

Sharing Best Practices in Development of Water Pollution Assessment Tools from Laguna Lake, Philippines and Chilika Lake, India, to Lake Naivasha, Kenya

Concept and mission schedule

A collaboration between UN Environment under the Global Programme of Action for the Protection of the Marine Environment from Land-Based Activities (GPA), UN Environment's Freshwaters Unit, the Laguna Lake Development Authority (LLDA), the Chilika Lake Development Authority (CDA), the Kenya Government (National and County) agencies in conjunction with the Lake Naivasha stakeholders.

Date: 25 to 27 September 2018

Venue: Enashipai Resort & Spa, Lake Naivasha, Kenya

Background: The issue of pollution of fresh and coastal waters and the harmful impacts on human health, ecosystem health and economies rank high on national development agendas in the context of the sustainable development goals (SDGs). Countries have been developing and implementing approaches to combat land-based pollution and there are lessons to be shared in adaptation of success stories between countries. UN Environment through its Global Programme of Action on marine pollution and its Freshwater Unit have been facilitating the implementation of initiatives and exchange of best practices through its programme of work. In addition, in December 2017 at the 3rd United Nations Environment Assembly, UN Member States mandated UN Environment to help implement a Framework for Freshwater Ecosystem Management to help countries protect and restore their water-related ecosystems in line with the 2030 Agenda.

The aim of the Framework is to support countries achieve national and international goals related to ecosystems, including the monitoring and reporting on water-related SDG indicators under UN Environment's mandate: 6.3.2 (ambient water quality), 6.6.1 (freshwater ecosystem health), and 6.5.1 (integrated water resources management). Healthy freshwater ecosystems also directly or indirectly support a number of other SDG targets including those relating to food and energy security and to land and ocean health. Of particular interest is the expanded engagement of the private sector in fostering circular economy approaches in mitigating pollution and participation of civil society in toward advocacy, monitoring the state of the local environment (citizen science approaches) and taking action.

The Philippines and India's experiences in addressing water pollution: Pollution in these countries are receiving highest policy-level attention for clean-up and remediation in recent years. With the support of UN Environment, through funding from the Global Environment Facility, national stakeholders with responsibility for environmental management, along with local and

internationally-based academia, have been contributing to pollution mitigation in coastal ecosystems. Among the key tools that have been developed from the collaborations have been **ecosystem health scorecards**. Scorecards have been developed for Laguna de Bay in the Philippines and Chilika Lake in India. The scorecard has proven to be a very effective tried and tested tool based on application in other parts of the world, to assemble environmental quality data and integrate into a coherent communication package that all audiences can relate to and form the basis for assessment and feedback on the effect of efforts to combat pollution.

About Lake Naivasha: Lake Naivasha, located in west-central Kenya, is described as a rift valley lake that is part of the volcanic features in the Great Rift Valley that intersects the west-central part of the country. The lake is ecologically diverse, supporting a wide variety of aquatic and terrestrial species and its proximity to Nairobi has made it a very popular tourism hotspot in Kenya. The adjacent areas surrounding the lake have, however, seen heavy agricultural development with significant investment in floral and other horticultural products for the export market. Given the tourism, agricultural and other investments around the lake, and the consequent growth in job opportunities, the population has risen dramatically and with it, environmental and public health challenges.

Effluent from the communities surrounding the lake in terms of untreated wastewater and solid waste, notably plastics are of concern, along with discharges from agricultural activities in terms of irrigation runoff and other non-point source flows from crop and livestock production in the wider surrounding areas. The pollution in the lake is considered a growing environmental and socioeconomic concern and there have been over the years many efforts to address the issue. However, there is emerging innovation in human effluent recycling, recycling of irrigation discharges and disposal methods to address plastic pollution. The lake has been extensively researched and there is a wide body of knowledge on water quality and environmental status along with study of socio-economic conditions.

Exchange of best practice using the ecosystem health scorecard approach: In the context of environmental quality data collected, there is a recognized need for a means to integrate the most relevant body of data that remains 'disaggregated' into consolidated information products that can be easily accessed and used by stakeholders for decision making, whether community, farmers and other enterprises, and regulatory authorities. The Ecosystem Health Scorecard provides a framework to facilitate this data integration into a format that can be linked to the process for reporting on the Sustainable Development Goal targets, in particular targets 6.3.1 on wastewater, 6.3.2 on ambient water quality, and 6.6 on water-related ecosystem health. These are supported by cross-sectoral frameworks such as integrated water resources management (6.5.1) approaches, and by the Framework for Freshwater Ecosystem Management, which uses principles of the 2030 Agenda to assist countries in protecting and restoring their water-related ecosystems and can be adapted to fit local contexts such as for Lake Naivasha.

