



# TIAS Quarterly

Volume 2, Issue 4 - October 2005

The newsletter of *The Integrated Assessment Society (TIAS)*

<http://www.tias-web.info>

## In This Issue:

Social Learning and Integrated Assessment	p. 1
Events and Courses	p. 3
Job Openings	p.4
Recent publications	p. 4
Call for submissions	p. 4

## 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 and use integrated assessment. The goals of the society are to nurture this community, to promote the development of IA and to encourage its wise application.

The supporting board of TIAS is listed on the TIAS website: <http://www.tias-web.info/>.

### TIAS President

**Claudia Pahl-Wostl**, Professor for Resource Flow Management Institute of Environmental Systems Research, University of Osnabrück, Germany

### 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.



## Feature

### Social Learning and Integrated Assessment

*Alex Haxeltine and Helene Amundsen, Tyndall Centre, University of East Anglia, UK*

#### Introduction

Social Learning (SL) certainly seems to be in fashion at the moment. But what does it actually mean in the context of research on Integrated Assessment (IA)? We decided to address this question by looking at how SL concepts have been applied in other fields of research. SL concepts have been used in a wide range of social science disciplines such as the psychology and education literature, organisational learning, adaptive management, and politics and policy analysis, to name but a few. Even a brief review reveals that "the term 'social learning' conceals great diversity" (Parson & Clark 1991 p.3), and that there is no generally accepted definition of the term within the social sciences.

The main results of our review will be presented elsewhere (as an article submitted to IAJ in fact) but here we just have space to present a five-element "orienting" framework for applying SL to IA research. This was one outcome of our review, and we present it in the hope that it might stimulate discussion on the application of SL theory to IA.

#### Learning and Social Learning

First let's start by asking what we mean by learning? For a working definition of learning we make use of a recent review paper on SL:

*'the transformation of the potential for behaviour of an actor in response to experience, as seen from the viewpoint of an observer' (High & Pelling 2003 p.4).*

This definition emphasizes the fact that different observers (in-

cluding the actor/s undergoing the learning process) may have different perceptions on whether or not any learning has occurred, and importantly, that learning involves the potential of changed behaviour by an actor as a result of past experience. High and Pelling (2003) speak of actors having the ability to learn, where actors are understood in a broad sense as individuals, networks, organisations, or institutions. When learning is seen in terms of the actor as being either individual or social entity, it provides a conceptual link between social learning and social processes on the collective level (High & Pelling 2003).

This definition focuses on learning from experience, additionally, learning may take place through interaction, communication, dialogue, access to new information and observation of other actors. The results of learning could be one or more of the following: behavioural change, increased adaptive capacity of a society, increased knowledge base of actors, interaction between actors, change in organisational structures, change in attitudes, values and discourses. This then leads to an interesting set of questions about whether the nature of the learning is different in important ways depending upon which qualities have actually changed.

Moving from learning to the concept of social learning one finds that the term is often used not just to refer to learning by groups of actors, but that definitions also tend to include normative assumptions about what learning by groups of actors can achieve. For the purposes of this discussion, we simply see the social learning process is an open ended process, in which iterative inter-

action between different actors drives a learning process.

### **Applying Social Learning concepts to research on Integrated Assessment**

So how should we conceptually link SL concepts to IA? We specifically consider research on IA carried out within the context of interdisciplinary research projects, and assume that:

- social learning will take place within the project, through regular dialogue and interaction among the team members, and by evaluating progress and adjusting plans; furthermore, social learning may occur whether or not the project is explicitly considering social learning as a goal and/or implementing a methodology to achieve that goal.
- social learning also takes place outside of the project in the societal context of the system being studied by the project;
- social learning will occur through dialogue with actors and stakeholders that the project interacts with; interactions may occur through a variety of intentional and unintentional means, including through the application of participatory IA tools and methods; through these interactions the project may, or may not, influence these wider social learning processes occurring in society.

Learning may take place at the individual level and at the collective level. Social learning will not necessarily lead to behavioural change or "better" outcomes or "better" decision making but simply means that the "potential" to behave in certain ways is changed. Thus we adopt a stance that does not make assumptions about the potential of social learning to achieve desirable versus undesirable outcomes.

#### **A five-element framework**

Based upon the above, we develop a five element framework for orienting thinking about applying SL theory to IA.

##### **1) Using Social Learning theory to assess social and institutional change**

This first element refers to using SL concepts to frame the analysis of change processes in the system being studied. There are many different fields of research that can be drawn upon for inspiration here. For example, one seminal example of research on understanding SL processes in society, has been the work of the Social Learning Group (Clark et al. 2001b). They found that for a particular issue (e.g. climate change) there are periods of more and less intense social learning; when an emerging issue starts to get more attention, there may be a 'window of opportunity' to reframe the issue and change the actors involved. This idea of windows of opportunity has also been identified in other studies, especially in relation to external shocks ('crisis as catalysts') to the system, that makes it possible to introduce new policies that have been developing over time (Carter 2001; Berkes & Folke 2002; Johnson et al. 2004).

