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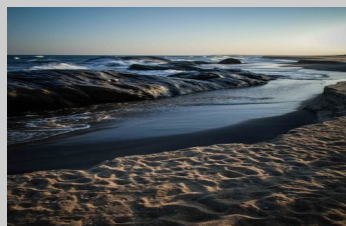
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In This Issue:

- Feature: Bringing across the value of IA p. 1
- TIAS News p. 3
- New Publications p. 3
- Events p. 4
- Courses p. 4



(Photo: Ulli Meissner ©)

The Society

The Integrated Assessment Society is a not-for-profit entity created to promote the community of inter-disciplinary and disciplinary scientists, analysts and practitioners who develop integrated assessment. The goals of the society are to nurture this community, to promote the development of IA and to encourage its wise application.

Integrated Assessment Defined

Integrated Assessment (IA) can be defined as the interdisciplinary process of integrating knowledge from various disciplines and stakeholder groups in order to evaluate a problem situation from a variety of perspectives and provide support for its solution. IA supports learning and decision processes and helps to identify desirable and possible options for addressing the problem. It therefore builds on two major methodological pillars: approaches to integrating knowledge about a problem domain, and understanding policy and decision making processes. IA has been developed to address issues of acid rain, climate change, land degradation, water and air quality management, forest and fisheries management and public health.

Feature

Bringing Across the Value of Integrated Assessment

By John Callewaert, Graham Sustainability Institute, University of Michigan and TIAS Advisory Board member, and Lynn Vaccaro, Water Center, University of Michigan

University of Michigan (U-M) Water Center and Graham Sustainability Institute staff are working with the U.S. National Oceanic and Atmospheric Administration (NOAA) to coordinate the National Estuarine Research Reserve System (NERRS) Science Collaborative. The National Estuarine Research Reserves System protects more than 500,000 coastal and estuarine hectares in 28 reserves located in 22 states and Puerto Rico for purposes of long-term research, environmental monitoring, education and stewardship. One of the goals of the NERRS Science Collaborative (NSC) is to support the co-development and application of relevant and usable knowledge and assessment information to address critical coastal management issues identified by the NERRS. In doing so the NSC plans to improve the long-term stewardship of valuable estuaries. The NSC works to achieve this goal by managing a competitive research grants program, providing support for funded projects and continually evaluating and improving program implementation.

The NSC effort supports projects that address reserve priorities, engage end users, are highly collaborative and integrated, and emphasize outcome-oriented products that are usable and accessible. Research projects are explicitly designed to meet the needs of end users and are tied directly to a specific reserve. Using a well-developed and clearly articulated collaborative process, NSC research projects must engage end users and relevant partners and stakeholders throughout the entire project, from development through implementation.

As U-M staff worked to develop plans for the NSC, we were eager to introduce Integrated Assessment (IA) as a new platform for the NERRS collaborative science community. While many of the currently funded NSC projects involve applied science, we determined that a specific emphasis on IA will assist the NSC with projects where considerable information exists but has not yet been integrated and synthesized in ways that support end users, e.g., decision or policy makers, in their evaluation of management or policy options. In our discussions with the NERRS community we determined that clearly defining IA and key participant roles are critical for explaining how IAs can add value to the NSC. We offer insights on these two key components to assist others who may be working to extend the application of IA.

Defining Integrated Assessment for New Audiences

Few coastal resource management problems are purely “environmental” in nature. They impact economies and business, infrastructure and property, human health, and well-being. Science may be essential to addressing a problem, but when it does not account for the economic, regulatory, and social aspects of a problem, it is often ignored by non-scientific communities. Hence, IA teams work collaboratively with stakeholders to examine the root causes of a problem and evaluate potential options to address that problem.

IA methods can vary depending on the issue, decision-making needs and the scope of the project. Recognizing that IAs summarize scientific knowledge to build consensus and guide decisions about how to address a particular resource management, environmental, or sustainability issue (Figure 1), we determined that it is essential that the projects involve a review and analysis of existing information. The NERRS is a well-established scientific community and there is another NSC funding mechanism for more traditional scientific projects. In our work, it has been important to guide research teams developing IA funding proposals that rather than (.../2)

focusing on new data collection, teams should focus on a synthesis of what is known and go a step beyond presenting the scientific facts to offer an assessment or an evaluation of those facts.

