern projects including transboundary water and environmental issues and governance (e.g. Dead Sea).

Clive's interest:

- Desalination policy, with regard to energy.
- Guiding principles for Jordan River watershed.

Expectation: Interested in connecting his research program with MUSIC and G3C efforts.

4. Andrew Hughes, British Geological Survey (UK)

Andrew focuses on ground water modeling and how it is used in decision making.

Expectation: developing projects in the Middle East and in Africa in collaboration with G3C. Andrew is involved in Catchment 20 Project with regard to groundwater issues in Africa.

5. Jerry Sehlke, Advisory Scientist of Idaho National Laboratory (US)

Jerry is interested in integrated energy development, looking at the impact of use of energy on water (energy water nexus interactions in policy level, basin level) also its social economic impacts. He is also interested in science- policy interactions and how to develop tools for using science in decision making.

Expectation: partnership, collaboration (basin level energy /water issues).

6. Kirk Emerson, Director of the U.S. Institute for Environmental Conflict Resolution
Interest and expectation: developing programs for dispute resolution also adaptation to climate change.

7. Dave Mattson: USGS scientist, MUSIC Scholar of Residence
Dave's interest is in social science and in designing dignity enhancing processes.
Expectation: identifying common grounds for future collaborations with G3C.

8. Rosemary Sandford, Project leader, Antarctic Climate and Ecosystems (Australia)
Her interest is common ground btw science and policy, with focus on Southern Hemisphere.
Expectation: Identifying projects including coastal and marine issues, costal zone management project development with G3C.

9. Michael Davidson, research associate, University of Pretoria, South Africa
Michael's research focuses on collaborative adaptive management in the Middle East and providing a peace plan for the Middle East.
Expectation: Identifying collaborative projects that gear to reach all stakeholders with focus on the Middle East environmental issues including cross-cultural and socio-economic projects.

10. Hilmi Salem. Research Director, Applied Research Institute-Jerusalem (Palestinian Occupied Territories)

His priorities are:

- Liberation of occupied territories
- Finding solutions for water scarcity

Expectations:

-Networking, with focus on the Middle East and pushing towards a more sustainable policy making.

And search for funding for projects including:

- Mitigating climate change and disasters.
- Reduce GHG emissions.
- Getting Gulf Regions involved with regard to climate change.
- Tackling deforestation and desertification.
- Poverty reduction.

11. Ram Boojh, Program Specialist in Ecological and Earth Sciences of UNESCO (India)
His interest and expertise are in translating science in reach out programs and transforming societies to climate friendly societies.
Exp: Networking and collaborative pilot programs.

12. Adel Najam, Professor of Negotiation and international relations in Boston University, co-author of the 3 and 4 assessment report on sustainable development of IPCC.

His interest is in bringing the global to local and visa versa, also environment and human security (national security aspect).

Expectation: Learn more about global/local relationships in coordination with G3C efforts.

13. Neda Farahbakhshazad, Research Scientist, Royal Institute of Technology, Stockholm (Sweden).

Neda's expertise is in water resources management an ecological engineering. She is currently engaged with a EU project for estimation of EU's nitrous emissions and its contribution to climate change.

Expectation: Providing common research with collaboration of Swedish universities, UNDP and G3C on interactions btw water and climate change.

After the round-table presentation, Herman Karl presents the overall MUSIC Program and frameworks for the G3C.

A summary of Herman's presentation and discussions:

Herman summarizes the framework as adaptation to impacts of climate change and solving environmental problems. If science the base for decision making, why research usually is ignored?

Reasons: Conflict (not always bad), complexity (unsolvable), uncertainty
What to do? Helping people understanding uncertainty and finding common language for communication (btw different disciplines and btw scientist and communities). Scientific communication must be credible, salient to social issues and legitimate.

Adversarial processes usually not recognize other interests which increase conflict, dueling scientist, causes conflict, mistrust, and litigation.

What to do? Using and incorporating people's knowledge in scientific process. Scientists should be part of policy relevant research.

How to make decisions? Based on values. We should define problems and ask for questions. Questions: How to define problems? Which questions to ask? From whom?

Collaboration is the key! This includes: field based experimentation, careful evaluation of experimental results and interdisciplinary theory building.

Keys of effective collaboration: Joint fact finding (engage communities in scientific process), test the theories/approaches with an adaptive management/governance approach.