The challenge for an IA methodology then is to be able to identify when such a 'window of opportunity' is taking place or likely to take place. If the 'window of opportunity' is identified, the potential for change may be large and this could have important implications for the feasibility of policy interventions. Assessment of the factors that can influence a particular societal SL process could also be of great relevance to an IA.

##### **2) Managing Social Learning in the internal dynamics of the research process**

This element relates to SL within the research project itself.

There is again a wealth of material that can be drawn upon from the education and psychology literature, business and management literature and organisational learning literature. In addressing SL within a research or IA process:

- A strategy for facilitating SL should be built into the project design;
- the internal SL process should be harmonized with the other four elements (i.e. the internal SL process should be appropriately linked to external actors on the one hand, and to the learning process of individual researchers on the other hand);
- the SL process should be iterative;
- at each iteration there needs to be space for "creative dialogue" within the project.

More generally the SL process needs to address mechanisms for communication within the research project (from face-to-face meetings to use of new technology such as video-conferencing) and issues affecting communication including the personal motivation of researchers (see element five below) and inter-personal relationships between researchers in the project.

##### **3) Facilitating Social Learning in interactions with external actors**

A wide set of participatory IA tools now exist which are aimed at facilitating interaction with actors for varying research, assessment and communication purposes. We suggest an important distinction between tools that work with learning at the individual level versus those that genuinely address learning by social aggregates. A second important distinction can be made between tools which apply instrumental goals (e.g. getting people to turn off the lights in a building) to the SL process versus tools which explicitly acknowledge the open-ended and unpredictable nature of a SL process.

Two challenges for IA methodologies are: to identify (or develop) participatory IA tools that can work with learning at the aggregate or group level, and effectively interact with social learning processes occurring in society at large; and to identify (or develop) participatory IA tools that can handle open-ended SL processes that do not have specific goals.

##### **4) Interacting with "deeper" or higher-order learning processes**

We see this issue of deeper or higher-order learning as being of key importance to research on the integrated assessment of sustainability. Transitions to sustainability may require fundamental shifts in the way that problems are framed and interventions made; therefore we can hypothesize that such changes would need to be associated with deeper or higher-order learning processes. This point might be relevant to any of the previous three elements.

The literature on organisational learning and the literature on policy analysis have developed thinking about the nature and quality, or depth of different types of learning. In particular the work of Argyris and Schön (e.g. 1978; 1996) on single and double-loop learning has been highly influential:

*'By single-loop learning we mean instrumental learning that changes strategies of action or assumptions underlying strategies in ways that leave the values of a theory of action unchanged. By double-loop learning, we mean learning that results in a change in values of theory-in-use, as well as in its strategies and assumptions'* (Argyris & Schön 1996 p.305).

Single-loop learning is learning that takes place within the current discourse; while double-loop learning challenges the existing discourse and results in a change or transformation of it.

'When the error detected and corrected permits the organization to carry on its present policies or achieve its present objectives, then that error-and-correction process is single-loop learning. Single-loop learning is like a thermostat that learns when it is too hot or too cold and turns the heat on or off. The thermostat can perform this task because it can receive information (the temperature of the room) and take corrective action. Double-loop learning occurs when error is detected and corrected in ways that involve the modification of an organization's underlying norms, policies and objectives' (Argyris & Schön 1978 p.2-3).

Exactly what leads to a double-loop learning and not a single-loop learning is an important theme for theories of organisational change.

Deutero learning is another important concept in this context, it refers to 'learning about learning' (Argyris & Schön 1996). Learning to learn is an important topic in many contexts, including development project work where it is vital to learn from previous experiences (Redford 2005), and in adaptive management where learning to learn and learning from experience are seen as key to long term processes of change.

The challenge for IA is to develop methodologies that can a) interact with or foster learning processes at a deeper level; and b) identify the potential for deeper learning processes in the system being assessed.

### 5) Addressing learning at the individual level

Finally, as the fifth element, we consider the individual researcher herself. Peter Senge's work on the "learning organisation" describes how organisations can develop towards common goals (Senge 1990). He defines learning organisations as:

*'organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together'* (Senge 1990 p.3).

One of the interesting features of his work is the great emphasis he places on the creative learning process of the individual; and the way that the learning process at the individual level underpins everything else that happens in the organisation. Few or none of our research projects seriously consider the issue of how to bring out the best creativity and greatest motivation of individual researchers. Neither do we tend to explicitly address the social and personal issues that very often affect the smooth progress of research projects. Maybe its time that we did.

### References

Argyris, C., & Schön, D. (1978). *Organizational learning: A theory of action perspective*. Reading, Mass: Addison Wesley.

