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Discussion on Environmental flows and Human Health



eFlowNet and its partners will convene a seminar on environmental flows and human health on 19 August, during Stockholm World Water Week 2008. In preparation for this seminar, eFlowNet invites you to participate in the present online discussion

Dear Members of the Global Environmental Flows Network,

The Network and its partners will convene a seminar on environmental flows and human health on August 19th, i.e. during Stockholm World Water Week 2008.

In preparation for this seminar, eFlowNet invites you to participate in the present **online discussion**. We want to ensure that the latest knowledge about the linkages between healthy aquatic ecosystems (maintained by e-flows) and healthy people is represented in the World Water Week Seminar. This online discussion aims to highlight the research,

experience, and broader knowledge of members of eFlowNet to help improve our understanding of such linkages. We invite you to join the discussion by posting any of the following:

- 1) The latest research findings (your own as well as that of others) in the linkages between maintaining environmental flows and human health while safeguarding and restoring aquatic ecosystems;
- 2) Examples of specific case studies and programmes that address flows and human health (i.e. vector control through reducing or increasing flows);
- 3) Specific questions about key gaps in our understanding that can be incorporated into the seminar during World Water Week.

Does Human Health depend on Environmental Flows?



The summary of the discussion so far can be found [here](#). We would like to hear your views, experiences and case studies. Please go to the [online discussion](#) to add your comments.

The online discussion can be accessed **here**. You need to **sign in** to eflownet to contribute to the discussion. If you have any questions, please email **Stefano Barchiesi**.

Louise Korsgaard
Posted: 25-May-2008

Human health is believed to depend on goods and services provided directly or indirectly by aquatic ecosystems that are sustained by environmental flows.

Let's share real world cases to support this statement!

What human health-supporting goods and services do people in your study areas depend upon, and how are these dependencies linked to environmental flows? Can you describe specific examples of lost human health-supporting goods and services or of cases where lost services have been restored? How do dependencies vary by country and culture?

We look very much forward to hearing from you!

Louise Korsgaard
Posted: 22-May-2008

I have retrieved a paper on the Island of Flores, Indonesia, where it is argued that "households downstream from watersheds protected by the [Ruteng Park] conservation project (e.g., benefitting from increased quantity of clean water) experience lower rates of diarrhea compared to households without such watershed services, ceteris paribus." In particular, it was found that "the

amount of baseflow in a village is negatively associated with diarrhea incidence." To the authors' knowledge, "this is the first study to document a direct correlation between water supply from protected forests and the disease."

Pattanayak, Subhrendu K.; Wendland, Kelly J. (2007). Nature's care: diarrhea, watershed protection, and biodiversity conservation in Flores, Indonesia. *Biodiversity & Conservation*, 16(10), 2801-2819.

Does anyone want to comment on that?

Robert BOS
Posted: 27-May-2008

The "belief" that human health (exclusively) depends on ecosystem goods and services prevails among conservation professionals, and often implies that "healthy ecosystems" automatically are good for human health. In public health a more neutral approach of health determinants, their assessment and their management, is proposed. Such determinants can have a positive or a negative impact on the health status of communities. In different contexts the same determinants can have different impacts on health. In any given setting, community health status is the resultant of a complex set of determinants, often with synergistic or antagonistic influences between them. It is usually impossible to attribute sections of the disease burden to specific determinants. In periods of rapid change (for example, development projects) there are opportunities to attribute changes in health status of a community to specific determinants that have changed, and this provides valuable information to study the associations in steady state situations. In order to get the public health community on board in this discussion I would suggest to use health determinants as the central principle rather than ecosystem goods and services. In fact, such goods and services will be among the determinants.

Katharine Cross
Posted: 27-May-2008

Please take a look at this paper that includes a number of case studies on the health aspects of Sahelian floodplain development

<http://www.eflownet.org/downloads/documents/Health%20Aspects%20of%20Sahelian%20Floodplain%20Development.pdf>

For example, prior to dam construction in the Senegal Basin the distribution of major endemic diseases was related to topography and the natural hydrology. Dam construction brought Rift Valley fever and intestinal schistosomiasis. However, there were overall improvements in the population's health due to improved access to water.