Proposed structure of technical exchange: Experts from the Laguna Lake Development Authority (LLDA) of the Philippines and Chilika Lake Development Authority (CDA) from India will engage in

a technical exchange with stakeholders that have key responsibility or have some role in various influences that impact the water quality of Lake Naivasha. The technical exchange is expected to run over the course of one week and will be a two-part mission.

One day will be dedicated to a visit to UN Environment’s headquarters in Nairobi where the team will engage in a joint awareness-raising of the work being done in the Philippines and India and seek out opportunities for further engagement of the agency. The second (substantive) part of the exchange mission will be capacity building of the local stakeholders. This will entail a series of classroom and interactive-style sessions toward development of the framework for design and execution of a similar scorecard-type approach for Lake Naivasha.

Outputs: The main outputs of the work with the stakeholders will be (1) assembly of water quality parameters into a criteria analysis framework; (2) identification of any data collection gaps (3) development of a workplan for replication and implementation; (4) identification of partners and funding for implementation (5) identification of future roles for UN Environment, the LLDA, CDA and other partners engaged in this mission, the project and others in Africa and other regions.

Timeframe: 24 to 28 September 2018.

This exchange is supported under resources from the GEF-funded Global Nutrient Cycle Project and the UN Environment programme of work project “Addressing the Nutrient Challenge through an Effective Global Partnership on Nutrient Management (GPNM)”. Further support is provided by UN Environment’s Freshwaters Unit, the GEF- International Waters Learning Exchange and Resources Network (IW LEARN), with in-kind contributions from the Laguna Lake Development Authority, Chilika Lake Development Authority, Government of Kenya Agencies and institutions, and WWF.

Other potential partners:



Agenda

| Time | Item | Presenters/Lead facilitators |
|-----------------------------|---|--|
| Day 1 25 Sep 09:00-09:10 | Field training and workshop Opening session; welcome remarks | <ul style="list-style-type: none"> UN Environment Programme: Chris Cox Ministry of Water Nakuru County Gov't: Stephen Kamau and John Karani World Wildlife Fund |
| 09:10-09:50 | <p>Challenges at Lake Naivasha</p> <ul style="list-style-type: none"> Setting the scene: overview of the Lake, its ecosystem services and challenges (10 minutes) <p>Panel discussion: perspectives of local authorities, users, agriculture stakeholders, recreational/tourism, community</p> <ul style="list-style-type: none"> Population and developmental issues Environmental and water quality issues, including biodiversity Economic and social outlooks Gaps in information for decision making and community mobilization <p><i>Format: Open discussion between panel members and audience to share information; visual aids/presentations as available</i></p> | <p>UN Environment: L. Bernhardt (moderator)</p> <p>Imarisha Kenya: Kamau Mbogo (presentation)</p> <p>Panel members:</p> <ul style="list-style-type: none"> Water Resources Authority: Faith Mutua World Wildlife Fund: William Ojwang/Caroline Njiru Flower Growers Assoc; Naivasha Riparian Association: Ed Morrison Hospitality Sector: James Mwangi Egerton University: Vincent Odongo Nature Kenya: Paul Gacheru |
| 09:50-10:30 | <p>Addressing the water pollution challenge</p> <ul style="list-style-type: none"> Success stories and ongoing efforts/innovation in reducing pollution How are data and information on the lake being used to change practices and policy (if at all) What more is needed? <p><i>Format: Open discussion between panel members and audience to share information; visual aids/presentations as available</i></p> | <p>UN Environment: Riccardo Zennaro (moderator)</p> <p>Panelists:</p> <ul style="list-style-type: none"> Lake Naivasha Basin Network- Paul Ruoya (Chairman) – To be invited KMEG solid waste management composting project at Kwa-Muhia village. Duncan Oloo WWF/WRA (highlights from IWRAP) |

