



Sub-Regional Workshop on Urban Water and Sanitation Services in South and South-West Asia

Workshop Report



Ensuring adequate, accessible, and affordable supply of safe water and sanitation for all is integral to achieving sustainable development goals (SDGs). Local and national governments of developing countries in South and South-West Asia (Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal and Sri Lanka), however, are facing challenges in developing reliable urban water and sanitation infrastructure and services due to lower technical and financial capabilities, inadequate infrastructure, and unplanned and uncoordinated development initiatives. Unregulated rapid socio-economic development ignores traditional practices for sustainable natural resource management and depletes and contaminates water. The unplanned development has in turn increased urban public health problems, social-ecological vulnerabilities, and economic losses that impede the ability of local and national governments to attain the 2030 Agenda and its 17 sustainable development goals (SDGs). Consequently, national and local governments in South and South-West Asia are in urgent need for applying inclusive, integrated, and locally appropriate approaches for urban water and sanitation management.

In view of this, the United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) is supporting developing countries to address urban water and sanitation issues within the integrated framework for the implementation of the 2030 Agenda for Sustainable Development by enhancing the capacity of policy-makers to minimize the impacts of urban water scarcity and sanitation issues, and

integrating plans and strategies for sustainable natural resource management within SDGs framework, in particular SDG 6 (“Ensure availability and sustainable management of water and sanitation for all”) and SDG 11 (“Make cities and human settlements inclusive, safe, resilient and sustainable”), and the New Urban Agenda (NUA, outcome of the Habitat III Conference).

ESCAP organised a two-day *Sub-regional Workshop on Urban Water and Sanitation Services in South and South-West Asia* in collaboration with the Government of Nepal: Ministry of Urban Development (MoUD), Ministry of Water Supply and Sanitation (MoWSS) and Kathmandu Valley Development Authority (KVDA), on 9-10 August 2017 in Kathmandu, Nepal with the following objectives and expected outcomes:

Workshop objectives and expected outcomes

Objectives: The main objectives are to: (i) share best practices on urban water and sanitation in the sub-region, discuss, finalize, and document a practical strategy on urban water and sanitation services, primarily focusing on faecal sludge management and implementation in Kathmandu Valley; (ii) develop an outcome document that contains recommendations for policy development, capacity development of key actors/stakeholders, and addresses the need for resource mobilization to manage water scarcity, water resources, and sanitation issues (primarily faecal sludge).

Expected Outcomes: The workshop seeks to: (i) enhance capacity of policy-makers in South and South-West Asian developing countries to minimise impacts of water scarcity and address sanitation issues with an integrated approach for natural resource management at the city level, supporting sustainable urban development and the 2030 Agenda; and (ii) promote synergy for implementation of SDGs 11 and 6 and New Urban Agenda at local level in the context of growing urbanization.

The two-day workshop focused on understanding country initiatives on the first day and learning from good practices in managing urban water and sanitation services on the following day. The workshop activities were grouped into opening, technical and closing sessions (Annex 1) in brief. At the end of the Workshop, few messages were documented to encourage countries and communities to implement and benefit from good practices and practical initiatives in addressing drinking water and sanitation facilities in urban areas.

A. Opening Session

The opening session started with the national anthem. Honourable Mr. Prabhu Sah, Minister for Urban Development inaugurated the sub-regional workshop by watering the plant. In the opening session, Hon'ble Minister highlighted the importance of water and sanitation, and urged for collaborative efforts and increased investment to address haphazard urbanisation, water-borne and sanitation-related diseases. Hon'ble Minister stressed on the provision in the Constitution of Nepal (2015) that guarantees every citizen's fundamental right to live in a clean and healthy environment and the right to clean drinking water, sanitation services, and appropriate housing. Hon'ble Minister also provided information on the Government's relevant policies, strategies, plans, and programmes to provide quality drinking water, sanitation services, and appropriate housing in accordance to Sustainable Development Goals (SDGs). In addition, Hon'ble Minister summarized the Government of Nepal's strategy to manage sewerage and solid wastes in urban and semi-urban areas, and their plan to launch a 'special programme' to implement 'one house one tap water', 'one house and one toilet' policy, decentralised wastewater treatment system, 'one city one identity' concept, 'smart city' and 'integrated city centre' to provide quality urban services consistently. Finally, the Minister expressed the need to share experiences, wisdom, and good practices in the workshop to provide useful and practical guidance, and to build solid foundations in attaining SDGs related to water supply, sanitation and housing by furthering south-south cooperation.

After welcoming the dignitaries and participants, Dr. Ram Tiwaree, Economic Affairs Officer of ESCAP shared key objectives and desired outcomes of the workshop, and expressed the need for focused discussion to identify challenges, action areas, successful interventions, and gaps that are common within the sub-region. Dr. Tiwaree also informed the participants about the imminent burden on water and sanitation due to rapid population growth in Asia and the Pacific. Dr. Tiwaree emphasized that the SDGs are interdependent and mutually reinforcing, and require extensive efforts for effective implementation. He highlighted the trend of urbanisation and key issues on water and sanitation in South and South-West-Asian cities, with possible solutions, and discussed opportunities that the workshop will provide to share good practices, needs, and gaps, to achieve the NUA and 2030 Agenda, particularly the Goals 6 and 11.

