

THE NEED TO MAINSTREAM LAKES AND OTHER LENTIC WATERS WITHIN THE GLOBAL WATER AGENDA

A CALL TO ACTION

This Statement highlights the increasingly serious water use and management challenges facing lakes and other lentic waters (pooled or static) around the world and their life-supporting ecosystem services. The vast majority of all the liquid freshwater on the surface of our planet is contained in these important water systems.

Accordingly, **the United Nations Environment Programme (UNEP) and the International Lake Environment Committee Foundation (ILEC) are seeking inputs and suggested actions in collaboration with other United Nations agencies and international organizations to strengthen and support the goals of this Statement directed to achieving the sustainable use of lakes and other lentic waters by peoples and countries around the world in a holistic and integrated manner.** The ultimate goal is to gain the support of governments to address the continuing degradation of these water systems and their life-supporting ecosystem services. Relevant supporting documents, or parts thereof, are also sought for inclusion in a compilation of accompanying reference materials.

Key Messages

- Lakes receive stresses from many directions transcending the entire water system and from virtually all sectors of the economy. They represent a valuable entry point to determine if we are meeting the environmental Sustainable Development Goals (SDGs), a key consideration in projects and programs implemented by all sectors.
- Achieving SDG 2,6,7,8,11,13 and 15 will depend greatly on our accumulated collective data, knowledge and information on lakes and other lentic waters, their basins and their resources, and how we can manage them and their ecosystems for sustainable use.
- A comprehensive management framework for lakes and other lentic waters is a major missing link in the Global Water Agenda and a weak link in the Integrated River Basin Management (IRBM)/Integrated Water Resource Management (IWRM) arena because they do not adequately consider their unique features. Focusing on their management challenges, Integrated Lake Basin Management (ILBM) provides a comprehensive framework for stakeholders to identify key issues and gaps in lake basin governance (institutions; policies; participation; science and knowledge; technology; funding), which has already facilitated several countries to develop a common shared vision and strategy to address their complex lake and other lentic waters management challenges over the long-term.
- Science, Policy and Business components must also cooperatively collaborate in utilizing the many products and services derived from lakes and other lentic waters in a sustainable manner. The types and magnitude of the threats facing them are many, complex and interacting, while our policies to protect them for their sustainable use are inadequate at virtually all governmental and societal levels.
- ILEC and UNEP in partnership with relevant UN agencies, NGOs and industrial sectors initiated this call for action for mainstreaming lakes and other lentic waters in national and global environmental policy frameworks to facilitate their sustainable use for human health and wellbeing, for socioeconomic development and poverty alleviation and for maintaining their

integrity, biodiversity and their life-supporting ecosystem goods and services. This approach exemplifies the realization of the 'Build Back Better' concept directed toward the post-COVID19 era and the need to protect the environment to reduce future pandemic risks.

- Mainstreaming lakes and other lentic waters at the global level must include disseminating management targets and goals to national governments, UN agencies, international organizations and other multi-stakeholder partnerships involving the public and private sectors, and comprises a range of local, national and global actions. Particularly important is their global recognition at venues such as the United Nations Environmental Assembly (UNEA), World Water Forum (WWF), and Conference of Parties to the United Nations Framework Convention on Climate Change. National governments also must specifically consider threats to their lakes and other lentic waters in developing their national strategic plans for water resources and environmental management and sustainability.
- Lake and reservoir mainstreaming actions at the national and international level can be facilitated by consideration of case studies of relevant management efforts and results from different regions of the world, particularly Southern and Southeast Asia, East Africa and Latin America, where the value of the ILBM approach has already been demonstrated in national-level water resources management plans, strategies and policies. The challenges and results vary from country to country, but all cases encompass a gradual learning process assessing the state of lake/reservoir basin governance, and how to strengthen it over the long term through the ILBM process, including identifying key drivers, challenges, emerging trends and possible policies to address sustainability challenges at both the national and international level.

Required Policy Actions

- 1) Promote actions at the global level to mainstream lakes and other lentic waters as key freshwater components in developing and applying relevant national strategic policies and programs;
- 2) Develop a collaborative interacting global platform for greater cross-fertilization and sharing of experiences and lessons learned, and for accelerated replication of successful lake and reservoir basin management practices at the national level;
- 3) Develop a collaborative global platform for adoption of integrated lake basin management principles, and for gradual, incremental and sustained improvement of the governance of lakes and other lentic waters, their basins and their many ecosystem services.
- 4) Adopt key symbolic actions and activities recognizing the importance of these freshwater systems and their life-supporting ecosystem services on a global scale, a noteworthy example being to establish a World Lake Day and associated recognition activities.