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|---------------------|--|--|
| | | <ul style="list-style-type: none"> Imarisha Naivasha: Kamau Mbogo Sanivation; Emily Woods |
| 10:30-11:00 | BREAK | |
| 11:00-12:10 | <p>The Laguna Lake and Chilika Lake experiences</p> <ul style="list-style-type: none"> Issues/challenges of pollution and water quality in the ecosystem Motivating factors to drive change – community, regulatory and political pressure What was and is being done by local authorities – regulatory, community, private sector. Introduction to the Ecosystem Health Scorecard. Responding to the SDGs <p><i>Format: Power point presentations</i></p> | <ul style="list-style-type: none"> Adelina Santos-Borja, Jocelyn Sta. Ana; LLDA, Philippines Susanta Nanda, CDA; R. Ramachandran Coastal Zone Mgmt Centre, India |
| 12:10-12:30 | Question and answer | |
| 12:30-14:00 | LUNCH | |
| 14:00-16:00 | <p>Field trip <u>by boat</u> to see points of interest in the lake; focus on key pollution discharge points; show how/where monitoring is taking place.</p> <p><i>Format: Participants in multiple boats; anticipated several stops, on and off-boarding</i></p> | <p>Hosts/guides:</p> <ul style="list-style-type: none"> Imarisha Naivasha: Kamau Mbogo Research entity(ies) KMFRI: Alice Mutie. <p>Site visits by boat to view pollution sites and monitoring efforts at strategically selected stations on the lake</p> |
| Evening | Planning for following day working session | |
| Day 2 26 Sep | Field training and workshop <i>cont'd</i> | |
| 09:00-10:30 | <p>Detailed review of methodology of scorecard development – lessons from the Philippines and India experience;</p> <ul style="list-style-type: none"> Process followed for Laguna de Bay and Chilika Lake; stakeholder engagement; data assessment methods; data integration methods; reporting and dissemination; links to regulation and decision making Reflection on the applicable approaches to Lake Naivasha and aspects that may need modification Linkages to the UN Environment Framework for Ecosystem Management (FFEM); Water Quality Guidelines <p><i>Format: Power point presentations and interactive discussion</i></p> | <p>UN Environment: C. Cox (moderator)</p> <ul style="list-style-type: none"> LLDA and CDA experts KMFRI (Alice Mutie) Egerton University (Vincent Odongo) UN Environment: L. Bernhardt |
| 10:30-11:00 | BREAK | |
| 11:00-12:30 | <p>Mapping out the challenges to be addressed in development of the Lake Naivasha Ecosystem Health Scorecard</p> <ul style="list-style-type: none"> Data needs for Lake Naivasha; what is available in developing a score/framework; possible limitations? | UN Environment: Birgyu Lamizana (Moderator) |

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|---------------------|--|--|
| | <i>Format: Participatory exercise – stakeholders interactively guide experts in open plenary</i> | |
| 12:30-14:00 | LUNCH | |
| 14:00-17:00 | Putting the Lake Naivasha Ecosystem Health Scorecard framework together; working group session <ul style="list-style-type: none"> • Instructions to working groups to guide outputs • Breakout to two working groups <i>Format: Team work in 2 groups guided by experts – proposed group split by (a) water quality (b) biological indicators</i> | <ul style="list-style-type: none"> • LLDA and CDA experts; • local experts – water quality and biological indicators |
| Evening | | |
| Day 3 27 Sep | Field training and workshop <i>cont'd</i> | |
| 09:00-10:30 | Putting the Lake Naivasha Ecosystem Health Scorecard framework together; working group session <ul style="list-style-type: none"> • Work group deliberations continue <i>Format: Team work in 2 groups guided by experts – proposed group split by (a) water quality (b) biological indicators</i> | <ul style="list-style-type: none"> • LLDA and CDA experts; • local experts – water quality and biological indicators |
| 10:30-11:00 | BREAK | |
| 11:30-12:30 | Putting the Lake Naivasha Ecosystem Health Scorecard framework together; finalizing the framework <ul style="list-style-type: none"> • Work group deliberations wrap-up • Report-back and working discussion in plenary to combine indicators • Overview of draft scorecard framework for Lake Naivasha <i>Format: Participatory exercise – stakeholders interactively guide experts in open plenary</i> | Water Resources Authority: Faith Mutua (Moderator) <ul style="list-style-type: none"> • LLDA and CDA experts; • Egerton University: Vincent Odongo • KMFRI: Alice Mutie • Nature Kenya: Paul Gacheru |
| 12:30-14:00 | LUNCH | |
| 14:00-16:00 | Development of roadmap to the replication of the ecosystem health scorecard to Lake Naivasha and way forward <ul style="list-style-type: none"> • Main elements of a proposal to access resources • Estimated human and financial resources needed • Who will lead in proposal development • Delivery dates for outputs <i>Format: Participatory exercise – stakeholders interactively guide experts in open plenary (note-taking on-screen)</i> | Imarisha: Kamau Mbogo (Moderator) <ul style="list-style-type: none"> • Water Resources Authority; • WWF • LNRA: Ed Morrison • Rotary Foundation: TBC • donor/support agencies |
| 16:00-16:15 | Closing remarks | UN Environment (C. Cox) <ul style="list-style-type: none"> • Water Resources Authority • Nakuru County Authority |
| 16:30 | Team returns by bus to Nairobi | UN Environment |



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Presenters/Lead Facilitators

- Ms. Adelina C. Santos-Borja - Laguna Lake Development Authority
- Ms. Jocelyn G. Sta. Ana - Laguna Lake Development Authority
- Prof. Ramesh Ramachandran - National Centre For Sustainable Coastal Management
- Sri. Susanta Nanda - Chilika Lake Development Authority

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