Finally, Dr. Tiwaree highlighted the opportunities in the face of these challenges to make cities and urban areas more inclusive, safe, resilient and sustainable, while accomplishing the 2030 Agenda for sustainable development.

Speaking on the occasion, Dr. Bhaikaji Tiwari, Development Commissioner, KVDA stressed the role of KVDA as a planning, regulatory and development agency that has a mandate to reconstruct, expand, and develop Kathmandu Valley in a planned way that ensures quality services and facilities. Furthermore, KVDA develops and implements physical development plan and regulates the use of natural resources. Dr. Tiwari also informed the participants about KVDA's recent efforts to improve infrastructure, environment, and urban regeneration with appropriate risk assessment to develop satellite cities in Kathmandu Valley. KVDA's *20 Years Strategic Development Master Plan (2015-2035)* seeks to make the Kathmandu Valley 'liveable' by enhancing the interdependence of nature, community and culture. Dr. Tiwari informed that the Master Plan takes into account the urgent need to conserve and manage water resources, to improve sanitation and housing facilities along with open spaces, to develop climate and risk-resilient urban structures, to open avenues to prepare and implement water recharge plans, and to protect water recharge areas to ensure water supply. He also reminded the participants about the previous collaboration of KVDA with ESCAP in promoting eco-efficient infrastructure at *Sathya Sai Shiksha Sadan* in Kathmandu in 2014. Finally, Dr. Tiwari hoped the workshop would provide valuable inputs to streamline future course of actions to address water, sanitation, housing and settlements in urban areas of Kathmandu Valley.

From the chair, Er. Deependra Nath Sharma, Secretary in the Ministry of Urban Development highlighted Nepal's lack of integrated urban planning, financing, and capacity to implement and tackle conflicting priorities. Er. Sharma reminded participants about the ongoing and emerging challenges in cities due to the impact of climate change on water resources, and urged for doubling efforts to integrate urban planning, access, financial and human resources, and the capacity for implementation in an efficient manner. He expressed his gratitude for the participation of newly elected Mayors and Deputy Mayors and encouraged them to look after water and sanitation issues in urban areas and contribute to meet SDGs and NUA. Er. Deependra Shrestha from KVDA offered a vote of thanks.

A total of about 70 participants, representing key government institutions, local governments, non-governmental organisations and academic sectors attended the workshop. The workshop was attended by senior government delegates and experts from Afghanistan, Bangladesh, Bhutan, India, Islamic Republic of Iran, Maldives, Nepal, Pakistan and Sri Lanka. Newly elected Mayors and Deputy Mayors of most of the municipalities of Kathmandu Valley and 8 municipalities outside of the Valley attended the workshop (Annex 2).

B. Technical Sessions

The opening session was followed by first session (segment 1), chaired by Er. Deependra Nath Sharma, Secretary at MoUD which focussed on 'The 2030 Agenda for Sustainable Development' and discussed

challenges, gaps and good practices on urban water and sanitation (Annex 1). After sharing updates on urbanisation, and water and sanitation issues in South and South-West Asia in the context of 2030 Agenda for Sustainable Development, Dr. Ram Tiwaree from ESCAP elaborated on the targets and indicators of the SDGs 6 and 11, relationship between SDGs 6 and 11, and NUA (2016), including regional trends on urbanisation, safe drinking water and sanitation, wastewater treatment, water availability and freshwater withdrawal, and urban water security. Dr. Tiwaree also shared key challenges related to water security, degradation of water quality, poor governance, and returns for investments on water and sanitation services. He promoted eco-efficient water infrastructure, shift from piecemeal to integrated approaches, centralised to decentralised/multipurpose policies, integrated water supply, rainwater harvesting, storm water management, wastewater treatment, recycling and flood control measures.

Er. Sanjeev Bickram Rana, Executive Director of Kathmandu Valley Water Supply Management Board (KVWSMB) shared initiatives and experiences on water and sanitation facilities in Kathmandu Valley and key criteria used to declare 6 metropolitan cities, 11 sub-metropolitan cities, 246 municipalities and 481 rural municipalities in Nepal in March 2017. Er. Rana also informed about five-fold growth of population in Kathmandu Valley in the last 30 years at an average growth rate of 4.2 percent. He outlined the key challenges related to environmental impacts, urban poverty, effects on nature and heritage, and price hikes of service utilities. Moreover, Er. Rana informed about water distribution systems and scarcities, and the recent approach on infrastructure development and institutional reform with the establishment of a dedicated KVWSMB for developing and overseeing service policies and planning, operating water supply and wastewater system, regulating tariff, and safeguarding consumer interests. Finally, he shared the present state of water supply systems and a plan to rehabilitate existing sewer networks, upgrade and operate existing and establish new wastewater treatment plants to improve the health of Kathmandu by 2025.