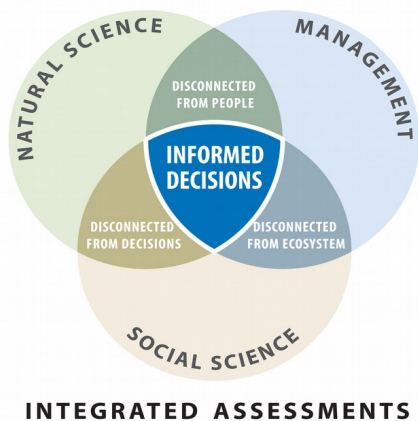


Figure 1: IA brings together knowledge of ecosystems, people and policy to improve decision making (source: Michigan Sea Grant)

In addition, we developed the following list of key integration criteria for all teams developing IA proposals:

- 1) IAs integrate input from intended users of the assessments to clarify the context of and frame for the assessment in a way that can best guide decisions;
- 2) IAs integrate stakeholder perspectives to incorporate diverse views about the issue and potential solutions;
- 3) IAs integrate knowledge from several disciplines, typically the physical, biological, technological, and social sciences; and
- 4) IAs integrate an assessment of both causes of and solutions for the focal problem.

These criteria may be familiar to anyone who has been involved with IAs but we found it important to emphasize them in our materials and communications with the NERRS community in order to clarify how IAs would be different from previous collaborative efforts which often focused on data collection, analysis and education.

Integrated Assessment Participants

While most NSC funded efforts involve some form of stakeholder engagement, the need for a well-developed engagement plan throughout the entire project became clear as we discuss-ed strategies for integrating technical specialists and a diverse group of end users and stakeholders. To guide teams, we developed the following explanation of the specific roles for different participants in the IA process, recognizing that some people may play multiple roles.

End Users

Effective IAs are developed in collaboration with one or several reserve managers or policy makers who have authority to influence decision making related to the focal issues, and who plan to use the results of the assessment (Box 1).

Box 1: Definition of End User

End users are individuals or groups planning to use and apply project results. For the NSC, end users may include:

- Reserve staff, natural resource managers, land owners or land use planners;
- Decision makers from local, state, federal or tribal governing bodies or government agencies;
- Leaders from non-governmental or private groups actively involved in addressing the focal questions.

The NERRS Science Collaborative defines “end user” as a person or group in a position to apply the information or tools being produced, evaluated, or transferred through a project in a way that is of direct consequence to the ecological, social, or economic integrity of a reserve(s) and/or surrounding watershed(s). End users should help define the focal issue, clarify the decision making context, identify key stakeholders, and highlight current information needs. A key component of the NSC is that an end user must be the spokesperson/advocate for the project during the final step in the proposal review process.

Stakeholders

In addition to the targeted end users, IAs should engage a diverse group of stakeholders who are interested in or affected by the issue, even if they do not have any decision-making authority (Box 2). These are people who can contribute positively if they are involved, or impede the implementation of new ideas if they are excluded. All end users are stakeholders but not all stakeholders are end users.

Box 2: Definition of Stakeholder

A stakeholder is anyone who is affected by or who has an interest or stake in a particular issue. For the NSC, stakeholders may include:

- Members of local, state, federal, or tribal governing bodies or government agencies
- Business leaders and industry representatives
- Representatives from non-profit groups or other citizen organizations
- Individuals from loosely defined user groups, such as local residents, recreational boaters, or farm owners
- Any other individual with an interest in the issue

Opportunities for meaningful collaboration within an IA allow stakeholders and technical specialists to learn from each other, develop a more comprehensive understanding of the issue, and establish relationships that extend beyond the project period. Some IAs formally assess stakeholder opinions to help characterize the issue or inform the selection and evaluation of options. IAs need not always engage a large number of stakeholders if they seek out respected individuals as representatives of multiple perspectives on an issue and create a meaningful role for them as advisers to the assessment team.

Technical assessment team

Natural, physical and social scientists and other relevant experts comprise an inter-disciplinary team implementing the project, which gathers and analyzes relevant data and information for the assessment.

Project Advisory Group

Based on our previous experience with IAs, we have also encouraged assessment teams to develop a formal project advisory group that includes end users, key decision makers, and representative stakeholders. Regular discussions with a select number of individuals can be a more meaningful, effective, and efficient way of soliciting input than a broad outreach effort. The advisory group should include representatives from different sides of the issue, including those likely to be vocal opponents or proponents of any potential solutions. In some cases, an appropriate advisory group may already exist and the team can formalize a relationship with the IA. Meetings with the advisory group offer a chance to regularly share results, solicit input, discuss changes in the policy/management landscape, and build relationships among a carefully selected group.

Moving Forward

The NSC is currently working with several teams on the (./3)

development of an initial round of IA proposals. Final funding decisions will be made by mid 2015 and additional projects will be funded over the next 2-3 years. We expect that this first round of funded projects will help inform our future NSC efforts as well as other IAs sponsored by the Graham Institute – particularly the lead role we are asking end users to assume during the final stage of the proposal review process. We plan to share new insights for bringing IAs to new audiences and resources for guiding projects developed through this work with the TIAS community.

