

**GLOBAL WATER INITIATIVES:
PRELIMINARY OBSERVATIONS ON THEIR EVOLUTION AND SIGNIFICANCE**

Robert G. Varady¹

ABSTRACT: The paper presents a brief history of institutions known as “global water initiatives.” The phenomenon reflects a post-World War II trend toward collective approaches to resolving multinational issues in general and common-pool resources in particular. These initiatives have proliferated because of a belief that water transcends national boundaries and must be managed cooperatively, equitably, and using the best science. The paper tentatively evaluates the effectiveness of these initiatives, which arguably have become the dominant model for international water-resources management. The central question it addresses is whether the ‘world of water’ would have been much different if these initiatives did not exist. Environmental historians commonly have studied aspects of water in different societies. The proposed paper instead analyzes a metaprocess: the rise of institutions with expectations of influencing water management on a global scale. The results should interest scientists, social scientists, lawyers, diplomats, managers, and especially decisionmakers at all levels.

KEY TERMS: water management; global water initiatives; water policy; environmental history.

INTRODUCTION: WHY STUDY GLOBAL WATER INITIATIVES?

As the editor of the journal *Water Policy* has written, “the history of social organization around river basins and watersheds is humanity’s richest record of our dialogue with nature” (Delli Priscoli, 1998). But throughout human history, the instruments available to nation-states have remained largely inadequate to handle global institutional problems. Not surprisingly, then, it is only over the past few decades that scientists, government officials, and world leaders have come to realize that water is a key resource whose availability, quality, and effective management are central to assuring human health, prosperity, and peace.

The immediate post-World War II period was marked by large, capital-intensive development projects. Then, beginning in the mid-1960s—partly because of rapidly increasing population and partly due to growing fears of conflict over water—international attention began to turn to the core issue of water policy (Wolf, 1998). The five decades since the early 1950s have been marked by concerted, organized activity intended to improve understanding of and enhance access to the world’s water resources. But the institutions, or global water initiatives, spawned by this activity have sprung from numerous and often divergent sources. As a result, innovative, useful, and practical observations and recommendations have sometimes been obscured by the sheer number of voices and diversity of approaches.

¹ Deputy Director, Udall Center for Studies in Public Policy, University of Arizona, 803 East First Street, Tucson, Arizona 85719, Phone (520) 884-4393, Fax (520) 884-4702, E-Mail: rvarady@email.arizona.edu.

The complete mosaic of the global-water-initiatives phenomenon remains virtually unstudied and thus poorly understood. To what extent do these initiatives constitute a well-defined network with clearly articulated links, traceable influences, and unified purpose? Or, as some have rightfully asked, are the various efforts independent, poorly connected, even competing enterprises? More important still, in the aggregate, have they made a palpable difference on the ground? In the words of one longtime observer and participant in these events, “Would the world of water have been much different if [these initiatives] did not exist?”

ROOTS OF WATER CONSCIOUSNESS AND ITS INTERNATIONALIZATION

The present section seeks to explore the epistemology of water consciousness and its internationalization. What intellectual currents and driving forces have prompted and shaped the various initiatives? How are these products of their times? How have they mirrored global, regional, and national politics at particular moments?

World War II and its Aftermath: Multinationalism and Technology

In large measure, the changed perception of water can be attributed to a number of important postwar developments. First, in the wake of the horrendous six-year upheaval, there arose a strong sentiment for multinational approaches to avoiding new wars. In spite of the failure of the League of Nations—an earlier attempt at global governance and peacekeeping—the United Nations (UN) was created in 1945. The signatories of the UN Charter recognized that many of the world’s problems transcend political borders, and like issues of war and peace, are best addressed multilaterally (Victor and Skolnikoff, 1999; Keohane et al., 1993; Udall and Varady, 1993).

Simultaneously, during the formative years of the United Nations in the late 1940s and early 1950s, the western nations and the Soviet Union had at their disposal the potent technologies of the period. In the hubris of victory against the German and Japanese war machines, the world powers brimmed with confidence over their ability to deploy the new technologies in massive ways intended to transform society and adapt the landscape to human needs, trends already well under way in Nazi Germany, the U.S.S.R., the United States, and western Europe (Weiner, 1992).