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Annex

RATIONALE FOR MAINSTREAMING LAKES AND OTHER LENTIC WATERS

Water is a requirement for virtually all life on our planet. Adequate supplies of freshwater of suitable quality are required for maintaining human health, well-being and socio-economic development. Yet virtually all human activities degrade our surrounding environment in varying degrees, with water systems being the most encompassing global-scale integrator of the impacts of these activities by integrating the responses of aquatic and terrestrial ecosystems and the atmosphere within a continuing cycle of water use, pollution and replenishment. Only about one percent of the freshwater on the Earth's surface is in liquid form, with more than 90% of this volume being in lakes and other lentic waters (wetlands, marshes, flood plains, bogs, fens, mires; Shiklomanov and Rodda, 2003). The remaining fraction exists primarily as flowing rivers and streams.

Lakes and other lentic¹ waters collectively provide a wide range of life-supporting ecosystems services, including human drinking and irrigation water, being a major food source (e.g., fisheries), and supporting recreational and tourism activities (e.g., sports fishing; swimming; skiing). They also have cultural and religious significance in some countries. They also are essential habitats for a wide variety of flora and fauna (ILEC 2005). Further, humans impound flowing waters to generate hydropower. Lakes and other lentic waters also play a mitigating buffer role for addressing the hydrologic uncertainties associated with predicted changes in precipitation patterns attributable to global climate change, including storing scarce water supplies during drought periods and storing excess water volumes during flood periods. Facing increasing populations and transitional economic developmental needs in coming decades, particularly in developing countries, national and transboundary lakes and reservoirs represent large readily usable freshwater sources. Properly managed, they are immediately available and usable resources governments, communities and individuals can utilize to maintain human health and wellbeing and fuel socio-economic development.

However, at the same time lakes and other lentic waters are highly susceptible to temporal and spatial imbalances inherent between human activities and their responses to these activities.

¹ The term 'lentic' refers to standing bodies of water (e.g., lakes, wetlands, naturalized reservoirs) with implicit connotation of their unique ecological properties, while the term "lotic" refers to moving bodies of water with their respective ecological properties. The term 'lake' used in this Statement denotes lentic waters. Because lake basins are typically comprised of a lake and connected inflowing and outflowing tributaries, the term lake basin refers to 'lake-river basins,' or more broadly 'lentic-lotic basins.' Further, lake-river-coastal basin systems are generally lentic-lotic basins complexly intertwined with hydrostatic and hydrodynamic components.

Artificially constructed lakes ('reservoirs') may also be referred to as lentic systems if its ecological functionality or ecosystem services are among the major purpose for their construction. In contrast, there also are reservoirs with no intended design purposes related to the beneficial use of their ecosystem functions. An example would be some hydropower generation reservoirs, representing hydrostatic-hydrodynamic systems constructed for purposes not related to any lentic or lotic characteristics. However, reservoirs constructed with no original intention related to its ecological functionality may become lentic over time by being slowly overtaken by natural aging processes, eventually being abandoned or intentionally left to become 'naturalized' systems with new purposes (RCSE and ILEC, 2014).

Accordingly, it is imperative that governments recognize these imbalances as a critical missing link in the global water agenda that can significantly affect the sustainability of their ecosystem services and achievement of the SDGs. Lakes and other lentic waters remain exceptionally vulnerable to the impacts of human activities, with their continuing degradation and misuse being a serious threat on a global scale to human water security, biodiversity values and many other important ecosystem services (ILEC and UNEP, 2016). In fact, the need to consider these imbalances in addressing lake management challenges can be likened to the emerging debates on the current and long-term health and economic impacts of the ongoing coronavirus (SARS-Cov-2) disease pandemic (COVID-19).

In spite of their fundamental importance in supporting human life and livelihoods, the need to address the complicated technological and managerial challenges facing lakes and other lentic waters remains a significant and confounding missing gap in global water discussions and agreements. The sustainable use and conservation of these freshwater systems and their resource values face constant stresses of all kinds from all directions, including from upstream (pollutant runoff), downstream (excessive water abstractions), above (airborne pollutants) and below (sediment-associated pollutants). However, with few exceptions, the global audience has failed to recognize the importance of national and transboundary lakes, and especially their complex scientific and managerial challenges. Excepting some prominent large transboundary lakes facing water use conflicts, they have generally been ignored in the mainstream global water agenda, especially when compared to international rivers and aquifers, large marine ecosystems, regional seas and the open oceans.

Restoring and sustaining their resource values requires specific consideration of their collective unique features, including an **integrating nature for all inputs, long water retention times, and complex non-linear response dynamics to human-induced stresses**. As a result, lake and other lentic waters problems typically take a long time to become evident and require a long time to find solutions for them. They also exhibit complex responses to pollution and other stresses, with concerted collective efforts required to address their major technological and managerial challenges. Unfortunately, our past achievements to address these challenges have been far less than satisfactory on both a national and international scale. ***Collective actions are needed now to address these serious challenges.***

Highlighting their significant role across a wide spectrum of human and sectoral interests requires a solid long-term strategy for integrated lake basin management directed to sustainable development encompassing sound policies and supporting actions. This approach, incorporating good governance, stakeholder participation and sustained investments, is fundamental to achieving the SDGs, particularly SDG 2,6,7,8,11,13 and 15 (ILEC and UNEP 2016). This approach also requires credible, up-to-date data and information obtained through consistent monitoring and assessment activities.