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This article is the second in a series contributed by TIAS Advisory Board members. Feedback and the sharing of additional insights emerging from related activities are encouraged and can be provided to the authors directly and/or to [info\[at\]tias-web.info](mailto:info[at]tias-web.info). Where appropriate these may, with the permission of the contributor and the authors, also be published in a subsequent issue of the newsletter.

News

New members welcomed

TIAS extends a warm welcome to new members, Cheryl de Boer, a postdoctoral researcher at the University of Twente in the Netherlands and Rich Rosen, Executive Vice President and founding member of the Tellus Institute in the US. Cheryl de Boer's research focuses on water governance, resilience engineering and (local) natural resources management. Rich Rosen's current research is concerned with alternative economic visions and models for the global economy.

We also welcome the Institute of Environmental Systems Research (IUSF) as an institutional member of TIAS. A number of IUSF staff are already active in TIAS and this membership will bring more young scientists into the TIAS fold. We also take this opportunity to invite individual members to upgrade their membership to an institutional membership for the benefit of your colleagues who may be interested in our network.

Funding proposal update

In the March newsletter we announced the submission of several proposals. We have now received two responses from the German Volkswagen Foundation, one of which was positive. The Foundation has granted the Institute of Environmental Systems Research and TIAS €50,000 for the organization of an Autumn School on **“Concepts, frameworks and methods for the comparative analysis of water governance”**. The Autumn School which will likely take place in November in Germany will be announced in early July.

Our second application to the VW Foundation for the organization of a conference on **“Securing water and food in a changing world”** as part of the “Herrenhäuser Conference Series 2016” was unfortunately not successful. The Foundation encouraged us to try again next year. At the same time, we are seeking funding sources for a TIAS conference on the more generic theme of advances in Integrated Assessment.

The result of our collaborative team science proposal **“Enhancing Integrated Assessment for improving the understanding of socio-environmental problems and decision-making”** is expected later this month. It was submitted by the Graham Sustainability Institute, University of Michigan in collaboration with TIAS to the US National Socio-Environmental Synthesis Center (SESYNC).

On May 11th, members of the working group on Social Impact Assessment (SIA) had a fruitful meeting, and are jointly preparing a pre-proposal to the Rockefeller Foundation. The

focus is on SIA for enhancing resilience in a changing climate.

A new look

TIAS website has a new look (www.tias-web.info). Later this year the newsletter will also get a new look and go digital.

AGM on July 14th

The Annual General Meeting will take place July 14th online. For more information, contact the secretariat: [info\[at\]tias-web.info](mailto:info[at]tias-web.info).

New Publications

“Disaster Resilience Education and Research Roadmap for Europe 2030” by Dilanthi Amarunga and colleagues. Published by the Disaster Resilience Network (2015)

The disaster resilience education and research roadmap for Europe 2030 is an output of the ANDROID Disaster Resilience Network. The roadmap sets out five key challenges and opportunities in moving from 2015 to 2030 and addresses the challenges of the recently announced Sendai Framework for Disaster Risk Reduction 2015-2030. The roadmap can be downloaded from:

http://www.disaster-resilience.net/images/Outputs/WP9/ANDROID_ROADMAP_ENGLISH.pdf

“The economics of mitigating climate change: What can we know?” by Richard A. Rosen and Edeltraud Guenther (2015)

The economics of mitigating climate change in the long run has played a key role in the most important analyses of climate change in the last decade, namely the Stern Report and the IPCC's Fourth Assessment. However, the various kinds of uncertainties that affect these economic results raise serious questions about whether or not the net costs and benefits of mitigating climate change over periods as long as 50 to 100 years can be known to such a level of accuracy that they should be reported to policymakers and the public. Because of these serious technical problems, policymakers should not base climate change mitigation policy on the estimated net economic impacts computed by integrated assessment models. Rather, mitigation policies must be forcefully implemented anyway given the actual physical climate change crisis. The article can be downloaded from:

<http://www.tellus.org/tellus/author/e-guenther#sthash.spLY9GsY.dpuf>



Vietnam (Ulli Meissner ©)

“Stakeholder Engagement for Inclusive Water Governance” by the OECD (2015)

This OECD report assesses the current trends, drivers, obstacles, mechanisms, impacts, costs and benefits of stakeholder engagement in the water sector. It builds on empirical data collected through an extensive survey of 215 stakeholders, within and outside the water sector, and 69 case studies collected worldwide. It highlights the increasing importance of stakeholder engagement in the water sector as a principle of good governance and the need for better understanding of the pressing and emerging issues related to stakeholder engagement. The full report is available from: <http://www.oecd.org/environment/stakeholder-engagement-for-inclusive-water-governance-9789264231122-en.htm>

New Publications Cont'd.

