



Second Order Water Scarcity in Southern Africa

Welcome to the second issue of the Second Order Water Scarcity project newsletter. Many thanks to all of you who offered feedback on the first issue and contributions to the second issue. As some of you commented that pictures made downloading lengthy, we have eliminated them from this issue. You are welcome to visit our website if you wish to see pictures of our work.

Special thanks this month to Anthony Turton for his overview of second order resources focussing on international institutional development. Special thanks as well to Anne Mumbi from the Oxfam Urban Livelihoods Programme, Copperbelt, Zambia, for sharing her experience of how water projects are operating on the ground. Thank you also to Nicolas Faysse, from IWMI-Cemagref for sharing his draft research report within his post-doctoral work in economics. This is presently being published by IWMI and will soon be downloadable from the IWMI website. Thank you as well to Leanne Wilson for her piece engaging with Homer-Dixon's theoretical framework. Once again, your feedback, comments and contributions are welcome. They will help us provide a third issue that will be informative and useful to all of us. Please do send them to Leanne.Wilson@ncl.ac.uk who is responsible for editing the newsletter.

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Forthcoming Events:

Water and Wastewater Management for Developing Countries: 28-30th July 2004, Elephant Hills Hotel, Victoria Falls, Zimbabwe:
<http://www.uz.ac.zw/engineering/civil/wamdec2004/>

Water Resource Management for Local Development: Governance, Institutions and Policies: 8-11th November 2004, Loskop dam, South Africa:
<http://wrm2004.cirad.fr/>

African Water Laws: Plural legislative frameworks for management of rural water in Africa. 26-28th January 2005, Gauteng, South Africa:
<http://www.nri.org/waterlaw/workshop.htm>

Second Order Resources and the establishment of International River Basin Organizations

Anthony Turton

The notion of second order resources as being an important variable has been under the spotlight since the pioneering work of Dr. Leif Ohlsson (1999). This original work raised the spectre of what was then called “Social Adaptive Capacity” as being an independent variable. Research being done in parallel to this, but independently of Ohlsson’s efforts, suggested that what was called “ingenuity” is a key variable, specifically in the context of developing countries (Barbier & Homer-Dixon, 1996). Subsequent work evolved over time, increasingly starting to indicate the existence of two distinct forms of ingenuity (Homer-Dixon, 1991; 1994 a; 1994b; 1995; 1996; 1999; 2000). These two forms of ingenuity were called “technical ingenuity” and “social ingenuity” respectively. The former refers to the capacity of a society to adapt to changing circumstances through technological development and innovation. The latter refers to the capacity of a given society to negotiate rules, develop institutions and to create the necessary incentives for technical ingenuity to occur in the first place. Seen in this context, social ingenuity becomes the independent variable. This was applied to specific case studies where it was shown that ingenuity is in fact a significant driver of political processes (Percival & Homer-Dixon, 1998).

These two strands of research – Ohlsson’s concept of social adaptive capacity and Homer-Dixon’s concept of social ingenuity – were combined in research that has been done at Pretoria University. In essence this research sought to interrogate the relationship between the establishment of institutions for the management of transnational river basins and the existence of second-order resources (Turton, 2003). Combining Ohlsson’s work with that of Homer-Dixon, this research used the proxy indicator of GNP/cap as suggested by Prof. Tony Allan (2000). This was measured against water availability per capita (as an indicator of first-order resource availability) in selected African countries (Turton & Warner, 2002). From this four broad sets of conditions were noted, three of which are relevant to Africa:

- Water Poverty (WP) occurs when there is a relatively low level of both first and second-order resources simultaneously. This condition is found in Tanzania, Malawi, Eritrea, Burundi, Kenya, Ethiopia, Uganda, Swaziland, Lesotho, Zimbabwe and Egypt. Under these conditions the problems of endemic water scarcity cannot be overcome through the application of second-order resources because social ingenuity cannot be mobilized in sufficient quantities and at the appropriate time to stimulate technical ingenuity.
- Structurally-Induced Relative Water Scarcity (SIRWS) occurs when there is a relative abundance of water combined with a relative scarcity of second-order resources. This condition is found in Zambia, Mozambique, Angola and the Democratic Republic of the Congo (DRC). Under these conditions the relative abundance of water resources cannot be translated into economic growth and sustained development because of the absence of appropriate forms of social ingenuity.
- Structurally-Induced Relative Water Abundance (SIRWA) occurs when there is a relative abundance of second-order resources in combination with a relative scarcity of water. This condition is found in Botswana, Mauritius and South Africa. Under these conditions the problems arising from the relative scarcity of water can be overcome through the mobilization of appropriate forms of social ingenuity in the form of institutions.