Argyris, C., & Schön, D. (1996). *Organisational Learning II Theory, Method, and Practice*. Wokingham: Addison-Wesley Publishing.

Berkes, F., & Folke, C. (2002). Back to the Future: Ecosystems Dynamics and Local Knowledge. In L. H. Gunderson & C. S. Holling (Eds.), *Panarchy. Understanding Transformations in Human and Natural Systems*. Washington: Island Press.

Carter, N. (2001). *The Politics of the Environment. Ideas, Activism, Policy*. Cambridge: Cambridge University Press.

Clark, W., Dickson, N., Jäger, J., & van Eijndhoven, J. (Eds.)

(2001a). *Learning to manage global environmental risks Volume I: a comparative history of social responses to climate change, ozone depletion and acid rain*. Cambridge, MA: The Social Learning Group, MIT Press.

Clark, W., Dickson, N., Jäger, J., & van Eijndhoven, J. (Eds.). (2001b). *Learning to manage global environmental risks Volume II: A functional analysis of social responses to climate change, ozone depletion, and acid rain*. Cambridge, MA: The Social Learning Group, MIT Press.

High, C., & Pelling, M. (2003). *Understanding adaptive capacity to rapid climate change: Theories of social and organisational learning*. Rapid Climate Change Project. Working Paper 1.

Johnson, C., Tunstall, S., & Penning-Rowsell, E. (2004). *Lessons from Major Floods*. Environment and Human Behaviour Newsletter 02: ESRC new opportunities program.

Parson, E. A., & Clark, W. C. (1991). *Learning to Manage Global Environmental Change. A Review of Relevant Theory*. CSIA Discussion Paper 91-13: Kennedy School of Government, Harvard University.

Redford, K. H. (2005). *Learning to Learn*. Insights, id21(57).

Senge, P. M. (1990). *Fifth discipline: the art and practice of the learning organization*. London: Century Business.

## Events and Courses

22 - 25 November 2005, **XIIth World Water Congress from, Water for Sustainable Development - Towards Innovative Solutions**. New Delhi, India. <http://wc.worldwatercongress.org:5050/index.jsp>

24 - 27 January 2006, **International Symposium on Groundwater Sustainability (ISGWAS)** University of Alicante, Alicante, Spain. Hosted by the Interacademy Panel's (IAP) Water Programme and the Spanish Royal Academy of Sciences. For more information: <http://aguas.igme.es> or email: [isgwas.nhm@igme.es](mailto:isgwas.nhm@igme.es)

5 - 7 February 2006, **Governance for Sustainable Development: Steering in Contexts of Ambivalence, Uncertainty and Distributed Control Workshop** Berlin. Abstracts for papers are invited. Of special interest are papers that address the ambivalence of sustainability goals, uncertainty of knowledge on socio-ecological dynamics and distributed power to shape societal transformation. Invited authors are eligible for a refund of travel expenses. Abstracts should be submitted by 30 October, 2005. For more information and abstract guidelines contact [j.voss@oeko.de](mailto:j.voss@oeko.de)

1 - 2 March 2006, **International Water Forum: Modern State and Approaches in Transboundary Water Governance**, Minsk, Republic of Belarus. [www.cricuw.by](http://www.cricuw.by)

4 - 8 April 2006, **International Symposium on Water and Land Management for Sustainable Irrigated Agriculture**, Adana, Turkey. Hosted by Cukurova University. For more information: <http://symp2006.cu.edu.tr> or contact the Symposium Secretariat [yazarat@cu.edu.tr](mailto:yazarat@cu.edu.tr) or [symp2006@cu.edu.tr](mailto:symp2006@cu.edu.tr)

5 - 7 April 2006, **3rd Harmoni-CA Forum & Conference**, Osnabrück, Germany. The focus of the conference is set by the priorities within the **European Water Framework Directive** activities for 2006, including the design of monitoring programmes and the involvement of interested parties in the implementation process. As the need for support is high with the innovations of the WFD, new tools are needed to meet policy requirements. More information: <http://www.harmoni-ca.info>

17 - 18 May 2006, **New water policies - the Water Framework Directive Symposium**. Barcelona. Spain. Organised by European Water Association and ADECAGUA (Spanish National Association). <http://www.ewaonline.de>

9 - 12 July 2006, 3rd Biennial meeting of the International Environmental Modelling and Software Society, "**Summit on Environmental Modelling and Software**", Burlington, Vermont, USA, <http://www.iemss.org/iemss2006>.

Participation welcome in on-line discussions to define the scope and products of the conference. Volunteers are invited to organize and chair a session or workshop.

