TIP (Technology, Implementation, Policy) Platform

Practical Solutions based on Policies and Technologies for Achieving Sustainable Development Goals Related to Water

Date/Venue	Sep. 12~13 2018, Grand ballroom A, #322A, #322B, #323AB, EXCO
Host	Ministry of Environment
Organizer	Korea Water Forum

Overview

The TIP Platform was designed to promote global discussion on practical solutions to water challenges at various scales and to provide practical and innovative guidelines for those who seek for practical know-hows and lessons resulted from successful implementation of water policies. The TIP Platform also aims to provide the sharing opportunities of cutting edge technologies and engineering services for resolving water challenges.

Three Key Words

TIP Platform seeks to be based upon three core key words, technology, implementation, and policy.

- **Technology** in Feasibility study, Design, Construction, Operation, Maintenance, Monitoring, Treatment, Restoration, ICT including Artificial Intelligence (AI), Big Data, etc.
- **Policy** linked with technologies and implementation promoting efficiency, sustainability, partnership, governance, green economy, culture, and environment
- **Implementation** by sharing best practices, strategies, and the processes based on well-defined policies and both appropriate and developed technologies

Focus Areas

Focus areas are aimed to define practical solutions for achieving Sustainable Development Goals on water and consequently provide action tools and tangible strategies.

- **Focus 1: Smart Water Management**

Keywords: Urban Water, Agricultural Water, Industrial Water, Water Disaster, Floods and Droughts, Water related Big Data

- **Focus 2: Water Recycling and Reuse**

Keywords: Sustainability, Climate Change, Green Infrastructure, Carbon Emission, Energy Recovery, Resilience, Wastewater Treatment, Water Reuse

- **Focus 3: Water for Socio-economic Development**

Keywords: Water Resources Management, Ecosystem, Economic Valuation of Water, Opportunities for Green Job

- **Focus 4: Water Governance and Partnership**

Keywords: Trans-boundary Water Issues, Public Policies, Sound Water Governance, Gap Bridging with Science and Technologies

- **Focus 5: Water ODA**

Keywords: Water Aid Projects, Sustainability, Water Development, Appropriate Technologies, Policies, Monitoring System, Financing

15 sessions of TIP Platform

15 qualified sessions were organized and co-designed by more than 100 organizations from international organizations, academia, institutions, corporations and NGOs. The session organizers, speakers and participants shared their ideas and experiences on appropriate and innovative technologies as well as timely policies to implement the solutions to local and global water challenges.

Focus Area	Session	Organizer
Smart Water Management	**Smart Water Management Special Session** Current smart water management technologies and implantation methods were discussed. • Smart Water Management Initiation in Nepal: Challenges in WASH Sector, Initiatives towards SWM in WASH Sector, Details of Beni Water Utility Planned for Feasibility study, and a way forward in Nepal. • BUILDING A SMART PUB: The technologies of Internet of Things, data analytics, autonomous systems, artificial intelligence, and digital twin are considered as key technologies. • Why India Needs to adopt Smart Water Management Now! : India's current status and need for adopting smart water management. Especially, water pollution mainly caused by agricultural fertilizer and pesticide runoff is serious challenge. • Smart Water System of Seoul: Through the large production and supply, quality control, and efficient system, currently smart system is implemented in Seoul. Turning Smart Meter Data into Information: For solving water challenges and risk, smart water management can be a good method. However single smart water management approach can't be effective, holistic approach should be implemented.	Asia Water Council
	The latest Global trend of SWG technology and it's Market Global trends in SWG technology: Market size and growth, Market Dynamics (Technology investment trends, Mergers & acquisitions, Key Partnerships), and Market access (Adoption trends, Communications networks). Introduction to US Smart Water Grid technology, Real-Time Modeling and cloud-based analytics, and Application of Test Bed in USA, Introduction to Program's Hydrotrek. Water distribution networks (WDN) vs. Transmission Mains (TM), Diagnosis of pressurised pipe systems by Transient Test-Based Techniques (TTBTs), Real pipe systems analysis (The Lintrathen East Trunk Main in Scotland). Smart Water Grid is a new water management technology using new paradigm that optimizes water use efficiency by integrating water source management and ICT. SWG technologies, Demonstration plants; International Collaboration.	National Smart Water Grid Research Group
	Smart Water Management case study lessons from around the world K-water introduced an overview on Smart Water Management and the Smart Water Management Project. IWRA provided the key findings of the joint K-water and IWRA Smart Water Management Project. K-water also presented three of K-water's SWM projects and their results (K-HIT, Seosan and Paju City). IWA presented the Flood and Drought Monitoring Tool and its results. Brigadier Gomal Damaan Area Water Partnership presented smart water project in Pakistan. IWRA also presented on the smart soil moisture tools and Agriculture Innovation Platform in Southern Africa. Integrated Smart Water Management can assist with resolving water challenges around the world, in both developing and developed countries Smart technology can be adapted to all scales, from household to transboundary, and across contexts Smart Water Management can assist with reaching the Sustainable Development Goals There is still a lot to learn about smart water technology, and lessons should be shared between projects to share these lessons as much as possible	International Water Resources Association/ K-water