Nowhere was this new impulse to harness technology more clearly visible than in the realm of water. The three decades from 1945 to the late 1970s brought an unprecedented initiation of ambitious, large-scale waterworks such as dams, barrages, irrigation schemes, and hydroelectric plants; river diversions and interbasin transfers; and wetlands-drainage and land-reclamation projects. Heralded as signals of 20th century progress, these enterprises underlined the centrality of water to society.

As the international significance of water became more generally recognized, numerous institutions arose to advocate one or another of its aspects. But considerably earlier, professional societies had been at the vanguard of this advocacy. Like all such associations, these had formed among professionals of various stripes to construct common intellectual spaces, share expertise, and stimulate and promote basic and applied research. Accordingly, by the mid-1950s, water scientists, engineers, and managers had established respected, well-functioning, and well-subscribed organizations, each pursuing the interests of its members and pulling in its own direction.

The International Hydrological Decade (IHD) and Its Origins

Postwar polarization not only isolated professionals from some of their counterparts, it created a gulf in the content of science. Ideological differences were reflected in the distinct schools of science and approaches to technology that began coalescing during this time. This prompted scientists, engineers, educators, and UN officials to call for the designation of a unified and concerted global effort to gather and interpret data on the planet. The result was the International Geophysical Year (IGY), which lasted from July 1957 to December 1958 (Chapman, 1959). IGY marked the first serious, sustained collaboration between Soviet and western scientists and set the stage for other large-scale, focused, and ideologically safe planetary science programs.

Although UNESCO did not at the time have a water-resources division, it had nonetheless been active in the field since the early 1950s. UNESCO's most prominent involvement in global water problems had been its sponsorship, beginning in 1951, of an international Advisory Committee on Arid Zone Research (ACAZR). ACAZR and its offspring, the Arid Zone Programme, directed UNESCO's attention to the world's most acute water problems: those in the world's driest areas. Among the major postwar international organizations, therefore, UNESCO was arguably best suited to convene meetings, coordinate activities, and provide multilateral leadership for planning and implementing the International Hydrological Decade.

Following its November 1962 meeting, UNESCO convened additional sessions aimed at broadening participation and reexamining and revising the original proposal to create an international decade. The recommendations of these meetings were adopted by the end of 1964 and the UNESCO launched the International Hydrological Decade at the start of 1965 (Korzoun, 1991; Batisse, 2003).

Most observers agree that the Decade, which ended in 1974, was a major boon to the field of water sciences as a whole and to understanding the hydrological cycle in particular. At the outset the program defined five main objectives: to collect hydrological data, assess resources and budget balances, conduct research into problems, educate and train new personnel, and facilitate information exchange. In the course of addressing those objectives, the Decade promoted scientific cooperation and substantially advanced the state of hydrologic knowledge. One of the byproducts of the flurry of activities generated by the IHD was that it drew considerable attention to water issues.

One of the IHD's specific objectives, an inventory of the world's water balance, was accomplished not long after the end of the Decade with the UNESCO's 1978 publication of *World Water Balance and Water Resources of the Earth*. This comprehensive inventory provided previously unavailable basic data at different scales; more significantly, it offered the possibility of assessing the state of the planet's available water resources. In the process, the Decade prompted a succession of publications, such as an authoritative glossary and numerous monographs, papers, reports, educational materials, and other documents. In addition, IHD convened at least 25 major international conferences, helped train technicians, and generally raised the profile of the study of water and its problems.