15 - 19 July 2006, **2nd EuroScience Open Forum (ESOF)** will take place in Munich, Germany. [www.esof2006.org](http://www.esof2006.org)

6 - 8 September 2006, **20th International Conference on Informatics for Environmental Protection (EnviInfo-2006)**, Managing Environmental Information. Graz, Austria. <http://www.enviroinfo.net>

10 - 14 September 2006, **IWA World Water Congress and Exhibition**, Beijing, China IWA, <http://www.iwa2006beijing.com/>

## Job Openings

The Institute for Coastal Research ([www.kuefo.de](http://www.kuefo.de)) at the GKSS-Research Centre at Geesthacht near Hamburg, Germany, invites applications for two PhD positions in

- **Marine Ecosystem Modelling**
- **Physical and biological oceanography**

For more information contact: Prof. Kai Wirtz, [wirtz@gkss.de](mailto:wirtz@gkss.de), Tel.: +49-(0)4152/87-1513.

The Institute for Environmental Systems Research of the University of Osnabrück has an opening for a **PhD Research Position** beginning in November 2005 as part of the EU project NEWATER, to carry out research on **participatory integrated assessment of the sustainability of water resource management** in the Amu Darya basin in Uzbekistan. Russian-speaking preferred. For more information: [www.usf.uni-osnabrueck.de/usf/jobs](http://www.usf.uni-osnabrueck.de/usf/jobs)

EAWAG, the Swiss Federal Institute of Aquatic Science and Technology has 4 openings:

- PhD Position in **Lake Water Quality Modelling**: [http://www.eawag.ch/services/personal/d\\_phd\\_lake\\_water.html](http://www.eawag.ch/services/personal/d_phd_lake_water.html)
- Post Doctoral Research Position in **Water Quality Modelling**: [http://www.eawag.ch/services/personal/d\\_doctoral\\_water\\_quality.html](http://www.eawag.ch/services/personal/d_doctoral_water_quality.html)
- Post Doctoral Research Position in **River Basin Water Resources Management**: [http://www.eawag.ch/services/personal/d\\_jobs\\_river.html](http://www.eawag.ch/services/personal/d_jobs_river.html)
- Senior Research Scientist in **Integrative Modelling and Decision Analysis**: [http://www.eawag.ch/services/personal/d\\_senior\\_scientist\\_integrative.html](http://www.eawag.ch/services/personal/d_senior_scientist_integrative.html)

Institute for Environment and Sustainability, Joint Research Council - Ispra, Italy. Call for **Doctoral, Post-Doctoral and Senior Researchers**:

[http://ies.jrc.cec.eu.int/Calls\\_for\\_Employment.277.0.html](http://ies.jrc.cec.eu.int/Calls_for_Employment.277.0.html)

## Publications

Barbara Gray, Michael Elliott, Roy J. Lewicki. 2002. **Making sense of intractable environmental conflicts: Concepts and Cases**. Island Press. 1-55963-930-X. Why can some environmental problems be resolved in one locale but remain contentious in another, often carrying on for decades? What is it about certain issues or the people involved that make a conflict seemingly insoluble? For more information and to order: <http://www.islandpress.org/books>

Herman E. Daly, Joshua Farley. 2003. **Ecological Economics: Principles and Applications** ISBN: 1559633123. This book provides a valuable introduction to ecological economics, and particularly useful for undergraduate and undergraduate teaching. 'The book provides students with a foundation in traditional neoclassical economic thought, but places that foundation within a new interdisciplinary framework that embraces the linkages among economic growth, environmental degradation, and social inequity'. See Word Power website: <http://www.word-power.co.uk/catalogue/1559633123> for more information about this book.

## Call for Submissions

### Journal Submissions

The journal Integrated Assessment is seeking submissions for upcoming issues. Prospective authors may visit the website [www.iaonline.org](http://www.iaonline.org) for more details on manuscript submissions.

Dr. James Tansey, Managing Editor.

Email: [james.tansey@gmail.com](mailto:james.tansey@gmail.com)

Tel. ++44 (0)1865 288943

For book reviews, please contact

Prof. Dr. Claudia Pahl-Wostl

Email: [pahl@usf.uni-osnabrueck.de](mailto:pahl@usf.uni-osnabrueck.de)

Tel. ++ 49 (0)541 969 2536

### Articles & News Items

Members of the IA community are invited to submit feature articles and/or news items (events, publications, job openings) for publication in future issues of the TIAS Quarterly. For more information, please contact Caroline van Bers:

[cvbers@usf.uni-osnabrueck.de](mailto:cvbers@usf.uni-osnabrueck.de)

Tel ++31 53 489 4135

### The TIAS Quarterly

The *TIAS Quarterly* is the newsletter of The Integrated Assessment Society.

#### Editor

Claudia Pahl-Wostl

#### Associate editor

Caroline van Bers

#### Layout

Georg Johann

TIAS Membership information: <http://www.tias-web.info/>  
€ 40/year (students € 10/year)