Sharing updates in integrating SDGs into national policies and programmes with specific focus on infrastructure in urban areas, Er. Padam K. Mainalee, Deputy Director-General elaborated Nepal's policy landscape on sustainability, resiliency, and focus from 'housing for all' in 1996 to 'cities for all' in 2016 and national responses in building urban resilience through National Urban Development Strategy (NUDS) 2017. Er. Mainalee presented infrastructure and investment deficits in Nepal's municipalities, potential benefits from investments in urban areas, and urban infrastructure condition index (UICI) including indicators on water supply coverage and sanitation and waste collection. In addition, he stressed the need to implement NUDS, gradually shifting to infrastructure governance (with physical planning), linking with performance-based investment in local institutions, and sharing regional learning for innovation. Er. Mainalee urged for innovation and cooperation, to connect social development strategies with physical development strategies, to develop and implement provincial spatial development plans, to make municipal development plans compatible with regional and national strategies, and to integrate urban investment discipline in academics. Finally, he proposed public-private partnerships, and public-private-academia and civil society partnerships to share knowledge on urban management and climate change.

Dr. Bhaikaji Tiwari, Development Commissioner at KVDA presented KVDA's development vision by 2035 to establish Kathmandu Valley as a liveable city by enhancing the interdependence of nature, society and culture and its mission is to make it a safe, clean, organised, prosperous and elegant (SCOPE) national capital. Dr. Tiwari also summarized KVDA's services as a planner, developer, and coordinator in addition to its regulatory, controlling and prohibitory role. He shared the 20-year Kathmandu Valley Strategic Development Plan emphasis on water and sanitation sector to expedite water supply projects, to strengthen water supply systems, to coordinate in developing wastewater treatment systems, to promote water treatment in institutional buildings, to develop landfill sites, to promote integrated solid waste management, and to manage medical wastes, e-wastes,

debris/construction wastes and community-based wastes. Finally, Dr. Tiwari shared visuals of key development activities in river corridors, road widening, public land conservation, and open space management in Kathmandu Valley.

In addition to the speakers, participants also raised issues on responsible organisation(s) for sanitation, handling finance, charging for liquid wastes, and balancing centralised and decentralised wastewater treatment facilities. From the chair, Er. Deependra N. Sharma, Secretary at MoUD outlined take away messages such as \$1 investment on water and sanitation facilities that could reap \$7 worth of benefits, and the urgent need for extended cooperation and huge investment for infrastructure development, including clarity on vehicle import and tax policies to make the Kathmandu Valley a liveable city.

Country-specific presentations were made in the second technical session. Er. Anil Bhadra Khanal, Joint-Secretary at the Ministry of Water Supply and Sanitation chaired the session which focused on national strategies on urban water and sanitation and the status of localizing the 2030 Agenda, primarily SDGs 6 and 11.

Mr. Riazullah Darmal, Director of Water Supply, Sewerage and Environmental Affairs of Afghanistan shared achievements in Millennium Development Goals (MDGs) and expected hopes for enhanced achievements on SDGs. Mr. Darmal shared institutional frameworks, key guiding documents, including citizen charter and city-wide sanitation planning and urban water supply and wastewater strategic action framework of Afghanistan and highlighted the key challenges such as poor sanitation infrastructure, limited budget, weak legislations and enforcement, and shifting focus from groundwater to surface water consumption.

Ms. Nasreen Akhter, Additional Secretary, Ministry of Local Government, Rural Development and Co-operative of Bangladesh discussed the active involvement of water and sewerage authorities, Department of Public Health and Engineering (DPHE), and city and municipal corporations in providing water and sanitation services through policies and legal provisions. She shared the information of mega projects implemented by 4 WASA relating to surface water treatment which will increase the dependency on surface water to 78% from 20% of the existing situation. She also shared the key problems that are related to inadequate safe water supply coverage, arsenic contamination in ground water supplies, and water table depletion. She stressed that the action plans to achieve SDGs targets 6.1 and 6.2 provide opportunity to mobilise financial and human resources, to build capacity of individuals, and to strengthen institutions for sustained water supply and improved sanitation services through a time-bound action plan, coordination, active participation of communities, and proper monitoring of progress.

Mr. Kinlay Dorjee, Mayor of Thimpu Municipality from Bhutan shared the state of drinking water supply, sanitation and hygiene in Bhutan, and informed about the legal provisions on waste prevention and management, drinking water quality standards, technology needs assessment and technology plans for climate change adaptation, and integrated water resources management in his country. Mr. Dorjee also shared Bhutan's key successes in reducing diseases and meeting water quality standards in both rural and urban water supply and sanitation. In addition, he also shared issues in managing solid wastes such as, old sewerage networks and unqualified sanitary landfill sites. Finally, Mr. Dorjee highlighted the lack of resources (human and financial), rapid urbanisation, inadequate planning, climate change, lack of education and awareness on water and waste management, drying-up of water supply sources, and inadequate sanitation policy as the key challenges that required urgent actions.

The country paper of Iran (Islamic Republic of) was shared by Mr. Alireza Salamat, Deputy Director, Teheran UNESCO Regional Centre on Urban Water Management. Mr. Salamat stated that over 40 percent of the population of Iran received wastewater services through a dedicated Ministry of Energy and the national water and wastewater engineering company. The ministry and the engineering company worked in accordance to the water policy and wastewater plans, including decentralised wastewater treatment plants, energy optimisation, and quality improvement, and adapting the treatment process to the local conditions.