The International Hydrological Programme (IHP)

The International Hydrological Decade's last action was a large scientific conference held in Paris in 1974. The final report of the IHD showed that more than 100 nations had taken part in the Decade, confirming the organizers' hunch that scientific cooperation would transcend political differences (Korzoun, 1991). The immediate question raised by the apparent success of the Decade was how to harness the energy it had generated and carry forward its unfulfilled

ambitions. To realize this goal, the participants in the closing conference decided to view the just-concluded IHD as the first part of an organic, long-term program. Accordingly, UNESCO's 1974 General Conference took the lead in transforming the Decade into a periodically renewable institution it called the International Hydrological Programme (IHP). The goal of the new effort was similar to that of the Decade: to strengthen the connections between scientific research, application, and education in the realm of water. Also like the IHD that preceded it, the International Hydrological Programme has been an engine of activity. It had an important role in promoting such influential conferences such as the 1977 UN Conference on Water in Mar del Plata (see Table 1) and numerous scientific studies, training programs, and publications. But the IHP's most significant contribution may be due less to the weight of its achievements per se than to its institutional centrality, persistence, and resilience. By offering a permanent forum for water-related interests, IHP has been well-positioned to encourage multinational cooperation and stimulate innovative approaches to water science and management.

Table 1. Significant Events and Periods Relating to Global Water Initiatives.

Designated Period/Event	Date(s)	Venue
International Hydrological Decade (IHD)	1965-74	n/a
UN Conference on the Human Environment	1972	Stockholm, Sweden
UN Conference on Water	1977	Mar del Plata,
International Drinking Water Supply & Sanitation Decade (DWSSD)	1981-90	Argentina
International Conference on Water and the Environment	1992	n/a
	1992	Dublin, Ireland
	1997	Rio de Janeiro,
UN Conference on Environment and Development (Earth Summit)	1998	Brazil
First World Water Forum	2000	Marrakech,
International Conference on Water and Sustainable Development	2001	Morocco
	2002	Paris, France
	2003	The Hague,
Second World Water Forum	2003	Netherlands
International Conference on Freshwater		Bonn, Germany
World Summit on Sustainable Development		Johannesburg, S.
International Year of Freshwater (IYF)		Africa
Third World Water Forum		n/a
		Kyoto, Japan

Source: "Milestones," World Water Assessment Programme (2003): pp. 24-28.

GLOBAL WATER INITIATIVES: TOWARD A HISTORICAL PARADIGM

To date we have seen the four earliest types of global water initiatives: the venerable professional societies; a one-time, designated time period (IHD); a thematic program that addressed a family of environmental problems (ACAZR), and a dedicated, UN-based institution (IHP). Of these, the effects of professional societies and of the IHP have been discussed. The section below accordingly reviews the creation of thematic eras other than the IHD, the establishment of other thematic initiatives, and the contributions of organized events.

Designated Periods

The International Hydrological Decade, as noted, was inspired by the International Geophysical Year. Other such time periods have been infrequent, but two are worth mentioning. The first, the International Drinking Water Supply and Sanitation Decade

(DWSSD), was declared in 1981, six years after the end of the IHD. This effort aimed to redress massive shortages of access to potable water and sewerage.

A dozen years after the DWSSD ended, it was clear that much of the world continued to lack safe drinking water. Beginning at the 1992 Earth Summit in Rio and through the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, experts, officials, and activists began calling for comprehensive steps to address this crisis (Cosgrove, 1999; Cosgrove and Rijsberman, 2000). Improving water management, according to this view, could only be achieved via far-reaching measures that would include population reduction, improved women's education, reformed modes of water governance, and new economic approaches. One attempt to realize some of these aims was the 2003 International Year of Freshwater (IYF). As that year comes to a close, the crisis is not perceptibly closer to resolution.

Other such periods have been proposed. The most recent example of such an initiative was in September 2003; representatives of 53 countries at a global freshwater forum in Tajikistan appealed for a "Decade of Water and Life," to extend from 2005 to 2015 under the aegis of UNDP. Actual designated periods of water awareness are shown in Table 1.

Organized Events

An extremely common type of global water initiative has been the organized conference. Both modern diplomats and modern academics have evinced a fondness for large "watershed" summits that unite diverse participants and aim to resolve outstanding issues. Noteworthy events—many of them sponsored or cosponsored by UN agencies—at which water was a major topic are shown in Table 1.