Taking this one step further, the evolution of water institutions in the international river basins that occur in South Africa was analysed. Using the proxy indicator of second-order resources originally suggested by Allan (2000) (GNP/cap adjusted to purchasing power parity), what was called the adaptive security spectrum for South Africa’s co-riparian states was developed (Turton, 2003).

For the full version of this document, please go to www.waterscarcity.org where it can be located through the Newsletter link (accessed through ‘Integrating Stakeholders’ icon on the homepage).

Community Based Water Management

Anne Mumbi

Urban Livelihoods Programme, Oxfam, Copperbelt, Zambia

We are working with two communities that have World Bank water supported projects. One is now a relatively successful story and the other a complete disaster.

This is Kapisha in Chingola and Murundu in Mufulira. In both cases the RDCs are in charge and have a water committee that is part of its structure doing the direct management issues of sales and collection of water fees, allocating the Kiosks etc.

When Kapisha RDC approached us for support, their main argument in the proposal was the need to build knowledge and leadership that would help them manage the water project. We took a risk because water was not an area of focus for us - but the fact that they were thinking about sustainability - it sounded attractive. So we had to place the project under governance and facilitated support for community mobilisation in year one - spending time focusing on the smallest unit of the community structure- the zones. Then we went on to leadership issues and then finance. The final story is a relatively successful story. There is power in this community. When the Local Authority wanted to take over the project and give it to a private firm- the community rose and nearly sued the Council- they have entered into a partnership now (I have not followed up to find out how this dimension of things is currently working) The sense of ownership by the community is very high.

When we went to Murundu, we found the beautiful multi million water tank, kiosks setup etc but the taps were dry. Its not that there was no water – but people were and are still using their shallow wells. They are falling to pay K60 for 20 litres. We want to support them to replicate what is in Kapisha. We are starting with the zones (debates, dialogue, discussions etc) together with the Local Authority.

Very clearly, this is typical of how working around the time frame misses out on the very important elements that we need to build before the physical structures. (World Bank must say thank you to Oxfam)! We would love to see the project work for the people and the people appreciating it as their own.

For further details, please contact Anne Mumbi (amumbi@coppernet.zm).

An Assessment of Small-Scale Users' Inclusion in Large-Scale Water User Associations of South Africa

Nicolas Faysse

The management of water resources is being transformed in South Africa. All water users, especially the small-scale ones, are now invited to participate in this management. At the local level, the former whites-only Irrigation Boards (IBs) are to become more inclusive Water User Associations (WUAs), incorporating all water users, whether they have a formal water entitlement or not. However, the process of inclusion does not go smoothly: only one-sixth of the IBs had been transformed into WUAs in 2003, and the actual outcomes of small-scale user involvement in the already accepted WUAs are not obvious. This report reviews the process of inclusion of small-scale users in the new large-scale WUAs.

In order to do this, it assesses what are the potential benefits of small-scale users' inclusion in the new WUAs, what is the current situation and what are the main elements that enable or on the contrary prevent this inclusion. Small-scale user inclusion is defined here as a situation where (a) a strong relationship between small-scale user representatives and their constituencies is established; (b) small-scale users obtain the information they need, (c) voice their problems; and (d) influence decision-making. The research

investigated the transformation of seven of these IBs into WUAs, as well as the creation of one large-scale, non-agricultural WUA. The analysis presented here uses information on the case studies published elsewhere as IWMI Working Papers.

In order to assess the potential benefits of having small-scale users on board, the research investigated the possible overlap between small-scale users' water-related problems and the functions of the WUAs. Small-scale farmers' presence in the WUA is always beneficial, even though they face first problems of lack of funds for operation and maintenance. The possible benefit of the presence of drinking water users (rural communities, farm workers) stumbles on a lack of clarity of WUA responsibility with regard to water quality and drinking water supply.

The main element explaining success or failure in inclusion of small-scale users comes from the fact that large-scale farmers are in charge of proposing what the WUA will be. These farmers have actively opened the IB to small-scale users only if the latter's activities impact on theirs, or if the small-scale users have to pay the WUA fees, e.g., if they are small-scale farmers. The commercial farmers are concerned about opening the management to non-paying users, such as farm workers and rural communities.

It appears that the lack of internal organization of small-scale users such as farm workers and rural communities is a major stumbling block. While small-scale user presence at the management committee helps them in terms of capacity building and enables them to voice their problems, it proves to be insufficient. In two of the cases studied, the small-scale farmers had rights to more water than they were allocated but they did not receive the information that would have permitted them to claim more water. Finally, large-scale farmers always remain in control of the decision-making.