Mr. Afsal Hussain, Assistant Director, Ministry of Environment and Energy from Maldives shared the linkages within and between SDG targets and informed that about 75 percent of total population will have safe drinking water and sewerage facilities by 2019. Mr. Hussain outlined widely dispersed islands, changing environmental conditions, population increase, limited human resources and capacity and knowledge as key challenges, and existing legal provisions and access to safe water and sewerage facilities as opportunities for future course of actions.

Mr. Abid Hussain Shah Hussainy, Senior Specialist at Urban Sector Planning & Management Service Unit (Pvt.) Ltd, Punjab, Pakistan informed that SDGs Support unit in the Project on 'Mainstreaming, Acceleration and Policy (MAP) Support for SDGs' would ensure early institutionalisation of SDGs by formulating guidelines, piloting SDGs plans, aligning policies with SDGs, and organising advocacy campaigns. He also shared the PM's Global SDG's achievement programme (dash board) and engagement of local governments in water and sanitation activities in implementing SDGs 6 and 11. Mr. Hussainy informed key elements of asset monitoring system, integrated development and asset management plan, Android-based consumer survey and online monitoring, energy conservation initiatives through energy audit, complaint management system, and environment and social safeguards and community involvement to achieve SDGs.

After discussions on country presentations, Er. Anil Bhadra Khanal from the chair highlighted the progress of MDGs on water and sanitation in Nepal, and emphasized that several goals and targets of SDGs are interlinked, and achievement of SDGs 6 and 11 will depend on achievements of other goals as well. Er. Khanal opined that South Asian countries faced similar challenges, and bilateral/multilateral support and cooperation would contribute in achieving SDGs. He highlighted the topographic difficulties in providing water supply and sanitation facilities in the mountains, and urged increased attention to wastewater management.

Session 3 was chaired by Er. Surya Raj Kandel, Deputy Project Director, Project Implementation Directorate. Mr. Batu Krishna Uprety, Resource Person for ESCAP presented the highlights of the Strategy Paper on improving urban water and sanitation services in Kathmandu Valley. Mr. Uprety shared the state of water and sanitation services such as storm water, wastewater, faecal sludge and solid wastes in Kathmandu Valley, key targets and indicators of the 2030 Agenda and NUA, including national initiatives on 2030 Agenda. He highlighted relevant policies, plans, strategies, guidelines and frameworks on water and sanitation, including of 14th Plan, NUDS (2017) and Water Sanitation and Hygiene Sector Development Strategy (2016), constitutional and legal provisions and roles and responsibilities of key institutions. Finally, Mr. Uprety shared the proposed vision, objectives and guiding principles of the draft Strategy on improving urban water and sanitation services in Kathmandu Valley after addressing the pertinent challenges and opportunities. The key strategies have been grouped here into: (i) implementing existing instruments (policies, strategies, plans and programmes); (ii) integrating SDGs into local plans and programmes; (iii) localising SDGs - Local Sustainable Urban Development Agenda (LSUDA); (iv) creating incentives; (v) pricing water and sanitation services; (vi) promoting data generation and monitoring; (vii) strengthening infrastructure; and (viii) defining means of implementation (finance, technology and capacity building), including relevant strategies for 2030 Agenda with priority and supportive actions, and strategy implementation

arrangement and approaches with focus on institutional strengthening, monitoring and evaluation, and partnership arrangement.

Participants flagged on implementing agency and capacity of the municipalities in implementing the strategic actions, people's willingness to pay to ensure health of municipal finance, review of institutional capacity and financial availability, and priority actions and budget requirement along with monitoring provisions, including the need for addressing upstream-downstream linkages, cost-sharing and cross-border issues.

From the chair, Er. Surya Raj Kandel stressed the need for riverbanks training works, integrating SDGs, linkages of central government, inter-State and inter-municipality activities, delivering sanitation services through a single agency, and the need to specify roles of central and local governments at its early stage of transformational change, and consultative approaches to engage local governments in all activities in attaining SDGs 6 and 11.

On 10 August 2017, experts shared best practices and case studies in addressing urban water, sanitation and public health conditions in South and South-West Asia under the chairmanship of Dr. Ram Tiwaree, Economic Affairs Officer at ESCAP. Mr. P.S. Joshi, UN-Habitat Manager in Nepal presented challenges and opportunities in traditional water management system of Kathmandu Valley, and highlighted the *hiti* system (water discharge through stone spout that utilises groundwater, surface water and rainwater), hydro-geology, functions of traditional ponds in recharging local aquifers, cleaning and washing water, duck farming, and animal husbandry. Mr. Joshi also shared management issues, maintenance and improvement in municipal systems, and possibilities for replication.

Presenting a paper on onsite and offsite sanitation facilities, including sewer systems and faecal sludge management, Dr. Mahesh Bhattarai, General Manager at Kathmandu UpatyakaKhanepani Limited (KUKL) shared information regarding types of toilets used in Nepal, on-site sanitation challenges and consequences from source contamination, higher incidence of water-borne diseases, and new initiatives on partial and full-scale faecal sludge management in recent years. Dr. Bhattarai stated that septic tanks are common and mandatory through Building Codes, and there is, largely, lack of any separate or combined sewer systems on treatment of wastewater and faecal sludge, an important aspect of off-site sanitation system.