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Water Recycling and Reuse	**Bringing Green Transition to Water: Boosting Water Reuse & Recycling** In order to suggest how to promote water reuse and the circular economy, expected enabling environment was suggested from the standpoint of Policy & Institutional Frameworks, sustainable business model, market availability & accessibility, innovative technology and green finance. Overview on the Korean sewerage system (sewerage coverage, sewerage water quality, pipe line coverage, and cost recovery), and the legal framework and paradigm shift of Korea's water reuse & recycling sector were presented. Technical innovations on how to filter rainwater for drinking water were suggested with actual implementation cases in Vietnam and Philippines. In Morocco, purified wastewater has been used since 1980 in order to overcome water stress To cope with climate change, better knowledge on how much water we have and sustainable use of water resources are necessary. There must be social acceptance based on advanced technology to implement Direct Potable Reuse (DPR).	K-water Convergence Institute / Globa Green Growth Institute
	Integrated water sanitation system, technology and related policies Sewer line construction for a given cities is demanding task so that it should be supplemented by decentralized wastewater treatment and reuse/recycling options. Technology can also simplify complications of sewer lines construction. Increasing the awareness and participation to public and stakeholders are also encouraged to simplify the challenges of wastewater treatment. Appropriate policy, strategy and regulations that can encourage participation of stakeholders and discourage the ODF and mismanagement of wastewater have to be appreciated. In terms of technology selection for sustainability it is better to think globally but act locally. It is advisable to understand the local technical feasibility, management and financial capacity. So that all these things should be accounted while selecting and implementing wastewater treatment technologies. It is better to design inclusive environmentally sound, socially satisfactory, capability feasible and cost effective wastewater treatment system for a given cities/towns in developing countries. Better to follow pollution prevention and resource recovery ideas as much as possible. Stakeholders and public awareness and participations are key points to be successful in wastewater management system.	Ethiopian Civil Service Universit
	Development of Water Wise Cities through Low Impact Strategies Water Management Strategy for water security includes creation of water-wise cities with Low Impact Development and Green infrastructure, water reuse with decentralized water management system and protection of water resources in agricultural areas. Management of pollution arising from land use alteration requires a focus on activities and landscape drainage. Challenges in low impact development implementation include site selection, drainage systems, data, LID type selection, tools, fund sourcing and promotion. Solutions to the challenges in low impact development implementation include concepts and techniques, construction and management, and investment and financing. Greater effort needs to be made to explain and note the significance of diffuse pollution management. International efforts should be made to provide and publish evidence of diffuse pollution impacts (2020) should help raise interest in the radical attenuation (pollutants and flows) role envisaged here for a developed and expanded LID role. High impact case study review papers (land use & water quality) are needed in 2018-2019	Kongju Universit

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Water for Socio-economic Development	**What Wicked Problems Face Water Quality Management Over the Next 20 Years?** Following the presentations(the wicked problem of pharmaceuticals in our surface water, water governance issue between national and local governments in the Republic of Korea, The urban perspective on water quality, and unlocking the potential for using different water qualities as a complementary resource), three small groups discussed the wicked problems facing water quality managers such as the importance of transitioning from silo management to integrated management, removing pathogens and nitrates from drinking water in developing countries and the health impacts associated with these contaminants, as well as determining adequate responsibility for drinking water to ensure these problems are managed soundly. Water quality is a key issue in water management now and moving into the future. The presentations and discussion highlighted the need for managers to address contaminants of emerging concern, such as pharmaceuticals, to focus on water quality at multiple legislative levels, from federal to local governments and to take advantage of matching water quality to end users to make use of wastewater resources. The audience vote also showed the importance of addressing saltwater intrusion to source water and addressing funding and capacity challenges.	International Water Resources Association
	Creating Harmonies between Infrastructure and Environment through Science, Engineering, Technology and Innovation Four presentations were shared which were Effective Water Governance and Challenges through Global and Regional Processes, Perspective of Hydropower and the Sustainable Development Goals: Focus on Nepal and beyond Borders, A Pathway for the Practical Application of SETI towards implementation of Infrastructure and Environment, and Engaging with the interlinked SDGs. It is resulted in succinct recommendations to optimize the application of SETI towards infrastructure and environment. These included ensuring appropriate governance at all levels as a precondition for the generation of harmonies; ensuring effective public information, education and outreach that links science to policy and society; delivering sound scientific information effectively as input to a science-based governance framework linked with adequate investment and financing; and devising improved pathways for science, technology, engineering and innovation expertise to inform and underpin policy.	UNESCO Regional Science Bureau for Asia and the Pacific
	The science, economic, policy and practice of nature-based solutions for achieving SDGs : From Innovation to Common-use In this session, Main Findings of the Synthesis Report SDG6 was presented. And followed by the keynote speech, three presentations also were presented about Key Message from Nature-based Solution. The presentations were dealt with under three categories; (Science) Strategies for Sustainable Water Security: Diversification, Decentralization, and Integration, (Economic) Blue Economy: The Answers from Nature, and (Policy) Socio-Economic Value and Policy of Natural Infrastructure. As 70% of water demand is generated in rural area, it is necessary to implement integrated water management policies for rural areas rather than cities (permit system, etc.) High-cost NBS requires a mid- to long-term perspective for the visible effect. Accurate goal awareness in the international community is necessary for sustainable and reliable data to achieve SDGs. In the Korean context, the concept of smart eco-city and circulating economy can be proposed to economy system (public sector intervention is essential). A system of a priori education system through good governance should be established for intervening SDGs of various age groups and women.	UNESCO i-WSSM / UNESCO Regional Science Bureau for Asia and the Pacific