This paper recommends external monitoring of small-scale user inclusion after the transformation into a WUA. The problem-oriented approach of this research may also facilitate assessment of the inclusion of small-scale users in the catchment management agencies in South Africa, as well as in water resource management organizations in other developing countries where large- and small-scale users share water from the same source.

This draft report is currently being published by IWMI. For more information, please contact the author directly (nicolas.faysse@m4x.org).

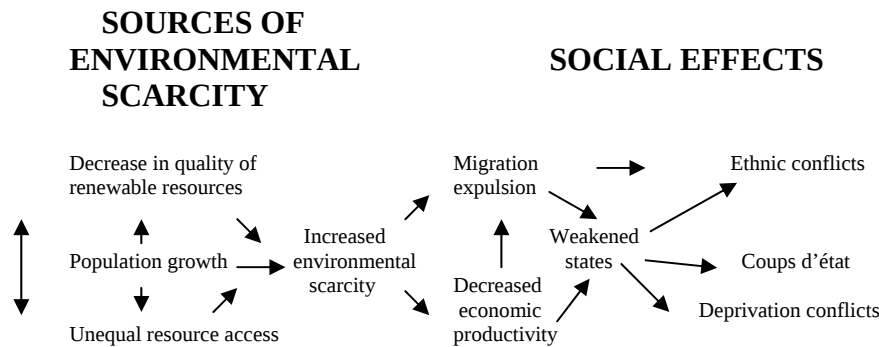
Environmental scarcity and social ingenuity

Leanne Wilson

Homer-Dixon is a major proponent of the connections between environmental scarcity and security, including but not limited to water resources. His concept of social ingenuity holds merit in relation to people's divergent ability to respond to change. It is interesting because considers social as well as technical approaches in relation to environmental scarcity. Homer-Dixon's main theoretical framework builds upon a limited perception of environmental scarcity, making only localised populations the major determinant of resource degradation and appropriation. Environmental scarcity is deemed to fracture institutions and social ingenuity which heightens potentials for conflict. In linking the causality of resource degradation to political instability, he attempts to integrate a distributive analysis within a neo-malthusian debate. He is therefore careful to qualify his focus upon social ingenuity by conceding four factors which impede ingenuity: market failures, social friction, shortages of capital, and constraints on science (Homer-Dixon, 1995).

Some of the linkages drawn (by Barbier and Homer-Dixon, 1996) between conflict, resource scarcity and population can be considered through the lens of Galtung's (1990) cultural violence framework. One example, is in their largely uncritical endorsement of 'trickle down' economic development as a viable means to mitigate conflicts and increase social ingenuity.

Figure 1. Causes and consequences of environmental scarcity through Homer-Dixon's security framework.



(McDonald, 1999:16)

Criticisms of this hugely abstracted and therefore generic framework highlight its tendency to obscure important aspects of the political economy and historical specificity of conflict, instability, and degradation. Many caustic disparities maintained by contemporary neo-liberalism seem to oppose basic tenets of his epistemology which maintains an idealised notion of the state, views ethnicity as bounded, and shows little sympathy towards women's rights – indeed women's fertility can be interpreted as essentially as a root cause of conflict. There is also a failure to acknowledge that conflict degrades the environment and access to resources, including as a cumulative and cyclical process (Hartman, 1998; McDonald, 1999).

The US media popularisation of his theories heightened political interest in the concept of environmental security which remains cogent a decade later (McDonald, 1999). A prime example is the well publicised report of Schwartz and Randall (2003) who were commissioned to explore “*how...an abrupt climate change scenario could potentially de-stabilize the geo-political environment, leading to skirmishes, battles, and even war due to resource constraints such as...food shortages due to decreases in net global agricultural production*” (pg 2). Their conclusions are resplendent with the images of influxes of environmental refugees into America provoking the “*disruption and conflict [that] will be endemic features of life.*” (pg 22). These forms of cultural violence assist in legitimising increasingly xenophobic immigration policies in a number of countries, in most regions of the world (Hartman, 1998; McDonald 1999). Clearly displacement, confinement and changing demographic pressures (as opposed to ‘overpopulation’) can exacerbate degradation in fragile environments, but debates about ecological ‘footprints’ and social justice have long pointed to expropriation for the benefit of rich consumers as the prime factor.

However, given that 0.26% of the world's water is renewable freshwater (Jewitt, 2002), environmental security arguments serve many purposes. Worst case scenarios are often presented to grab the attention of policy makers/institutions to address rather than ignore disparities in access to resources (Rosegrant, *et. al.*, 2002). Perhaps the major criticism of the research of Homer-Dixon is that his generic analysis was simply captured and distorted by tabloid hysteria. His contribution to the popularisation of social scarcity is well applauded and refined by further research, for example Ohlsson, (1999).

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