

GREENACCORD

STUDY DAY ON WATER ISSUES

Sustainable Water Management: Implications for Governance, Knowledge Creation and Policy Implementation

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SUMMARY

It is becoming increasingly clear that many approaches to water management developed in the 20th century are no longer appropriate. Management functions such as water supply, irrigation, power generation, flood control, and navigation have tended to be conducted separately, resulting in conflicting policies, programmes and projects. Although many water engineering and infrastructure projects have been successful when judged against their own technical criteria, they have often failed to meet social, economic and environmental expectations. In addition, many water resources have become degraded and their uses impaired because of a lack of management attention to links among surface water, ground water and land-use systems.

As an international response to this situation, sustainable water management sets a very high standard – the basic needs of present and future generations must be met in all parts of the world whilst also ensuring that ecological requirements can be satisfied through fully-functioning hydrological systems. Achieving this goal is an enormous long-term challenge, but the beginning of a move from ‘conventional’ to ‘sustainable’ management is already evident. In particular, progress has been made during the last twenty years in understanding the principles of sustainable water management and incorporating them within international and national policy. However, it has also become increasingly clear that a further move from the policy to the practice of sustainability cannot be achieved without a similar transformation in institutional and organisational arrangements.

The observation that the main barriers to sustainable water management are institutional rather than purely technical or even economic has major implications. In this discussion, attention is focused on the implications and challenges related to water governance, knowledge and understanding, and the implementation of water policy.

‘Governance’ refers to the institutional structures and processes used to make decisions regarding the use, development, allocation, protection and restoration of water. In many cases, we still rely heavily on the state and its bureaucratic structures and process for water governance. Decision making tends to be ‘top-down’ rather than ‘bottom-up’, involving specialised departments and agencies with separate powers and responsibilities related to segments of the hydrological cycle and water uses. This system may have served society reasonably well in the past, but it was not designed for sustainability or the turbulent environmental conditions of the present, where there are many more stakeholders and water users with competing demands and different values who expect to be included in decision making.

Integrated water resources management (IWRM) is one model which has been widely used in the last twenty years to deal with this new situation. However, the results have not met expectations because many governments and water agencies have treated IWRM as an add-on tool or technique for sustainability and have not recognized the need to change how decisions are made or who participates in the process. A particular problem has been that IWRM has been closely associated with watershed management, but the watershed often does not often correspond with the 'policy-shed' or 'problem-shed'. This suggests that sustainable water governance requires more collaborative institutional arrangements that link decision making between different levels and layers (local, watershed, regional, national) as well as across sectors (water, urban development, agriculture). The Fraser Basin Council in British Columbia, Canada, is one example where a joined-up and participatory approach to water governance and management has been developed.

Sustainable water management also has implications regarding how we assemble knowledge of hydrological processes and understand interactions between people and the water environment. Water planning and management continues to rely on a synoptic approach to analysis. This is the idea that it is possible to gain complete understanding of water systems, and therefore optimize solutions to problems, if we collect enough data and undertake comprehensive analysis of all available options. The synoptic model isn't suitable for sustainable water management because of the inherent complexity and uncertainty associated with socio-hydrologic interactions and because decisions about sustainability involve ethical and moral judgments as well as choices based on scientific evidence. Recognizing the limits of water science, and the inevitability of not ever being able to know everything that we ideally we need to know about people-water interactions, implies that different approaches to knowledge creation are required for sustainable water management. A community-based watershed management project at Loweswater in North West England provides an example of how local and expert knowledge from science and practical experience can be used to investigate complex water and environmental problems. However, even this kind of approach cannot eliminate uncertainty from water management. Adaptive water management is therefore needed as it encourages learning through trial-and-error experimentation.

Institutional arrangements can also substantially affect the implementation of water policy. 'Implementation gaps' arise when policies and plans are not adequately translated into actions. This has become an endemic problem in the water sector which has damaged IWRM as well as many other initiatives. In the majority of cases, a programmed approach to the implementation of water policy has been followed whereby goals and objectives are precisely defined, the number of organisations involved is minimized, and managers and field-based staff are expected to follow strict rules and instructions. This can work well under stable conditions in which water problems are well understood, management outcomes are predictable and the risk of conflict among participants and affected groups is low. However, in unstable environments characterised by uncertainty, unpredictability and conflict an adaptive approach to implementation is more appropriate. This requires broadly defined goals, participation by a diverse range of relevant organisations and groups, and greater discretion so that managers and field staff can adapt policy to fit local circumstances. The emergence of increasingly

unstable conditions in the water management arena implies that adaptive implementation strategies are going to be more important in the future.

In conclusion, institutional arrangements are already changing in response to demands for more sustainable forms of water and ecosystem management. Nevertheless, it is also clear that much more needs to be done if we are to cope with increasingly turbulent conditions, hydro-social complexity and the plethora of 'messy' water problems which confront us. Among the suggestions which might be used in the future as guidelines for institutional strengthening and development are:

- Re-design water governance and management arrangements to deal with complex conditions and 'messy' problems.
- Develop institutional capacity for IWRM at the constitutional, associative and operational levels.
- Develop 'collaborative cultures' based on agreed visions of the future, shared knowledge and management resources, and joint decision-making.
- Develop governance and management arrangements that link activities operating in different policy arenas and at different spatial scales, including but not limited to watersheds.
- Recognise the value of different forms of knowledge and 'expertise'.
- Deal with uncertainty using adaptive management and planned cycles of experimentation, monitoring, evaluation and learning.
- Analyse implementation conditions and requirements as part of policy making and planning, so that programmed and adaptive strategies can be used appropriately.
- Custom-design water governance and management arrangements for particular political, legal, economic, social, cultural and hydrological conditions, and avoid following a fixed 'universal' model.