Collaborative processes: Recognize legitimacy of other interest, explain uncertainty and reduce conflict, address values and interest, share leanings and trust, promote creative problem solving, share ownership of the problem.

Reading recommendation: Scholz and Stiffel, 2005, Adaptive Governance and water conflict.

Reading recommendation: Brunner and Steelman, 2005, Adaptive Governance, Integrating Science, policy and decision making (Open and transparent decision making).

Challenges: representation, deliberative, process design, scientific learning, public learning, problem responsiveness, Scholz and Stiffel (2005).

Reading recommendation: Alarm bells should help us focus, Neal Lane, Science, v 312, 2006.

Process of scientific analysis should be collaborative (this is how we carry out projects in MUSIC) by training new kind of environmental professionals: science impact coordinator.

Knowledge of local and indigenous people should not be ignored.

For planning adaptation to impacts of climate change:

We know about uncertainty, the focus should be adaptive governance and new institutional structure (New institutional arrangements).

To reach our goal science, social science, engineering and humanistic perspectives should be interrelated and complementary.

MUSIC program: 8 masters students with full tuition. Global Climate Change Program funds and supports training of students. The program also uses joint fact finding to give education to professionals.

Herman then introduces the curriculum of MUSIC which includes Policy and Planning, Planning for impacts of climate change, complexity ecology and policy design, also environmental leadership.

After Herman's presentation the discussion continues:

R. Sandford: We need new and flexible structures to tackle or adapt to climate change. Some countries may need help to build new structures. She mentions issues of cross-learning and significance of traditional processes.

A. Hughes: We should learn to ask the right question. What is the problem that clients want to solve?

G. Sehlke: There are some Backbone things (from science to policy) that are common for solving most of the problems. Ex: define what adaptive management is? Backbone of the adaptive management is the same for people, but application of it is not very well described. What we can do is to set the backbone but not necessarily answering all questions. The question is how to adapt the backbone to different cases, regions, specifics of the area?

After Jerry's talk we have a short discussion on the issue of democracy and if it is the right word for everyone.

A. Najam: In developing countries, the shift is happening from a traditional decision making to more scientific decision making. Traditional systems are not often democratic and some collaborative systems are messed up!

M. Davidson: One of the problems in the Middle East is that the institutional capacities in the Occupied Territories are not functional. The society is small and people have close relations. However, the resistance is from the upper politics. Role of scientist: To bring adaptive management to people through workshops, academic activities and other means but for that funding is needed (at least to introduce the concept)

H.Karl: How do we provide/search for funding?

G. Sehlke: Not everybody wants/understands adaptive management, e.g. on Colorado River, where decisions were made based on wrong science.

Question: How to design programs that adapt to different levels of social political instrumental capacity?

After the discussions Dave Mattson presents.

A summary of D. Mattson presentations and questions rose:

Goals and problems related to achieving the goals should be identified.

The theoretical propositions should be laid out.

Fundamental problem in any scale: widespread equitable values dynamics, access for all and prospect of human dignity.

Human dignity as a goal! What sustainability means? Sustain a commonwealth human dignity.

Despotic value dynamics (power in hands of few), causing rigid non-adaptive systems. Despotic value dynamics cause disrespect for people, e.g. in the Middle East.

Collaborative, evidence based decision process is needed. What we need in addition to identifying goals to identify common languages. We have to learn about each other's issues, also each other's mental models. We need to understand processes (of learning and decision making). Understanding the scale is very important: scale in both time and space.

D. Mattson continues: What we need to shift from is to move towards a sufficient intelligence function (instead of myth of science). Sufficiently relevant and empirical science is needed instead of traditional science and it should be transparent and believed in. This is different from paradigm of practice.

Adaptive management is an instrument for learning and for that we need to facilitate communication and a framework that promotes the communication (theory).

We need a common language for mapping social and decision process.

What constitutes a robust language?

Learning about objectified world and learning about subjectivities are different and we should identify these issues. Boundaries should be drawn btw the two.

Identifying people's creativity is a key.

Issues: role of law vs. flexibility

Common language/ethics vs. cultural differences.

Problems outcomes vs. learning process

Scientific method vs. provisional/contextual

Sufficiency principle vs. precautionary principle.

A.Najam: When you are in a particular context you should have common language.