Mr. Saifur Rahman, Executive Engineer, Department of Public Health Engineering, Dhaka presented urban sanitation issues and impacts on public health. He provided examples of how Bangladesh has implemented policies, enforced laws, enhanced people's participation and allocated budget in improving sanitation services in Dhaka city. Mr. Rahman presented information on unhygienic latrines, space constraints and land ownership issues. He also highlighted the absence of legal frameworks for improved sanitation, service coverage, network sewerage, onsite sanitation services, including faecal sludge management, technological know-how (treatment processes), limited technological options, institutional capacity, and funding, as key urban sanitation challenges. He suggested prioritising onsite sanitation options, ensuring environmentally sound management and recycling of faecal sludge and wastewater, arranging credit facilities for low income communities, raising awareness and promoting private sector involvement in faecal sludge collection, treatment, and recycling to generate income.

Mr. Rahul Teku Vaswani from ESCAP presented a case on ESCAP's integrated resource recovery (IRR) model for decentralized composting and faecal sludge management, and its sustainable development benefits. Mr. Vaswani focussed his presentation on key activities of IRR Centre and how the Centre is converting wastes into resources and how it could help in achieving SDGs. He also highlighted economic benefits from IRR Centres by reducing landfill costs, extending landfill sites, reducing

subsidies for chemical fertilisers, and improving crop yields; social benefits by reducing diseases and improving living conditions; environmental benefits by reducing pollution, greenhouse gas emissions, improving soil quality and low-carbon fuel. Mr. Vaswani also shared capital and operational estimates for the Centre, revenue, sustainability, building multi-stakeholder partnership, and raising awareness on valuing wastes and transforming cities towards achieving the SDGs.

Dr.ThammaratKoottatep, Associate Professor, Asian Institute of Technology (AIT) presented a paper on managing urban water, wastewater and sanitation – lessons learned, best practices, and their applicability for South and South-West Asia, and shared scale of sanitation challenges including open defecation, domestic wastewater and faecal sludge management practices in Thailand with need for innovative system, investment and regulated sanitation services. Dr.Koottatep shared key messages related to creating enforcement mechanisms to support sanitation policy, integrating sanitation chains into water management policy, defining roles and responsibilities of all concerned authorities, and nurturing innovative financing schemes for sanitation development, including a toolkit on policy guidance manuals on wastewater management.

After responding to queries from resource persons, Dr. Ram Tiwaree from the chair summarised the key messages of the presentations and informed the need for working together and cooperating at all levels – local, regional and national levels of government, as well as private and non-government actors, to address urban water and sanitation issues on a sustained basis.

The second session on best practices and case studies in addressing urban water, sanitation and public health conditions at national/local level was chaired by Dr.ThammaratKoottatep, Associate Professor, AIT and the country cases were presented by delegates from Bangladesh, Bhutan, India, Iran, Maldives, Pakistan and Sri Lanka. Mr. Ranver Ahmed, Town Planner, Bangladesh shared faecal sludge management in Kushtia municipality, including a breakdown of responsibilities, with sole responsibility for providing sanitation services with the central government, and supervision and guidance of Standing and Coordination Committees at the town level. Mr. Ahmed stated that the municipality has managed faecal sludge through vacutug since 2004 and added the co-composting technology since 2012 with the support from ESCAP, waste concern, and SNV, and faecal sludge treatment plant using coco-pit filter, with a capacity of 4,000 lt/day that meets one-third of requirements for sludge management in the municipality. He also shared the income and expenditure for vacutug service, database and research initiatives, including development of a sustainable financial plan, capacity building for emptier, and guidelines for outsourcing vacutug services and faecal sludge management services.

Ms. Nima Wangmo, Environments Officer from Bhutan shared information regarding water and sanitation services in Phuentsholing Thromde (Municipality) and informed that 90 percent of people receive urban water and sanitation services from surface and groundwater sources. She shared data on the municipality's assets, including 3 treatment plants, and 19 reservoir tanks with 4510 m³ and 11 mld capacity of water production, in spite of a present demand of 8.7 mld. Bhutan has developed a water supply master plan (2017-2047) to produce 20.34 mld for projected population of 94,000 and construction of 76km sewer mains and 13 sewerage plants. Key challenges are related to informal settlements that lead to poor sanitation, limited flat space for infrastructure development, and lack of proper planning and awareness.

Dr. Shaikh Basha, Scientist and Head, CSIR-NEERI, India highlighted state of water and sanitation in Hyderabad, including water treatment plants and slums with and without services. Dr.Basha shared a case study that used reverse osmosis system to provide safe drinking water to communities who depend on untreated water and were exposed to health risks. He also shared that the key challenges in urban water are related to clarifying mandates of service providers, improving governance,

financing operations and infrastructure, regulating urban water supply and sanitation services (including capacity building), and developing procedures for community participation and professionalising actors.

Sharing information regarding water resources in Teheran, Ms. Sadaf Safaai, Senior Urban Water Engineer/Project Manager, Waste and Wastewater Engineering Company informed that surface and groundwater resources are used to supply drinking water, and current need totals to 1060m³/year and which might increase to 1290m³/year by 2030. Ms. Safaai also informed about 9000 km long sewerage collection pipelines with 6000 km of constructed sewage lines in the city of Tehran. As per the Tehran sewerage master plan, 0.57m of 0.9m sewerage connections has been completed, and 62 km of urban rivers have been restored, along with improvements in ecosystem services.