These periodic events generally have been well attended and have fielded ambitious, wide-ranging, and crowded agendas. Usually, these summits have yielded thoughtful, well-intentioned documents. Too often, the energy and enthusiasm that are manifest at these gatherings dissipate rapidly and leave few lasting traces. Indeed, the elusive outcome termed "networking" may best characterize the benefits of such forums. Paradoxically, even as their popularity and legitimacy grow, the effectiveness of these programs remains relative, unmeasured, and not always evident (Salman, 2004; Speth, 2003; Falkenmark, 2001).

Independent, Multinational Water Initiatives

The cauldron of ideas and activity generated by professional societies, the IHD and other designated periods, summits, and the IHP clearly elevated the profile of global water issues. A more lasting impact may be that the existence of these institutions spawned new alliances and organizations. At certain times elements of the above institutions came together to pursue distinctive water-centered agendas.

Beginning in the early 1950s, but especially in the years following the IHD—and often prompted or supported by the IHP—numerous multinational initiatives were launched; Table 2 provides a sampling of the most prominent initiatives. Some of these were aimed at particular water-related sectors (e.g., irrigation and agriculture, waterworks construction, water supply and allocation, drinking water and sanitation, public health, inland basins, groundwater, wetlands, ocean waters, climate, and ice); some represented disciplinary orientations (e.g., hydrology, ecology, climatology, environmental health, social sciences, and law); and some were expressions of particular visions (e.g., sustainability, food and water security, interdisciplinarity, environmental justice, 'environmentology,' stakeholder involvement, science-policy dialogues, and conflict resolution).

Table 2. Examples of Influential Nongovernmental or Intergovernmental Global Water Initiatives.

Institution	Date Established
International Commission on Irrigation and Drainage (ICID)	1950
Working Group on Representative and Experimental Basins	1965
RAMSAR (Ramsar Convention on Wetlands)	1971
International Hydrological Programme (IHP; based at UNESCO)	1975 1980
World Climate Research Programme (WCRP)	1988
GEWEX (Global Energy and Water Cycle Experiment)	1990
Water Supply and Sanitation Collaborative Council (WSSCC)	1990
International Human Dimensions Program on Global Environmental Change (IHDP)	1992
Biospheric Aspects of the Hydrological Cycle (BAHC)	1994
International Network on Participatory Irrigation Management (INPIM)	1996 1998
Global Water Partnership (GWP)	1999
World Water Council (WWC)	1999
World Commission on Water for the 21st Century	2000
Global International Waters Assessment (GIWA)	2001
Hydrology for Environment, Life and Policy (HELP)	2002
World Water Assessment Programme (WWAP)	
Dialogue on Water & Climate/Cooperative Program on Water & Climate (DWC/CPWP)	
Global Water System Project (GWSP)	

The four largest, most active, and arguably best-financed global water initiatives of this type have arisen recently, since 1996. Two of these, the World Water Council (WWC) and the Global Water Partnership (GWP), have palpably activist aims and appear to be the most ambitious and comprehensive. They mean to promote particular, forward-looking approaches to water management. Their general goal is to improve access to water and thus reduce poverty and enhance security. The other two, the Global International Waters Assessment (GIWA) and the World Water Assessment Programme (WWAP) have less activist orientations; as their names imply, they seek instead to assess the world's water situation. The initiatives discussed briefly in this paper represent a cross-section of the movements, organizations, and efforts that have arisen over the past decade. The advent of these internationally oriented, nongovernmental institutions is a development with parallels in other domains such as public health and agriculture. Like those, it is distinctive and remarkable. The networks within which these initiatives function, the connections between organizations, and the varieties of missions and strategies expressed are as yet poorly understood and merit further study.

An Initial Paradigm

The preceding sections have reviewed the genesis of several types of institutions. In their ensemble, the institutions undoubtedly have helped generate knowledge, increase scientific cooperation, and encourage transnational governance. And while they have expressed their objectives in disparate ways, the initiatives examined have shared an overriding interest in a single subject: the world's water. Although the workings and interrelationships of the various institutions are not yet fully understood, it is possible to propose a paradigm for their

evolution. The foregoing discussion suggests several historical processes, usually reflective of the times, often occurring simultaneously. Table 3 is a tentative schematic presentation of this evolutionary process over the past half-century.