To this end, the Integrated Lake Basin Management (ILBM) concept was developed through international collaboration between multiple government ministries and international agencies and organizations. It evolved as an elaboration of the international Lake Basin Management Initiative (LBMI), a previous Global Environment Facility (GEF)-funded global project implemented by the International Lake Environment Committee (ILEC) and executed by the World Bank (ILEC 2005). Multiple national and international organizations facilitated the LBMI project, including the United Nations Environment Programme (UNEP), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Development Programme (UNDP), Ramsar Convention, US Agency for International Development (USAID), World Bank, Living Lakes and

OSEANALA (*Friends of Lake Victoria*). It has since been used to improve participatory governance focusing on sustainable ecosystem services for lake basin communities and countries through international technical collaboration and financial programs of UNEP, UNESCO and the Japanese International Cooperation Agency (JICA) for human resources development and national and international strategic program development;

Integrated Water Resources Management (IWRM) and Integrated River Basin Management (IRBM) are being applied to address water resources challenges in many countries. Integrated Lake Basin Management (ILBM) represents an effective approach for addressing the **unique management challenges of lakes and other lentic waters** and their ecosystem services. It provides a means for identifying and assessing lake management issues and challenges requiring actions over the short- and long-term, including policies, institutions, participation, information and technology needs and financial issues. It can also be integrated as a complementary management component within the IWRM and IRBM frameworks. Relevant questions addressed within the ILBM framework include: *How can we ensure achievement of ILBM; Who should be involved; What are the logical steps for moving forward to achieve this goal; Who will do what; How long will it take; What will it cost?*;

Multiple UN agencies and other international organizations have highlighted a compelling need for strong governance, effective monitoring, credible accountability and sustained finances within global water discussions as fundamental requirements for addressing the complex management challenges facing lakes and other lentic waters. With its basin-wide focus, its collective consideration of the pooled and flowing water systems within a basin, and its emphasis on governance improvement, ILBM provides a rational and practical approach for addressing these complex challenges.

Exploring Possibilities for Enhanced Collaboration and Mainstreaming

This mainstreaming effort on a global scale cannot be achieved by a single agency or program. Rather, it requires concerted international and national-level cooperation and actions on many levels. UNEP, UNESCO's International Hydrology Programme (IHP) and World Water Assessment Programme (WWAP), UNDP, World Bank, GEF, ILEC, Sustainable Water Future Programme, Living Lakes and others previously stated their support for an holistic and integrated approach as a global imperative for managing lakes and other lentic waters. However, additional cooperation and collaboration actions are still needed at the international and national level to facilitate this important goal.

Therefore, it is important to explore options to facilitate these efforts in a practical and sustainable manner for other lake basins and countries, including developing joint programs, complementary strategies and other synergies, and sharing lake assessment and management experiences nationally and internationally within global-scale mechanisms such as the United Nations Environment Assembly (UNEA), World Water Forum (WWF), Ramsar Convention, and ILEC's World Lake Conferences. Assessment and management of internationally shared lakes and reservoirs also provides a forum for international cooperation and promotion of shared ecosystem service benefits for basin stakeholders.

Avenues for Global Mainstreaming of Lakes and Other Lentic Waters

This Statement was prepared as a living, evolving document directed to changing the perspective and thinking of the global water community about the fundamental importance of lakes and reservoirs for human health and economic well-being, and the need to sustain their many critical ecosystem services. Therefore, the suggestions and recommendations of other relevant organizations for achieving this lake and reservoir mainstreaming goal are fundamental to identify options for mainstreaming it within the plans and programs at the national and local government levels, as well as at the international level as exemplified by UNESCO's International Hydrological Programme (IHP) and World Water Assessment Programme (WWAP), Global Lakes Assessment Programme/Sustainable Water Future Programme (SWFP), World Water Council (WWC) and Global Water Partnership (GWP). This effort also will continue to be pursued in such global fora as ILEC's 18th World Lake Conference (2021; Guanajuato, Mexico) and WWC's 9th World Water Forum (2021; Dakar, Senegal).

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.
- Shiklomanov, I.A. and J.C. Rodda. 2003. *World Water Resources at the Beginning of the 21st Century*. International Hydrology Programme, Cambridge University Press. 18 p.

On the Drafting Process of this Mainstreaming Document and Acknowledgement of Contributions

This document was drafted by Walter Rast, Chairman, ILEC Scientific Committee, Masahisa Nakamura, Executive Director and Vice President, ILEC Board, and Patrick M'mayi, Programme Management Officer, UNEP Science Division. Major contributions for developing this document also were received from an International Colloquium ("*Mainstreaming Lakes and Other Lentic Waters in the Global Water Agenda*") convened by ILEC on November 14, 2018 at its 17th World Lake Conference. Members of ILEC's Scientific Committee subsequently provided additional comments for its improvement. As the writers responsible for finalizing this draft, we heartily acknowledge the contributions received from these and many other individuals and organizations in support of this important global initiative.