Presenting a case study on urban water and sanitation at local level, Mr. Adam Shammoun, Director General, Local Government Authority of Maldives highlighted institutional frameworks for SDGs at different levels, including inter-ministerial working group on SDGs, to city councils, and 5 year development and financial plans. Mr. Shammoun informed that 83 percent of the Maldivian people have sustainable access to improved drinking water sources, and 55 percent to improved sanitation.

Mr. Nasir Ghafoor Khan, Chief Executive Officer, Water & Sanitation Services Company, KP, Pakistan presented the state of water and sanitation services by outlining key institutional structures, including municipal administration. Sharing existing urban water and sanitation condition, Mr. Khan informed that water is supplied in 3 shifts of 3-4 hours intervals per day and water of 22 tube wells with 11 overhead reservoirs is supplied in areas having distribution networks. He also informed that solid wastes collection service is provided through 500 workers and 19 vehicles and current practice is open dumping. Mr. Khan stated that the existing sewerage treatment plant has been non-functional for more than a decade, revenue collection is manual, a strategy is being devised for non-revenue water, projects are being developed for drinking water systems, waste management and sanitary landfills, capacity building, and IT-based management systems. These efforts have resulted in solid waste collection improvements from 40 to 120 tons/day, de-silting of 51 km drains, adoption of health and safety equipment (gloves waders, uniform) and recognition of best performers. However, open dumping is a continuous problem.

The last presentation of the case studies was done by Ms. Shahina Mohamed Mysan, Deputy Director (Engineering) on sewerage system in Colombo Municipal Council where over 80 percent of the city has 100 year-old sewer pipes, and 30 million gallons of wastewater is pumped into the sea daily. Ms. Mysan highlighted frequent blocks and collapse of sewer mains, inefficient performance of pumping stations, and siltation and formation of hydrogen sulphide (H₂S). She shared the key activities under the ADB-supported Greater Colombo Wastewater Management Project that are related to rehabilitation of sewer networks and pumping stations, sea out-falls, and establishment of new pumping stations where needed.

After responding to questions by paper presenters, Dr. Thammarat Koottatep summarized that the session provided opportunity to learn issues and responses in South Asian countries, and advised to look into demand-side management while addressing water and sanitation issues, and privatise this service to improve efficiency and generate income from 'wastes'.

C. Closing Session

The technical sessions proceeded to the closing session with brief statements from KVDA and ESCAP. This session was also attended by Er. Anil Bhadra Khanal, Joint-Secretary at MoWSS.

Speaking at the closing session, Dr. Ram Tiwaree, Economic Affairs Officer of ESCAP stated that the workshop discussed issues of governance, planning, implementation, monitoring and capacity building for achieving SDGs 6 and 11 and NUA. Dr. Tiwaree summarised the following key messages from presentations and discussions:

- a. Cities must have a long-term vision and integrated planning for urban water and sanitation services with provisions for sustainable operations and maintenance and financial resilience, and look at locally appropriate solutions for water supply and sustainable waste management. For example, Nepal's traditional methods of rainwater harvesting for sustainable water supply, now disappearing, can be revived as a part of integrated planning for water sustainability.
- b. Water and sanitation services are not just ensuring supply and treatment but should equally focus on building and efficient operation of locally appropriate and resilient infrastructure with financing, capacity development, and integrated planning within the broader framework of SDGs.
- c. SDGs 6 and 11 are linked to other SDGs and our efforts for improving water and sanitation in urban areas must be integrated with the implementation of other SDGs, including resource consumption, partnerships, and financing.
- d. Financing and capacity development requires efficient and coordinated use of available resources and capacities. Transfer of funds from central to local governments and integration of water and sanitation into sectoral development plans is important for sustainable water supply and improved sanitation services in urban areas.
- e. Partnership and stakeholder involvement should contribute to infrastructure development. Partnerships leverage resources and strengths. Private sector brings business efficiency and civil society builds public awareness and involvement while citizens themselves help to improve accountability and transparency.
- f. Policies create enabling environment, ensure involvement of all stakeholders – particularly women, elderly, disabled and poor, and institute mechanisms for accountability. Policies also give clear signals to businesses and citizens that build willingness to participate in, invest in, and pay for improved services.
- g. Learning from each other is a continuous process to address common challenges and what we learn here is innovative partnership. Our future is common, and impacts of our efforts can extend beyond local and national boundaries.

Expressing thanks to KVDA and all engaged in making the workshop successful, Dr. Tiwaree expected that participants enhanced their capacity to address water scarcity and sanitation issues with an integrated approach, and this workshop synergised implementation of the 2030 agenda, especially SDGs 6 and 11 and NUA, at the local level in the context of growing urbanisation in the Sub-region.

