



CALL TO ACTION

THE NEED TO MAINSTREAM LAKES, RESERVOIRS AND OTHER LENTIC WATER SYSTEMS IN THE GLOBAL WATER AGENDA

Background and Observations

- Water is the most encompassing global-scale integrator, connecting aquatic and terrestrial ecosystems and the atmosphere in a continuing cycle of use and replenishment. Adequate supplies of freshwater of suitable quality are also an absolute requirement for all life and socio-economic development on our planet. Yet only about one percent of all the freshwater on the Earth's surface is in liquid form, of which 90% is stored in lakes, reservoirs and other lentic (impounded or static) water systems, including wetlands, marshes, flood plains, bogs, fens and mires. The remaining portion exists as flowing (lotic) water systems, mainly rivers and streams. Collectively, they provide a range of important ecosystem services for sustaining human health and livelihoods, food production and economic development, and are also essential habitats for a great variety of flora and fauna. It is important also to note that the uses of these life-supporting ecosystem services can sometimes become a source of tension between upstream and downstream users and between various use sectors, as well as between meeting the water needs of both humans and nature, with examples being transboundary water systems.
- Natural lakes and manmade lakes (reservoirs) exhibit many resource values, including providing agricultural irrigation water, being a major food source (e.g., fish) and supporting recreational and tourism activities (e.g., sports fishing, swimming). Impoundment of flowing waters also provides for hydropower production, while natural lakes have cultural and religious significance in some countries. Reservoirs also have an important role as water storage systems for addressing the uncertainties associated with predicted changes in global precipitation patterns attributable to global climate change, including both water shortages (droughts) and excesses (floods) and their human and ecosystem consequences. Both are freshwater sources, as well as recipients of river inflows, forming complex combinations of natural and artificial water flow and water stock networks addressing multiple human and ecosystem water needs.
- In the meantime, faced with increasing populations and their transitional economic developmental needs particularly in developing countries, both national and transboundary lakes and reservoirs can serve as readily-usable sources of large volumes of freshwater in the decades and centuries ahead. However, in spite of their importance in supporting human life and livelihoods, addressing the enormous technological and managerial challenges facing lakes, reservoirs and other lentic water systems remains a significant

missing gap in global water discussions. With few exceptions, mainly large transboundary lakes facing use conflicts, these waterbodies have generally been ignored in the mainstream global water agenda, as compared to, for example, open oceans, large marine ecosystems, regional seas, as well as international rivers and aquifers, with the global audience failing to recognize the importance of national and transboundary lakes and reservoirs and their challenging scientific and managerial issues.

- The potential threats to ecosystem integrity are caused in large part by degradation of lakes and reservoirs originating from human activities in their drainage basins, causing excessive water abstractions and pollution. Restoring and sustaining their resource values requires consideration of the common, but unique, features they exhibit, including an ***integrating nature for all inputs; long water retention times, and complex non-linear response dynamics***, that collectively translate into significant technological and managerial challenges. Unfortunately, our past achievements in addressing these challenges have been far less than satisfactory. Action is needed now to address these serious challenges to so many of these important freshwater sources.

Important Mainstreaming Actions Regarding Lakes and Reservoirs

Moving the Lake Mainstreaming Effort forward on a global scale requires concerted international and national-level discussion and cooperation at many levels. In fact, multiple international organizations (UNEP; UNESCO International Hydrology Programme (IHP) and World Water Assessment Programme (WWAP); UNDP; World Bank; GEF; Sustainable Water Future Programme; International Lake Environment Committee; Living Lakes) previously stated their support for mainstreaming lakes, reservoirs and other lentic water systems into the global water agenda, including the following observations:

- ***Promote Effort at the Global Level for Mainstreaming Lakes and Lentic Waters as a Key Component in the National Strategic Policies and Programs for Water:***

Promoting lakes and reservoirs at a high political level in global-level discussions must include mainstreaming and disseminating management targets to national governments, UN agencies and other multi-stakeholder partnerships that involve the public and private sectors, and comprise local, national and global actions. Particularly important actions to mainstream lakes for sustainable use will include global recognition of this goal at venues such as the United Nations Environmental Assembly (UNEA), World Water Forum, and the Conference of Parties to the United Nations Framework Convention on Climate Change, as well as encouraging national governments to include their specific consideration in their respective national strategic plans for water resources and environmental management.

- ***Develop a Global Platform for Greater Cross-Fertilization of Experience and Lessons Learned, and for Accelerated Replication of Successful Lake Basin Management Practices:***

Management experiences across continents have been accumulated over the past decades to an adequate level, though still not necessarily sufficient, having generated knowledge regarding the value of an integrated management approach for individual lake basins and communities, and in national water resources management plans, strategies and

policies. There is, on the other hand, an urgent need to increase our knowledgebase regarding the interactions, roles and management challenges of lakes, reservoirs and other linked lentic and lotic water systems within international, national and local watersheds and groundwater systems. Accumulation of such knowledge must be systematically accelerated and widely shared through a global mechanism for enhancing cross-fertilization. Although the levels of success vary from country to country, these cases typically encompass a gradual learning process regarding the state of lake and reservoir basin governance and how to strengthen it through an integrated management approach, including identifying key drivers, emerging trends, challenges and possible policies to address the sustainability challenges facing them.

