

The practice and teaching of American water management in a changing world

John Briscoe

Journal of Water Resources Planning and Management

Once upon a time the United States was the undisputed leader of the world. In that era the US was also the undisputed leader in the practice of water resources development and management, and the education of water professionals and future leaders from around the world. This editorial argues that that time has passed, and that now is the time for a major re-think if the United States is to regain the role as a world leader of both water resource practice and graduate education.

By way of preface, over the past forty years I have engaged with water management in the developing world from many perspectives – successively in the Ministry of Water in my home country of South Africa; as a graduate student working on India and Pakistan in the Harvard Water Program; as an epidemiologist at the Cholera Research Laboratory in Bangladesh; as an engineer in the Ministry of Water in newly-independent Mozambique; working on Africa and the Philippines as a professor of water resources at the University of North Carolina and for the last twenty years in Asia, Latin America and Africa in a variety of operational and policy positions in the World Bank. Of particular relevance for this editorial are my two final World Bank assignments – for three years as the World Bank’s Senior Water Advisor in New Delhi, and for three years as the World Bank’s Country Director for Brazil. Now I am a faculty member in the School of Engineering and Applied Sciences at Harvard, charged with developing a university-wide new “Harvard Water Initiative”.

Over the course of this life in water, I have seen, from the rivers’ edge, as it were, dramatic changes in global power, in ideas as much as finance. This experience suggests that just as the US has lost its unquestioned global economic pre-eminence and is having to learn to see the world through a different economic lens, so, too, the US water community is losing its pre-eminence in the practice and education of water resource management. This editorial outlines some ideas which might be relevant to a re-think in both the practical and educational spheres. I start with a few observations.

OBSERVATION ONE, ON WATER MANAGEMENT IN A POST-AFFLUENT SOCIETY: Water resource management in the United States has migrated from the heroic challenge of “building the water infrastructure platform” (Hoover Dam, the Columbia River Basin and the TVA) required for a growing

economy to a defensive posture of trying to find some space in an over-determined legal and regulatory environment. In the words of Martin Reuss (2003), historian at the US Army Corps of Engineers: “we have timorously entered a new era in planning. Replacing both the scientific efficiency model of the early twentieth century and the more recent economic efficiency model is an approach that I can characterize only as planning by constraints. Rather than maximizing economic efficiency or optimizing the opportunity to meet public objectives, it sets limits to growth.”

OBSERVATION TWO, ON HOW PERCEPTIONS OF GOOD WATER MANAGEMENT DEPEND ON THE

STAGE OF ECONOMIC DEVELOPMENT: Water professionals seldom take a historical view of water, of how water practices necessarily and desirably change over time. Harvard historian David Blackbourn (2006) has captured this ahistorical world-view well. His book on the evolution of land and water in Germany shows that the natural landscape of Prussia, the preservation of which is so ardently defended by environmentally-conscious Germans today, is in fact a man-made environment where drainage and flood-control projects converted an uninhabitable, malaria-ridden swamp into today’s more palatable landscape. Blackbourn shines light on the dialectic nature of water management, in which each successful response gives rise to new challenges and how each succeeding generation of water managers looked with disdain on the achievements of their predecessors: “The state of [the] art [of water management] is always provisional....something that historians know well, but hydrological engineers [have] found hard to accept”. In the United States today, the manifestation of this ahistorical view – which afflicts environmentalists and policy analysts at least as much as engineers and hydrologists -- is the implicit posture that harnessing water resources for economic growth was not such a great thing after all in the United States and is not something the United States should be recommending to others. The “modern, enlightened, view” is that environmental protection is the overarching objective, with pride of place given to regulatory instruments which constrain development. The archetype of such instruments is the Endangered Species Act (ESA), which is used in the words on Doremus and Tarlock’s fine recent book on Water Wars in the Klamath Basin (Doremus and Tarlock, 2008), “... as the equivalent of a nuclear strike” with environmentalists “... pushing ESA enforcement to the point of a train wreck in the hopes of triggering structural change”.

This idea – that the noble aspiration of water managers is protection of the environment against the ravages of man – is a, perhaps the, major message passed on by US water educators to today’s students, from the US and around the world. It is also the main message which the US carries through diplomatic

and economic assistance channels in its relations with other countries. It does this directly and indirectly. A pertinent “direct” example is the proposed USAID Amazon Conservation Project (USAID, 2007). This program “from the American people” was explicitly designed to equip NGOs to undercut the development of hydropower and navigation in the Amazon Basin, a program which was the highest priority of the democratically-elected Government of President Lula. An important “indirect” channel is the US influence on the World Bank, where the US government (together with European governments) has long pushed for a spaghetti of regulations which make Bank engagement in any major water infrastructure project virtually impossible (Mallaby, 2006). The effect has been profound – during the course of the 1990s World Bank lending for both hydropower and irrigation fell by about 80%.