Dr. Bhai Kaji Tiwari, Development Commissioner, KVDA thanked all presenters for sharing opinions and good practices, and all newly elected Mayors and Deputy Mayors for their active participation. He urged for the translation of this learning into implementation while addressing drinking water and sanitation issues in municipalities. Dr. Tiwari informed that the workshop has called for:

1. Integrating and implementing SDGs, in particular Goals 6 and 11 and related elements of the NUA into local plans and programmes;
2. Investing on planning and implementation of water and sanitation infrastructure;
3. Managing water and sanitation in urban areas through integrated urban planning, exploring financial resources, and building our capacity to implement plans and programmes;
4. Working closely to enhance the capacity of local governments; and
5. Establishing a functional linkage between central and local governments to provide urban and sanitation services to people.

At the end, Dr. Tiwari expressed his gratitude to Hon'ble Minister, Secretary at MoUD, session chairs, country presenters and resource persons, delegates and participants, ESCAP and KVDA staff for their marvellous performance to make the workshop productive and successful in meeting its objectives and expected outcome.

D. Workshop messages

In addition to key messages shared during the closing session and taking into consideration the presentations, discussions, opening statements and remarks, the workshop provides the following messages for implementation, replication and building on innovative solutions to address most urgent and immediate needs of water supply and sanitation services in urban areas of South and South-West Asia.

- a. Countries and communities have practised location-specific innovative solutions for urban water supply and sanitation services. Good practices and examples exist in the sub-region and need means of implementation (finance, technology and capacity building) to promote their replication.
- b. Municipalities and communities should extend collaboration and cooperation and make concerted efforts in addressing common concerns and challenges and in providing water supply and sanitation services in urban areas in the spirit of SDGs, particularly Goals 6 and 11, and NUA.
- c. Policy-makers and authorities in urban areas should prioritise efficient and environment-friendly technologies, processes, and mobilise adequate human resources to provide water supply and sanitation services on sustained basis.
- d. Municipalities and local government may benefit from Integrated Resource Recovery Centre (IRRC) – a model developed and supported by ESCAP centre to address ongoing and emerging threats of water and sanitation in a sustainable, cost-effective and efficient manner.
- e. Both central and local governments should support and provide additional resources and opportunities in developing country capacity, and mobilising existing resources. It is equally necessary to explore and access domestic and international resources especially finance, and encourage local governments to allocate certain percentage of their budget in implementing water supply and sanitation activities and ensuring their sustained operation and maintenance.
- f. In view of emerging cities and increasing population pressure, it is necessary to redouble existing efforts and means of implementation by integrating SDGs into existing and new policies and strategies, aligning SDGs with development policies and processes, and effectively implementing SDG-aligned policies and programmes with people's participation and multi-stakeholder engagement.

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Annex 1

Sub-Regional Workshop on Urban Water and Sanitation Services in South and South-West Asia

9-10 August 2017 (Wednesday-Thursday)

Hotel Shankar, Kathmandu

Organizer: United Nations Economic and Social Commission for Asia and the Pacific

Co-Organizers: Ministry of Urban Development, Ministry of Water Supply and Sanitation, and Kathmandu Valley Development Authority, Government of Nepal

PROGRAMME

DAY 1: 9 August 2017, Wednesday (BS 2074/ 04/ 25)	
09:30 – 10:00	Registration
10:00 – 11:10	<p>MC of the Workshop: Mr. Bhagawat Bhakta Khokhali, Urban Planner, Kathmandu Valley Development Authority</p> <p>OPENING SESSION</p> <p>National Anthem – 5 minutes</p> <ul style="list-style-type: none"> Chair: Er. Deependra Nath Sharma, Secretary, Ministry of Urban Development Welcome Address: Dr. Ram Tiwaree, Economic Affairs Officer, Environment and Development Division, ESCAP Opening of the workshop: Hon'ble Mr. PrabhuSah, Minister for Urban Development by watering the plant <p>Statements:</p> <ul style="list-style-type: none"> Dr. Bhai Kaji Tiwari, Development Commissioner, Kathmandu Valley Development Authority Inaugural Statement by Chief Guest: Hon'ble Mr. PrabhuSah, Minister for Urban Development Chair's Address: Er. Deependra Nath Sharma, Secretary, Ministry of Urban Development Vote of Thanks: Mr. Deepak Shrestha, Kathmandu Valley Development Authority
11:10 – 11:30	Group Photo and Tea/Coffee break