The conclusion is that health assessments need to be undertaken along with environmental assessments to recognise the costs and benefits on health of engineered water infrastructure, and what solutions could be put in place to outweigh the negative impacts.

Parineeta Dandekar
Posted: 29-May-2008

Dear Louise,
Thanks for initiating this discussion. The major problem with linking human health and flows is the lack of documented information. For example, fisheries in India (as in many parts of the world) have been dwindling due to changing flow patterns. More information can be obtained from Central Inland Fisheries Research Institute. <http://www.icar.org.in/cicfri.html#about>. This must have affected the diet of marginalised fishermen, but we do not have the data. In Indonesia, during certain river basin assessments, we have noticed a complete shift in feeding patterns of villages due to declining fisheries because of upstream dams. This has meant a very protein poor diet, but again we do not have documented data about health impacts. Again in the Se San basin, feeding patterns have changed when fishery and riparian vegetable gardens were negatively affected by shock releases through the Yali dams.

Robert BOS
Posted: 29-May-2008

Parineeta makes an important point: there is a lack of evidence to support the association between the status and changes in environmental flows and the health outcomes. This would be an interesting topic to elaborate in this discussion. Part of it has to do with the general lack of reliable datasets. Another part can be ascribed to the complexity of the pathways connecting the causes and effects so that many confounding factors creep in (and in the case of some health issues, the extended lapse of time between exposure and effects will further add to this) and finally, there is the structure within which datasets are collected - for health this will be within administrative boundaries (for example districts) which will usually not overlap with ecosystem boundaries. It is therefore hard to use conventional datasets from different sectors and overlay them in a GIS manner.

Robert BOS
Posted: 29-May-2008

There are many valid case studies like the one referred to by Katherine in the Senegal River Basin, which was a particularly complex one. Big dams will present a microcosmos of all possible health issues. But they also tend to be rather unique. At the same time, the cumulative effects of many small dams on health will also be significant, but perhaps of a more generic value (eg the construction of many small dams in Ethiopia led to a 7 fold increase in the transmission intensity of malaria). These case studies (and follow up case studies) are widespread throughout the literature, and some attempts were made in 2006 to do a meta-analysis of the association between dams, irrigation schemes and four vector-borne diseases. Just google for Keiser, Utzinger and Bos / malaria, schistosomiasis, filariasis and Japanese encephalitis

Parineeta Dandekar
Posted: 02-Jun-2008

I agree with Robert, especially with the point about complexities of pathways. Its difficult to link health issues with flow problems directly.. there are too many variables.. and each in turn has an impact on human health (for example: dams, water scarcity, insect vectors, hygiene issues, pollution, diet and nutrients, etc). I doubt if we can isolate flow responses and health.. or should we focus on more holistic 'healthy ecosystems' and human health

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Environmental Flows in operation in Africa?



The Pangani River Basin Management Project is on the verge of implementing environmental flows in the basin. They would like to know any place, preferably in Africa where Environmental flow concepts are in operational; that is agreements have been signed by parties responsible.

The Pangani River Basin Management Project (PRBMP) is generating technical information and developing participatory forums to strengthen Integrated Water Resources Management in the Pangani Basin, including mainstreaming climate change, to support the equitable provision and wise governance of freshwater for livelihoods and environment for current and future generations.

An integrated flows assessment of the river and estuary was carried out. The assessment looked at the environmental health of the river, and the contribution of river flows to social wellbeing and economic livelihoods. Scenarios of various water futures have been developed to aid in decisions on water allocation to various sectors (agriculture, domestic use, hydropower, environment.

The next step is to use the information from the assessment and implement environmental flows in the basin. If you have information or are involved in putting environmental flows into operation, please share your knowledge in the [online discussion](#), or contact [Sylvand Kamugisha](#).