Problem is that desire for common language slows the progress.

G. Sehlke: We need to have an understanding of the common things (the backbones)

R.Sandford: Common language: adaptation...Common understanding is sufficient.

At lunch one of MUSIC students Alexis Schulman presents her research Alexis presented her research and challenges. About shared values vs. conflict of interest.

And people share stories.

D. Mattson: The issue of governance is how to let people have a voice.

R.Sandford: How to use local knowledge in global climate models? People have huge amount of knowledge about climate profiles. How to include it in climate change decision making? A total body of knowledge is certainly necessary for tackling and for adaptation to climate change.

A. Hughes: About ground water data collection: we should try to encapsulate the knowledge in GIS and modeling. Models can sit between different actors and mediate!

R.Sandford: Ownership of knowledge is an issue. Who owns it? How do we deal with it? How do we as westerners stop claiming ownership of knowledge?

Recognition of gender differences important in addressing climate change- e.g.women's roles in society and in family/education/communication differ across cultures.

H. Salemi: Sustainable dignity is absent in the Middle East. Local knowledge in Palestinian side is very limited. For example a Dead Sea channel design project is funded by the World Bank but Palestinian's have not permission to participate in the project. Equity is needed for doing work on climate change in the Middle East.

R.Boojh: Empowering communities should include education; otherwise it might result in destroying the environment and diversity. How much empowerment should be given to local communities?

D.Mattson: In Conflict of interests what are the legitimacies? Who is right? Local citizens or the conservators? (e.g. case of tiger hunting in Sundarbans).
Dave also talks about creating 'global citizens' and fostering universalism.

After the discussions K.Emerson reads the draft of mission statement.

Questions

N. Farahbakhshazad: why use of the word 'Durability' in the statement? What does this word mean?

D. Mattson: Maybe 'evidence based', 'effective in application', and 'dynamic' should be terms to be used instead of durability. Also scale issue should be mentioned.

C.Curtin suggests emphasizing diverse experimental methods to be added in the last line of the first paragraph.

General question: who is the audience? We should pay attention to the wording if we want to use this statement for get funding!!!

C.Curtin proposes use of 'ecosystems' instead of 'people'.

D.Mattson suggests that ecosystems do not have agencies or voice... so we should use the word 'people'.

C. Curtin: are we interested in finding solutions or understanding the processes?

Discussions continue about wording of the purposes: do we want to solve? Or assist to response?

H.Salem: We should also mention education and awareness.

H.Karl: we don't use education because it put us in a higher level as if we know better.

K.Emerson suggests that H.karl, D.Mattson, G.Sehlke and C.Curtin will edit the draft. Participants approve. She continues the discussion with saying the need for identification of common set of concepts/criteria for the projects. The audience agrees on the following strategic criteria:

- Diversity
- Include geography/nation
- Include ecological systems/interactions
- Temporal scale/life cycle
- Scale dynamics
- Leverage networks
- Varying complexity
- Multi-disciplinary/collaborative (also biophysical/social inclusive).
- Considers multi-faceted context
- Framework driven
- Methodology-behavior-respect driven (for human dignity)
- Locally administrated
- Cross-scale
- Resilience based
- Multi-year
- Focus on highly impacted and vulnerable human/natural systems
- Communicative with partners (leaning lessons)
- Brings opportunities for comparative analysis/studies
- Action research not just analysis
- Adaptation to climate change
- Collaborative with policy science
- Respect for people's tradition/culture/environment
- Improve quality of life

End of day one

Day two: Wednesday March 5, 2008

H. Karl welcomes the audience and gives a short history of G3C as an internationally joint networking, for finding ways to work together. Three projects already exist in Australia, Gulf of Maine and India. G3C has become research arm for USGS.

K.Emerson gives a summary of March 4th meeting. Keystone of the projects is identified as: knowledge, human dignity and/or sustainable dignity.

Sharleen XXX a MUSIC alumni gives a presentation about her work with insurance industry and talk about the vulnerability of the industry to climate change and therefore the industry has started working with adaptation strategies. The audience discuss the involvement of environmental scientist with insurance industry and how do we as scientist leverage private sector.

Presentations: (All presentations will be available on MUSIC webpage)

1. R. Sandford's presentation:

Rosemary Sandford, Research Fellow, Policy Program ACE CRC (Antarctic Climate and Ecosystems Cooperative Research Centre), working with climate change science and policy research for Australia and the S.Pacific.