TECHNICAL SESSION

11:30 – 13:00	<p>Segment 1: The 2030 Agenda for Sustainable Development (with emphasis on urban water and sanitation)</p> <p>Chair: Er. Deependra Nath Sharma, Secretary, Ministry of Urban Development</p> <ul style="list-style-type: none"> Urbanization, water and sanitation issues in South and South-West Asia in the context of 2030 Agenda for Sustainable Development Dr. Ram Tiwaree, Economic Affairs Officer, Environment and Development Division, ESCAP State of urbanization, water and sanitation facilities in the Kathmandu Valley and other parts of the country Er. Sanjeev Rana, Executive Director, Kathmandu Valley Water Supply Management Board Integrating sustainable development goals into national policies and programmes: country priorities on infrastructure development in urban areas Er. PadamMainali, Deputy Director General, Department of Urban Development and Building Construction, Ministry of Urban Development
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	<ul style="list-style-type: none"> Vision 2035 and beyond: providing water and sanitation services in the Kathmandu Valley Dr. Bhai Kaji Tiwari, Development Commissioner, Kathmandu Valley Development Authority - 15 minutes Q &A Chair's Remarks
13:00 – 14:00	Lunch
14:00 – 15:15	<p>Segment 2A: National strategies on urban water and sanitation and the status of localizing the 2030 Agenda, primarily SDGs 6 and 11 Chair:Er. Anil Bhadra Khanal, Joint-Secretary, Ministry of Water Supply and Sanitation, Nepal Country presentations – each 10 minutes</p> <ul style="list-style-type: none"> Afghanistan - Mr. RiazullahDarmal, Director of Water Supply, Sewerage and Environmental Affairs, Ministry of Urban Development and Housing Bangladesh - Ms. Nasreen Akhter, Additional Secretary, Local Government Division, Ministry of Local Government, Rural Development and Co-operatives Bhutan - Mr. KinlayDorjee, Mayor, Thimphu Municipality Iran (Islamic Republic of) - Mr. Alireza Salamat, Deputy Director, Teheran UNESCO Regional Centre on Urban Water Management (RCUWM)
15:15 – 15:30	Tea/coffee break
15:30 – 16:45	<p>Segment 2B: Country presentations – 10 minutes each</p> <ul style="list-style-type: none"> Maldives - Mr. Afsal Hussain, Assistant Director, Ministry of Environment and Energy Pakistan - Mr. Abid Hussain Shah Hussainy, Senior Specialist, Strategic Management, Urban Sector Planning & Management Service Unit (Pvt.) Ltd. (the Urban Unit), Government of the Punjab <p>Q &A</p> <ul style="list-style-type: none"> Chair's Remarks
16:45 – 17:00	Tea/coffee break
17:00 – 17:45	<p>Chair: Er. Surya Raj Kandel, Project Implementation Directorate Segment 3: Draft Strategy on Urban Water and Sanitation for Kathmandu Valley (20 minutes) by Mr. BatuUpdety, Resource Person, ESCAP</p> <p>Q &A</p> <ul style="list-style-type: none"> Chair's Remarks
	End of Day 1

DAY 2: 10 August 2017, Thursday (2074/04/26)

09:30 – 11:00	<p>Segment 4a: Best practices and case studies in addressing urban water, sanitation and public health conditions Chair:Dr. Ram Tiwaree, Economic Affairs Officer, Environment and Development Division, ESCAP</p>
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	<p>Experts presentations – 10 minutes each</p> <ul style="list-style-type: none"> Traditional groundwater and surface water conservation systems, and rainwater harvesting – Mr. P.S. Joshi, UN-Habitat, Nepal Onsite and offsite sanitation facilities, including sewer systems and faecal sludge management – Dr. Mahesh Prasad Bhattarai, General Manager, Kathmandu UpatyakaKhanepani Limited (KUKL) Urban sanitation issues, impact on public health and solutions – Bangladesh case - Mr. Saifur Rahman, Executive Engineer, Research and Development Division, Department of Public Health Engineering, Dhaka ESCAP's Integrated Resource Recovery model for decentralized composting and faecal sludge management, and its sustainable development benefits - Mr. Rahul Teku Vaswani, ESCAP Managing Urban water, wastewater and sanitation – lessons learned and best practices and their applicability for South and South-West Asia - Dr. Thammarat Koottatep, Associate Professor, Asian Institute of Technology <p>Q & A</p> <p>Chair's Remark</p>
11:00 – 11:15	Tea/Coffee break
11:15 – 13:00	<p>Segment 4b: Best practices and case studies in addressing urban water, sanitation and public health conditions at national/local level (in South and South-West Asia)</p> <p>Chair: Dr. Thammarat Koottatep, Associate Professor, Asian Institute of Technology</p> <p>National/local or city level cases – 7 minutes each</p> <ul style="list-style-type: none"> Bangladesh – Mr. Ranver Ahmed, Town Planner, Kushtia Municipality Bhutan – Ms. Nima Wangmo, Environments Officer, Phuentsholing Thromde (Municipality) India – Dr. Shaikh Basha, Scientist and Head, Council of Scientific and Industrial Research - National Environmental Engineering Research Institute (CSIR-NEERI), Hyderabad Zonal Centre Iran – Ms. Sadaf Safaai, Senior Urban Water Engineer/ Project Manager, Waste and Wastewater Eng. Company Maldives – Mr. Adam Shammoon, Director General, Local Government Authority of Maldives, Local Government Authority Pakistan – Mr. Nasir Ghafoor Khan, Chief Executive Officer, Water & Sanitation Services Company Sri Lanka – Ms. Shahina Mohamed Mysan, Deputy Director (Engineering), Colombo Municipal Council, Municipal Engineers Department <p>Q & A</p> <ul style="list-style-type: none"> Chair's Remark
CLOSING SESSION (including way forward)	
13:00 – 13:30	<ul style="list-style-type: none"> Remarks: Dr. Ram Tiwaree, Economic Affairs Officer, Environment and Development Division, ESCAP Closing Remarks: Dr. Bhai Kaji Tiwari, Development Commissioner, KVDA
13.30 – 14:30	Lunch
	End of the programme

Sub-Regional Workshop on Urban Water and Sanitation Services in South and South-West Asia

9-10 August 2017 (Wednesday-Thursday)

Hotel Shankar, Kathmandu

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