"Critical appraisal of assumptions in chains of model calculations used to project local climate impacts for adaptation decision support – the case of Baakse Beek". By Jeroen Van der Sluijs and J. Arjen Wardekker (2015) *Environmental Research Letters*, 10, art. no. 045005.

The Netherlands Models and Data Centre has implemented a pilot chain of sequentially-linked models to project local climate impacts on hydrology, agriculture and nature under different national climate scenarios for a small region in the east of the Netherlands. In the paper the authors present and apply a method for the systematic critical appraisal of model assumptions that seeks to identify and characterize the weakest assumptions in a model chain. The critical appraisal of assumptions presented in the paper has been carried out ex-post. The method for critical appraisal of model assumptions presented and tested yields rich qualitative insight into model uncertainty and model quality. It promotes reflectivity and learning in the modelling community, and leads to well-informed recommendations for model improvement. To download: <http://iopscience.iop.org/1748-9326/10/4/045005/>

"Science, Philosophy and Sustainability: The End of the Cartesian Dream" by Angela Guimaraes Pereira and Silvio Funtowicz (2015)

This book considers new ways in which science can be used to sustain our planet and enrich our lives. It helps to release and reactivate social responsibility within contemporary science and technology. It reviews critically relevant cases of contemporary scientific practice within the Cartesian paradigm, relabelled as 'innovation research', promoted as essential for the progress and well-being of humanity, and characterised by high capital investment, centralised control of funding and quality, exclusive expertise, and a reductionism that is philosophical as well as methodological. More information:

https://books.google.nl/books?hl=en&lr=&id=_K7ABgAAQBAJ&redir_esc=y

Events

Scientific Conference '**Our Common Future under Climate Change**', 7-10 July 2015, Paris, France
More information: <http://www.commonfuture-paris2015.org/>

Operationalisation of Ecological Public Health – Integrating Ecosystem Services into Health Impact Assessment – Workshop. 9 August 2015 in Baltimore, USA
The novel, ecosystem-enriched "eDPSEEA" model will be presented which integrates both health impact assessment and ecosystem services in an attempt to operationalise Ecological Public Health, a concept elaborated by Rayner and Lang (2012). As an illustrative example of the potential applications of eDPSEEA, this workshop will explore the impact on both human and ecosystem health of nutrient pollution with interactive audience participation, seeking new pathways, impacts and potential actions including policies. A report on the event is anticipated. More information:
<http://eco.confex.com/eco/2015/webprogrampreliminary/Session10786.html>

Sustainable Development Goals: A Water Perspective Conference, 17-18 August 2015 in Bonn, Germany. Hosted by Global Water System Project and Future Earth with the support of the German Federal Ministry of Education and Research. More information: <http://sdg2015.gwsp.org/>

Symposium on Narratives and Imaginaries. 03 Sept. 2015. University of Bergen, Norway. Concepts of narratives and imaginaries are of growing interest to scholars in disciplines across the social sciences and humanities. The morning session will explore concepts of narrative with a focus on film and visual media. The afternoon session looks at the concepts of imaginaries. Registration is not necessary. More information:
<http://www.uib.no/en/svt/88707/symposium-narratives-and-imaginaries>

Transformations2015: People and the Planet in the Anthropocene, 5-7 October 2015 in Stockholm. Stockholm Resilience Centre and Stockholm University in collaboration with Future Earth. More information:
<http://transformations2015.org/>

Systems Analysis 2015. Hosted by IIASA. 11-13 November 2015 in Laxenburg, Austria. More information:
<http://www.iiasa.ac.at/web/home/about/events/151111-SystemsAnalysis.html>

Courses

Climate change governance: Adaptation and mitigation as institutional change processes. 14-25 Sept. 2015. Wageningen, Netherlands. Deadline for applications: 03 Aug 2015. More information:
http://www.wageningenur.nl/en/Expertise-Services/Research-Institutes/centre-for-development-innovation/short-courses/show/cdicourse_climate_change_governance_2015.htm

Short courses for PhD and post-doc researchers offered by HIGRADE - Helmholtz Interdisciplinary GRADuate School for Environmental Research in Leipzig, Germany:

- **Mapping Ecosystem Services**, 16-17 Sept. 2015
 - **Introduction to Handling Spatial Data with R** 28-29 Sept. 2015
 - **Working at the Science-Policy Interface**, 12-16 Oct. 2015
- Application deadline: 13 Aug. 2015. More information:
<http://www.ufz.de/higrade/index.php?en=33430>

IUSF-TIAS Autumn School on "**Concepts, frameworks and methods for the comparative analysis of water governance**" to be announced in early July.

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