OBSERVATION THREE, ON ASSUMING THAT WHAT WE CHOOSE IS WHAT THEY SHOULD CHOOSE.

There has been a reflexive, ahistoric translation of “if it’s good for us it must be good for them” view. This means that prominent US water intellectuals advocate that developing countries (with orders of magnitude less hydraulic infrastructure) “take the soft path” (non-structural methods of water management). And it means that the US uses its public tools (such as USAID), its private tools (such as the Ford, Rockefeller and Gates Foundations) and its still-considerable muscle in international organizations (such as the World Bank), to advocate a development path in which the social cart is put before the economic horse (Briscoe, 2009).

In the area of water this means: a strong prima facie stance against dams, hydropower and irrigation projects; leadership in mounting the global equivalent of ESAs (“safeguards” in World Bank jargon), and in ensuring that no sin of commission (a less than perfect project) remains unpunished and that there be no accountability for sins of omission (benefits foregone because a good project was not done). This is all looked upon with incredulity by leaders of the developing world, who point out that the soft path might be fine for the US where there is 6000 cubic meters of storage capacity per person, but rather different in India or Pakistan (where there is 120) or Ethiopia (where there is 30 cubic meters of storage capacity per person). For our narrative there are three important reactions. Reaction One is that the rapidly-growing Middle Income Countries (MICs, including China, India and Brazil), find this “post-affluent” stance ludicrous, simply go their own way and use their own resources to invest massively in building the water infrastructure platforms they consider essential for their growth. Reaction Two is that the poor countries, which do not have that choice, chafe at the bit, railing at the hypocrisy of the rich countries (“all rich countries have developed over 70% of their hydro-electric potential, but do not

allow Africa, which has developed just 3%, to follow the same path"). As a consequence poor countries welcome the offer of less-encumbered, can-do assistance from the now-flush-with-money MICs. While the US and other rich countries will no longer finance major water infrastructure in the developing world, and the World Bank now supports the construction of less than a handful of dams, China is supporting the construction of over 200 dams in other countries of Africa and Asia. Reaction Three is that MICs are demanding greater power in the governance structures of the IMF, World Bank and other international organizations, and are using this power to ensure, inter alia, that these institutions re-engage with infrastructure (Mallaby, 2006).

OBSERVATION THREE, ON INCENTIVES FOR US RESEARCHERS AND TEACHERS: A corollary of Observation Two is that funding in the US for research and education on the critical issue of water security and economic growth has largely dried up. The State Department, USAID, the World Bank and foundations such as Ford and Rockefeller once nourished engagement by US universities in the water management challenges of the developing world. My own career was heavily influenced by the old world-view. In 1961 President Kennedy asked President Ayub Khan how the US could help Pakistan. One of the highest priorities for Pakistan -- then and now (Briscoe and Qamar, 2006) -- is development and management of the surface and groundwater resources of the Indus Basin. The intellectual capital of the Harvard Water Program (first, an ability to integrate engineers, economists and institutionalists, and second, an ability to develop complex computer-based decision support systems) was supported by the US government and the Ford Foundation, and spurred a new generation of (highly successful) policies and programs and the training of a new generation of American and South Asia water professionals. Today such healthy "transmission belts" no longer exist. There is little incentive now for US universities to engage on issues considered critical by developing countries, and massive incentives to align with the "post-affluent" ideas agenda, which discounts economic development and focuses on environmental issues and, now, climate change. The net result is that research and teaching on water resource management in US universities is increasingly parochial, and ever-less connected to the economic needs of developing countries. When developing countries want to learn about creating an infrastructure platform for growth, they look less and less to US universities for guidance on either ideas or practice.

OBSERVATION FOUR ON THE EVOLUTION OF WATER THINKING IN THE UNITED STATES: As an interested outside observer, it is my impression that water research and education in the United States

has (in the terminology of Geertz, 1969) become “involved” -- devoting ever-greater attention to internal refinements and ever-less attention to systemic issues, and unaware and generally uninterested in challenges elsewhere and in progress being made by other countries. It is rare to find a book which discusses US water policy (even fine ones, such as Robert Glennon (2009)’s recent “Unquenchable”) making any reference to the experience of other countries. And not one of the 86 reports produced by the Water Science and Technology Board of the National Research Council since 2000 focuses on water management in a country other than the United States.