The organization has five programs, primary federally funded.

New Government of Kevin Rudd has changed the public policy intensively. Australia now ratified the Kyoto protocol. And pledge a 60% reduction by 2050. Australia has the highest emission per capita in the world.

ACE CRC leads Australia's effort to understand the roles of Antarctica and the Southern Ocean in the global climate system and climate change. Our research focuses on projecting future changes in sea level, understanding the ocean's processing of greenhouse gases and managing marine ecosystems, as well as analysing the policy implications of our science.

The main research projects for G3C consideration are:

1. Integrating climate and ecosystem models to predict climate change impacts on Australian marine systems
2. Climate change impacts on Pacific Marine ecosystems: Coordinated Science, Imaginative Synthesis and Policy action (science policy interface).(Tom Okey)
3. Mainstreaming climate science in government decision making in Australia and the South Pacific in three key sectors of coastal zone management, coastal fisheries and aquaculture.(Rosemary's research).

Two major concerns for small islands: salt water intrusion in ground water and sea level rise & impacts of sea level rise extreme events.

Learned from the project: science and data outputs of the project are highly valued both at regional and global levels. There is a need to value Pacific Islands priorities. End user participation is essential from the design to implementation.
And finally capacity building is an essential component of international scientific projects.

How science is built into the UN adaptation plans especially for the developing countries (which includes the South Pacific Region).

Answer to Questions: Knowledge should be in an easily understood and 'digestible' form for the communities and politicians.

2. H.Karl reads Randa Basu's letter about the Sundarbans region.

3. C. Curtin presentation of Gulf of Maine project

Title: Towards building resilience in inshore ecosystems.

Problems: Size of the fish has decreased drastically together with loss of productivity and diversity. Lobster dominates the fishing industry and tourism. Very few institutions look at land/sea connection.

Project: Near Shore Ecosystem Collaboration, bringing lessons from Rangelands. And joint scientist rangers working together.

Strategy: Develop shared understanding of landscapes and seascapes from first principles. Also create new communities who are participating in problem solving. And building cross site network and adaptive learning. Bridge the gap between fisherman and scientist. Building community based knowledge. Working cross systems (marine, terrestrial), which needs new institutions. Share understanding and ecosystem models. Sea level rise will put the rich environment of the Gulf of Maine in danger. How to mitigate climate change, which has ecologically and socially huge impacts. Which tools to use to protect the system? How to address the link between marine and terrestrial systems?

Questions: Key challenge: How to find projections that people find useful?
How to resolve the conflict between the government's decisions and social system's needs and expectations?

4. Adil Najam's presentation

Consider the world as a Third World country!!

If we constraint to decision making in global level:

How the nature of globalness makes decision making more difficult or easy?

What is the IPCC experience in global scientific collaboration?

How to understand contexts for collaboration.

Global decision making should be made in the context of the world as a third world country! Therefore environmental challenges become questions of insecurity.

IPCC SRES reports, Kyoto protocol, UNFCCC articles etc.... Show increase of activities (which is good!). Debate of emissions lead to: efficiency, equity, sustainability debate.

First IPCC report, mainly chemists, scientists, modelers

Second report, economists, scientists, some social scientists

Third report, social scientists, climate science, economists,

Fourth assessment includes sustainability.

Problem with global debate: What makes us insecure?

Most of the world insecurity is about human insecurity (high social disruption, society centered)

Mindset of efficiency and the mindset of justice. This is the big tension!

Adaptation is linked with development and not separable from it.

Language of climate: emission or cost and none of them help the adaptation discussion.

Livelihood should be the new currency.

5. Adriaan Slob (the Netherlands) from TNO (applied scientific research), Built Environment and Geosciences presentation:

Adriaan speaks about the problem of climate change in the Netherlands. The agenda:

Water authorities' collaboration with the municipalities.

Developing methods of bringing stakeholders in policy making process in water management.