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Water Governance and Partnership	**Payment for Ecosystem Services as a Financial Incentive for Integrated Water Resources Management** How Payment for Ecosystem Services (PES) can help in maintaining healthy ecosystem services. Various success stories of PES implementation in Nicaragua, Guatemala, Indonesia, Ecuador, Bolivia, Costa Rica, Mexico, USA, and China were presented. IWRM principles and common problems in implementing were explained. As the China's case, due to fast industrial growth in the past two decades and associated environmental impacts such as significant air, water, and soil pollution and degradation of vegetation and forests, eco-compensation schemes including vertical and horizontal schemes in which beneficiary region government pays funds to the government of service-providing regions for providing healthier ecosystem services. Status of ecosystems and biodiversity in South Korea were presented. Ecological footprint concept was briefly explained. How the forest coverage over South Korea was improved from nearly zero to over 5 million ha in the past three decades through proper ecosystem service related policies. PES or Eco-compensation schemes can be used as proper tools for conserving natural assets and ecosystem services and there are many success stories of their implementation across various countries with different climatic conditions. PES specifically can help in implementation of Integrated Water Resources Management.	University of Tehran
Water ODA	**Nature-Based Solution (NBS) for SDG6 Using Water and Sanitation Appropriate Technology** Water and sanitation are worldwide issues. SDG6 is defined to solve problems of sustainable access to safe water and sanitation. The Nature-Based Solution (NSB) is a new keyword. SDG-6 only can be solved through NBS. Rainwater harvesting and resource circulated sanitation can be NBS for global water and sanitation challenges. Good design of roof-harvested rainwater can be a good drinking water source with little or no treatment at all. Rainwater Harvesting is a Nature Based Solution, making full Use of Free Gift from Nature and scientific knowledge: Rainwater, Solar Energy, Gravity, Microbial Activity. By NBS technologies, we can maximize the treatment capability of the tank, using sedimentation and biofilm by making tank-in-series model. Introducing Natural Based Solutions approaches enhanced with the application of IT and involvement of stakeholders for global water and sanitation challenges. Demonstrating community-based rainwater harvesting and resource circulated sanitation as NBS toward SDG6 by introducing successful case studies. Application of IT to provide appropriate technology for water and sanitation approaches through several activities of WASAT center.	Seoul National University
	Pathway Forward: to promote cooperation among the development partners to address Flood Risk in Myanmar The causes of floods in Myanmar are both from natural and man-made. The causes of manmade floods are deforestation, irrigation and mining. Although the government has aimed to stop illegal logging by law, it is difficult to crack down. Multi-stakeholders' partnerships' collaboration which addressing the root causes of the manmade flood is urgently needed. In promoting the collaboration and cooperation to address integrated flood risk management in Myanmar, the challenges are how to tackle the gap between the reality and the expectations from various relevant organizations and how to deal with the challenges. It is important to start addressing the non-regret measures in terms of mid-to-long-term perspective by sharing the information and experiences. Roles of NWRC, including how it can exercise independence and objectivity in coordinating the Myanmar's relevant organizations and overseas development partners', are the key in accumulating the data and new fresh idea and establish the a virtuous cycle of continuous re-enforcement between investments in Infrastructure, Data and Information, and Institutions.	Japan Water Forum



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