The contrast between the US and countries which have made major advances in water management is unflattering. Consider Australia, for example. Dramatic changes in water resource management practice have been undertaken with eyes wide open for external information, has involved an integration of practice and thinking and enlightened public debate. The contrast between literacy on water economy in Australia and the United States is revealed in a recent New York Times piece (Bradsher, 2008) on water markets and the cessation of rice growing in Australia. The indignant reporter and most readers who commented from the US deplore the fact that water has been transferred from “essential-for-people” rice to “frivolous” grapes. Most Australian readers, on the other hand, laud the markets for finally ending the insanity of growing water-hungry rice in a desert.

As a professional in the World Bank it was striking to see countries face nothing but frustration when dealing with the United States. When water officials from the Government of Brazil wanted to learn about US experience with navigation in the context of large-scale regional water projects, the implicit and often explicit message from the State Department is “you can’t really want to visit the TVA or the USACE, they are anachronistic embarrassments, but we can show you community-based watershed management programs”. There is a striking shift in places where developing countries go to learn – away from the US (and Europe) and to countries like Australia and Mexico and Chile and Brazil.

OBSERVATION FIVE ON SOURCES OF LEARNING IN A GLOBALIZING WORLD: US universities still dominate world rankings. They remain beacons which attract the best and brightest from the rest of the world. But the model of engagement is increasingly anachronistic in a multi-polar, globalizing world. First, what is “on offer” in an introspective United States is primarily the experience of the US itself (with all the shortcomings described above). Second, where the experience of other countries is addressed, this is primarily through faculty who have engaged in the paternalistic aid business in the poorest

countries. The reaction of a group of students from the MICs in one of the country's most prestigious professional programs is typical – “it is fine to hear about Burkina Faso once or twice, but we have heard of every aspect of that country, and we have learned virtually nothing about the experiences of China or Brazil...”

ELEMENTS OF A RESPONSE TO THE CHALLENGE OF WATER MANAGEMENT IN A CHANGING WORLD

Partnerships between US universities and intellectuals and professionals of the developing world are largely unchanged from the time in which these countries had little intellectual capacity and the US was the dominant global power. These now-anachronistic “partnerships” implicitly say to the developing world: “send us your best and brightest and we will train them, keep the best and send the rest back with the ideas we have given them”. Countries like India (where I lived for three of the last six years) and Brazil (where I spent the other three years) are less and less interested in such relationships. They have considerable intellectual and financial resources (“who would have imagined that the IMF would come to beg Brazil for a loan?” was a recent observation by President Lula). The governments are concerned about sustainability, but only in conjunction with economic growth. They see the creation of a platform of water infrastructure and sound institutions as fundamental to their water security. They want partnerships of reciprocity, not paternalist, one-way interactions. This new generation of partnerships must involve, inter alia:

- An understanding of the evolving history of water and its relationships to broader social factors such as economic and political development in different contexts;
- A structure which simultaneously encourages disciplinary depth (“the trees”) but also inculcates an understanding of breadth (“the woods”);
- Development of the full range of tools required to address the issue of water security, including: infrastructure (“smart”, yes, but “dumb”, too); institutions (as defined by Nobel Prize winner Douglass North (1993) as “the humanly-devised constraints that structure human interaction. They are made up of formal constraints, including rules, laws, constitutions; informal constraints, including norms of behavior, conventions, and self imposed codes of conduct; and their enforcement characteristics”); and technologies (biological, chemical, information and financing).
- A mutuality in the definition of relevant research (not research defined by US professors alone).
- A focus on the real world, and thus an emphasis on partnerships (a) between practitioners-who-think, and researchers-who-understand-practice (to give lie to the observation by Ambassador John MacDonald that “practitioners never read, and academics never practice” (Alam, 1998)) and (b) to

engage with the progressive private sector which is likely to be the source of much innovation in the water domain (Briscoe, 2010, forthcoming).

Now is the time to re-formulate the engagement model: so that US experience is understood and presented in a historic context rather than through the parochial lens of contemporary US views and values; so that the experience of other countries is recognized and is a source of research and learning; so that it is recognized that countries with different historical, political, economic and environmental conditions will come to different conclusions on what constitutes appropriate water development and management. Such an approach would bring great benefits to many of the countries of the developing world. And water researchers and practitioners in the United States might learn something, too!

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