International Conference on Implementing Environmental Flow Allocations, 2009



The deadline for the submission of abstracts is June 30th, 2008 for the International Conference on Implementing Environmental Flows Allocations in Port Elizabeth, South Africa from 23-26 February, 2009.

Reminder : Just two weeks to go before the deadline for submission of abstracts - 30th June 2008.

INTERNATIONAL CONFERENCE ON IMPLEMENTING ENVIRONMENTAL WATER ALLOCATIONS - For the formal announcement [click here](#)

23 – 26 FEBRUARY 2009

Feather Market Convention Centre, Port Elizabeth, South Africa

Organized by the
WATER RESEARCH COMMISSION (WRC), South Africa
and the
DEPARTMENT OF WATER AFFAIRS & FORESTRY (DWAF), South Africa

under the auspices of the
International Union for Conservation of Nature (IUCN) and the
International Association of Hydrological Sciences (IAHS)

and with the support and co-operation of
SA National Biodiversity Institute (SANBI)
Department of Agriculture, South Africa
Department of Environmental Affairs & Tourism, South Africa

DATE AND VENUE

The conference will be held from 23 – 26 February 2009 at the Feather Market Convention Centre, Port Elizabeth, South Africa.

THEME

Promoting the sustainable use of rivers, wetlands, estuaries and groundwater

OBJECTIVES

- Identifying and critiquing global trends in the implementation of environmental water allocations:
 - policy and legislation
 - integrating ecosystem protection with socio-economic development;
 - defining and involving stakeholders
 - decision making for sustainable use
 - operational management of water allocations
- Sharing knowledge and skills

TOPICS

Integrated management and use:

- Surface and ground water
- Water quality and quantity
- Biophysical and socio-economic

Institutional mechanisms:

- From local to international
- Stakeholder participation
- Training and capacity building

Decision-making and trade-offs:

- Awareness, policy and legislation
- In knowledge-poor environments
- Balancing development and resource protection
- Valuating ecosystem services

Delivering environmental water:

- Delivering floods
- Maintaining variability
- Constraints and solutions

Monitoring and adaptive management

CALL FOR PAPERS

Keynote speakers will address the conference topics. Oral and poster papers are invited. Intending authors should complete and return the accompanying template by not later than 30 June 2008

Papers/posters will be accepted on the understanding that the main author (or a co-author) will personally attend the conference as a fee-paying delegate and present the paper; and that the deadlines indicated below will be strictly adhered to. Papers will be subject to local and international peer review.

WHO SHOULD ATTEND

Representatives of municipal, provincial and national water departments, water engineers and managers, water and social scientists, resource, economists, representatives of water boards, policy-makers, stakeholders and relevant NGOs.

INTERNATIONAL SCIENTIFIC COMMITTEE

Dr Mike Acreman UK
Prof Janine Adams South Africa
Prof Angela Arthington Australia
Dr Ger Bergkamp Switzerland
Prof Robert Costanza USA
Prof Jenny Day South Africa
Mr David Hall Lesotho
Dr Rafik Hirji USA
Prof Denis Hughes South Africa
Dr Jackie King South Africa
Dr Matthew McCartney Ethiopia
Dr Steve Mitchell South Africa
Dr Roger Parsons South Africa

Dr Brian Richter USA
Ms Barbara Weston South Africa

REGISTRATION FEES

Fees are still to be determined but are expected to be in the region of R3 500 – R4 000 (South African Rands).

FURTHER INFORMATION

Further information re: EXHIBITION, FIELD VISITS, ACCOMMODATION, PROCEEDINGS, COMPANIONS' PROGRAMME, PRE- and POST-CONFERENCE TOURS, VISAS, MAP OF SOUTH AFRICA, etc. will be included in the full announcement available from the Conference Secretariat in early August 2008.

If you wish to receive future conference announcements, please include your TITLE (Mr/Prof etc), FIRST NAME, SURNAME, ORGANIZATION, E-MAIL ADDRESS and COUNTRY on an e-mail to the Conference Secretariat (confplan@iafrica.com) . In the meantime the full text of the initial "Call for Papers" is available as outlined in the box below.