- ***Develop a Global Platform for Adoption of Integrated Lake Basin Management Principles, and for Gradual, Incremental and Sustained Improvement of Basin Governance:***

The political profile of lakes and reservoirs can be enhanced on a global scale by creating a comprehensive integrated lake basin management principle to be endorsed and applied by governments, UN agencies and other relevant lake and reservoir stakeholders. This principle is an approach for achieving sustainable management of lakes and reservoirs through gradual, continuous and holistic improvement of basin governance, including sustained efforts for integrating institutional responsibilities, policy directions, stakeholder participation, scientific and traditional knowledge, technological possibilities, and funding prospects and constraints. In fact, the challenges facing individual lakes and reservoirs cannot be properly addressed unless the fundamental issue of their sustainable resource development, use and conservation is addressed globally, and with strong, long-term political commitment. This requires global agreement to collectively fill the gaps between what has already been achieved and what remains to be achieved by continuing to make governance improvements toward the future.

- ***Adopt Key Symbolic Actions and Activities on a Global Scale:***

Successfully mainstreaming lakes and reservoirs, as well as highlighting their roles and management challenges within the global water cycle, requires continuing recognition within the global water agenda. Some symbolic activities of this nature can be associated with already-existing global programs such as those encouraging broader societal participation to accelerate management improvements, and those focusing greater attention on the overall Ecosystem Service values provided by lakes, reservoirs and lentic water systems. This is particularly the case for their Regulating and Cultural Service values, in addition to their Resource Provision Service with which the world has been preoccupied over the past century, with its environmental and ecosystem degrading consequences.

Benefits and Avenues for Global Mainstreaming of Lakes and Reservoirs

- Given the millions of lakes, reservoirs and other lentic water systems around the world, which are found on every continent including Antarctica, mainstreaming them into the global water agenda is not the task of any individual nation or agency, but rather a global challenge involving all lake and reservoir basin stakeholders. In addition to their large freshwater volumes for meeting human and ecosystem water needs, their role as storage

bodies within the context of global climate change further enhances their global importance. Predicted climate change impacts include more frequent and intense storm events and changes in precipitation on a global scale, both of which are already occurring in many places. Lakes and reservoirs represent significant mitigation elements for addressing such impacts. Mainstreaming them in the global water agenda will also allow consideration of their previously-noted unique characteristics within integrated water management efforts aimed at their sustainable use. In fact, infusing an integrated lake basin management approach within the widely-used Integrated Water Resources Management (IWRM) framework represents a powerful tool for managing lakes and reservoirs on a basin scale, including consideration of the upstream and downstream water systems to which they are linked.

- To this end, the lessons learned in integrated management of lake and reservoir basins in some countries and regions can assist other countries and international agencies in developing synergies, joint programs and complementary strategies, and sharing lake and reservoir assessment and management experiences between countries and international organizations. These include fora such as UNEA, World Water Forum, World Lake Conferences, Framework Convention on Climate Change, and Ramsar Convention. Successful assessment and sustainable management of lakes and reservoirs shared by more than one country also provide a forum for transboundary cooperation and facilitation of the shared benefits of the associated ecosystem services to basin stakeholders.
- A global-scale mainstreaming effort also will provide a means of developing solid strategies for integrated management of lake and reservoirs basins for sustainable development encompassing sound policies, good governance and sustained investments, including identifying specific management issues and challenges that comprise policies, institutions, participation, information, technology and finances (ILEC and UNEP 2016). Some integrated lake basin management activities have already been undertaken to improve participatory lake and reservoir basin governance in a number of countries, with examples including through international technical collaboration and financial programs of UNEP and UNESCO, and utilization by the Japanese International Cooperation Agency for human resources development and national and international strategic program development.
- Mainstreaming lakes and reservoirs to achieve sustainable lentic-based ecosystem services will also facilitate cooperation with local communities, the private sector, and across local and national boundaries, encompassing both scientific and local knowledge in planning and management efforts. It also will facilitate multi-sectoral perspectives, including across environment, water, agriculture, climate and other relevant sectors to develop a shared vision for their planning and management.
- This Statement was designed as an evolving document, with its preparation meant to change the thinking of the global water community regarding these important water systems. Accordingly, the participation and inputs and suggestions from other relevant agencies for achieving this global-scale mainstreaming goal are needed to help identify alternative approaches for mainstreaming lakes, reservoirs and other lentic water systems within the global water agenda. In addition to national governments, some relevant international organizations and programs include, among others, UNESCO's International Hydrological

Programme (UNESCO-IHP) and World Water Assessment Programme (WWAP), Global Lakes Assessment Programme of the Sustainable Water Future Programme (SWFP), World Water Council (WWC) and the Global Water Partnership (GWP). This mainstreaming effort also will be pursued in such global fora as ILEC's 18th World Lake Conference (2019; Guanajuato, Mexico), and WWC's 9th World Water Forum (2021; Dakar, Senegal). If the valuable participation of these and other relevant organizations and programs is forthcoming, the benefits of this mainstreaming effort will be collectively shared by them within the context of their freshwater mandates and activities, as well as by national governments.

To continue to highlight and expand recognition of the importance of mainstreaming lakes, reservoirs and other lentic water systems within the global water agenda, the International Lake Environment Committee (ILEC) Secretariat (info@ilec.or.jp) welcomes all suggested improvements to this Statement. The Secretariat also welcomes receiving any relevant supporting documents, or any parts therein, for inclusion in an accompanying compilation of reference materials.

Supporting Documents

ILEC. 2005, *Managing Lakes and Their Basins for Sustainable Use: A Report for Lake Basin Managers and Stakeholders*. International Lake Environment Committee Foundation, Kusatsu, Japan. 146 p.

ILEC and UNEP. 2016. *Transboundary Lakes and Reservoirs: Status and Trends*. United Nations Environment Programme (UNEP), Nairobi, Kenya. 109 p.