Modeling with stakeholders:

1. Identify requirements for model and its use from stakeholders point of view which resulted in models technical specifications

Afternoon Session:

1. Friends of the Earth in the Middle East (FOE) presentation by Roberta Wiesbud.

The NGO works with environmental projects on shared water resources. Their projection of impact of climate change includes reduction in precipitation, temperature increase, sea level rise, extreme events, security implications and fewer water resources. Even if there are regional and local collaborations the situation is getting worse. In 2001 FOE has started programs to share water resources among communities through education in water saving in buildings with water saving devices. (called: Good Water Neighbors). FOE promotes ecotourism for alternative sustainable livelihoods. Expectations from G3C: Expanding the Good Neighbor programs, scientific advice and engagement partnerships, sharing simple applied technologies to make an adaptation to climate change. Also internships and student engagement in community based stewardship.

2. M. Davidson presentation

Main topic: Peace in the Middle East.

Major issue: Water management of the Middle East.

Challenges of water quantity and quality: in Gaza chloride and nitrate concentration is very high and some kind of water treatment system should be involved. The problem is that Israel has working/health institutions but it is not the case in the Occupied Territories. In addition there is lack of precedent and treaty provisions for groundwater management (most controversial). The region is suffering from the highest evapotranspiration rate in the world, which makes water a scarce resource. Israel recently moved water policy and allotments from ministry of agriculture to ministry of infrastructure which later passed regulations to reduce water for agriculture drastically. Unfortunately the management system has gone back to the separation system instead of collaborative management.

Another major issue considering both water and energy is desalination.

Also North Gaza needs an emergency sewage treatment project.

Plans:

Participation in workshops on adaptive collaborative management (IPCRI; Palestinians and Israelis think-tank) in Antalya Turkey 2008.

Proposal, supra. National management integrating all parts.

Many collaborative projects need adaptive management.

North Gaza emergency sewage treatment project.

Unfortunately US has totally disengaged itself from Gaza and this engagement is needed (maybe through G3C efforts?).

3. Clive Lipchin presentation

Clive one more time identifies desalination and management of the Dead Sea region (as shared responsibility) as the major issues. Adaptive management is urgently needed. He is involved in GLOA project on modeling Jordan River water resources management. Clive also mentions the problem of dataset collection and management and how the datasets are different between Israel, Jordan and the Occupied Territories. A joint dataset (jointly gathered/managed) is necessary for carrying out further projects.

More on the Dead Sea issues: The level of the sea is falling as a result of water diverting. There are plans form pumping water from the Red Sea to the Dead Sea, however there are no studies showing the impact of this mixture on the sea's environment.

4. Andrew Hughes' presentation:

British Geological Survey (BGS) is using modeling (e.g. Modflow Model) for management of groundwater flow. In addition they are working on projects to study impact of climate change in rural Africa. He mentions that climate change in term of water resources might not be a bad thing in some regions but in term of operational systems it is a great problem.

BGS also works with projects in the West Bank, e.g. providing hydrogeological maps of the region.

H.Salem questions the accuracy of the maps where there is no possibility of sampling in most of the West Bank.

5. Ron Prinn's presentation (introduced by R.Sandford):

Ron presents the MIT joint program on the science and policy of global change and its goals. The program uses a model of human and natural components of the earth system called the MIT Integrated Global System Model. The model includes human activity and ecosystem dynamics providing large range of outputs. Forecasting of climate in models contains a wide range of uncertainties.

The other model used is the IGSM model of human activity Emissions prediction and policy analysis (EPPA) Model.

Models show the energy efficiency is an important factor for reducing emissions. Ron mentions the challenges in bio-fuel production which reduces agricultural production. Biofuels will result in increase in food prices. Biofuels in many cases are not really carbon/ or water friendly. Instead, he believes that making efficient transport systems and building can help saving energy.

6. Ram Boojh's presentation:

Ram presents Unesco's efforts to tackle climate change: making vulnerable communities aware of climate change, training journalists, education and capacity building, publications, etc...

Ram also talks about the Bali roadmap, adaptation fund to help poor countries, forest conservation, reduce emission from deforestation.

Solving the conflict btw interests and conservation is Boojh's interest and focus in Sundarbans.

7. Paul Kirshen's presentation

Paul presents the Climb (Climate Impact on Metro Boston) project, quantifying impact of climate change on urban areas and estimates the cost of damages and adaptation. Paul discusses the uncertainty in adaptation planning, and risk based analysis.

Objectives of the project: Providing guidance tools for planning and management of urban drainage systems under a changing climate.

Future project: study climate change impacts in cities in the developing world.

End of day two.