Table 3. Initial Paradigm for Evolution of Global Water Initiatives.

From:	To:
Professional concerns and desire to improve science, understanding, and communication	Multilateral efforts to address water issues on a global scale
Aggregated attempts to consider global water problems (like the IHD)	Specific sectoral, thematic and issue-oriented approaches
Understanding that water is an important resource	Recognition that access to potable water and sewage is a key to development and poverty reduction
Impulse to move beyond data acquisition and theory	Determination to improve on-the-ground conditions via tailored programs
Desire to harness science and technology in order to effect change	Definition of ambitious, progressive, action-oriented agendas
Large multiobjective programs (like WWC and GWP) and approaches (like IWRM) with overarching goals	Smaller, tailored programs (like HELP and DWC/CPWC) that focus on characteristics and procedures that make water management more efficient, responsive, equitable, and conflict-reductive

Two common threads running through these initiatives are worth noting. The first is that since 1975, the evolution shown in Table 3 has occurred in the presence of the International Hydrological Programme. Even when some of the emerging initiatives have diverged in multiple directions, the constancy of IHP's existence has no doubt helped sustain and nourish the phenomenon. A second important commonality is that the evolving institutions appear to be motivated by genuinely multilateral principles. While global water initiatives have attempted to redress the inability of individual countries to transcend national interests (Keohane et al., 1994), they have generally shunned "official" methods such as treaties and other negotiated accords. Rather, these initiatives have evolved mostly via nongovernmental or quasigovernmental programs. The resulting freedom from diplomatic constraints has fostered creativity, innovation, and enthusiasm that are often absent in government-sponsored undertakings. Yet the initiatives have often overlapped, duplicated effort, and dissipated without accomplishing the sweeping changes intended by their creators.

WHAT DOES IT ALL MEAN?

The discussion of the roots and development of global water initiatives has attempted to chronicle their vigor, resilience, and intended influence. The largest remaining task is to assess their actual accomplishments in "the world of water," as A. K. Biswas has termed the target of all the efforts. In short, what has been the relationship between the documented institutional processes and real changes occasioned by demography, development, globalization, and other forces? To push the question even further, what is the extent to which any improvements in conditions might be due to specific initiatives? Further still, can real changes in policy be attributed to these institutions?

Such an evaluation is beyond the scope of the present essay, but it is possible to place the phenomenon in perspective by asking whether the numerous, disparate institutions born over the past several decades have worked toward compatible objectives.

Are Global Water Initiatives Pulling Together?

In many areas, the various initiatives—either collectively or individually—have had demonstrable successes. Most visibly, they have helped lower transnational and transdisciplinary communication barriers; catalogued and analyzed massive amounts of data and thereby greatly enhanced understanding of the global water cycle; developed better scientific products and techniques to improve water management; and encouraged greater public participation.

But a glance at their mission statements suggests that at times, global water initiatives have likely struggled internally to construe themselves and contended with each other for influence. Tugged by opposing disciplines, ideologies, or personalities, some may have aimed too narrowly, others too broadly. As seriously, the actions of the numerous initiatives have on occasion overlapped. In short, the collection of institutions at play has been a laboratory for a number of interinstitutional and intrainstitutional tensions.

Prospects

The present essay has offered a preliminary exploration of the global water initiative process. This process has been seen to be vital, dynamic, and very much still in play. Although, as the preceding section has suggested, the phenomenon is not monolithic, unidirectional, or precisely aimed, it continues to offer prospects for progress. But until instruments can be developed to measure and attribute progress, the degree to which the many, sometimes competing, activities are effective on the ground cannot properly be gauged. A signal task is to identify which programs have achieved their aims and which have not, and to determine the ingredients of success and failure.

The results should interest physical scientists, social scientists, planners, managers, diplomats, leaders of the global water initiative phenomenon, and especially decisionmakers, who according to water historian Martin Reuss, “need to ask questions about history and to reflect on the past before they can address contemporary challenges” (2000).

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