

Proceedings of the Commemoration of World Water Day 2017

Friday 31 March 2017, UNCC CR3, Bangkok, Thailand

Executive Summary and the Way Forward

On 31 March 2017, the Economic and Social Commission for Asia and the Pacific (ESCAP) jointly with the United Nations Educational, Scientific and Cultural Organization (UNESCO) organized the regional Commemoration of World Water Day 2017 and the regional launch of the World Water Development Report 2017 on the theme of "Wastewater: the Untapped Resource". This side event was delivered during the fourth session of the Asia Pacific Forum on Sustainable Development (APFSD). Distinguished experts from member states and regional think-tanks, the private sector, along with representatives from financial institutions were engaged in discussions on the main theme and on ways wastewater can be managed more effectively and efficiently in the region. The event also highlighted new opportunities of applying financing mechanisms and economic instruments in order to stimulate wastewater treatment service-providers through coherent national policies and strengthened coordination among national institutions and local authorities. The panel deliberations, moderated by ESCAP, generated recommendations for regional policy makers and practitioners on ways to move forward towards supporting the 2030 Agenda implementation and SDGs as outlined below:

- With over 80 percent of wastewater going back into the ecosystem untreated, various issues creating a silent "disaster" in the region, affecting the availability of freshwaters, underground water pollution, poor sanitation services, which can only be addressed with a strong political will, commitment, and leadership of the governments. This is particularly true for low-income countries. Regional institutions may need to strengthen their efforts in addressing wastewater management issues.
- A system-based approach, one which integrates policy frameworks and enables the combination of centralized and decentralized wastewater treatment systems, should be utilized at the planning level. This will allow for the active involvement of communities and entrepreneurs in both the production and consumption patterns.
- New innovative opportunities to support the work of wastewater treatment service providers should be explored, ones which are supported by financing mechanisms and economic instruments and which stimulate DEWATS and diversification of revenue income to national budgets. Furthermore, providing a list of instrumental policy tools would also enable and facilitate this work.
- Ecosystems and their environmental benefits should be preserved and invested in, serving as a prerequisite for a healthy region. A well-functioning ecosystem can deliver an equivalent availability of water and filtration, flood control, and shoreline protection when compared to a major physical infrastructure project.
- SDG targets for the Asia-Pacific region, especially SDG 6.3 - 'halving proportion of untreated wastewater by 2030 and substantially increasing recycling and safe reuse globally' - may be achieved by upscaling and replicating inspiring models, such as the decentralized wastewater treatment systems (DEWATS). We can also learn from successful national strategies of circular economy in China, self-sufficiency economy of Thailand; city strategies, for example, Singapore has been able to treat 100 percent of its wastewater.
- Strong political will for change could advance the sanitation coverage up to 100 percent through policy regulations. Two Central Asian countries, namely Uzbekistan and Kyrgyzstan, as well as Viet Nam have decoupled their low-income levels and their levels of sanitation infrastructure, and achieved 100 percent of sanitation coverage.
- A regional platform should be set up to facilitate development of strategies to deliver the SDG 6 programme at regional and national levels. For example, a key national drivers (subsidized service –providers) tapping into resources of wastewaters, should be able to practically operationalize the implementation of the "wastewater revolution in different countries" and respective changes in the mindsets towards resource efficient practices. More specifically, countries could set up their national targets in line with the global targets, for ex.in achieving SDG 6.3.
- Wastewater should be viewed as a public service as well as an environmental service. Thus, it should be priced adequately to fit its purpose. When budgeting water expenditures through smart budget appraisals, governments must allocate resources and technologies adequately to ensure water efficiency and to compensate revenue deficiencies.
- Ministries and sectors should consider allocating parts of their budget to wastewater management using a holistic perspective; for example, funds can be allocated for education, public health, industries, and biodiversity conservation. Potential savings and benefits generated by wastewater's environmental services must also be taken into account by the state budget.
- Private companies should have the opportunity to participate in sustainable water and sanitation services, mainly in low-tech innovations in urban cities. Attracting private actors in low-income countries requires focusing on an 'efficiency approach' rather than on a 'traditional cost-benefit approach'.

1. LAUNCHING CEREMONY:

The audience had the opportunity to view two video trailers from the World Water Assessment Programme (WWAP) and ESCAP which reflected on the themes of WWDR 2017 (accessed at: <http://www.unescap.org/events/commemoration-world-water-day-2017>). The main points from official statements and the key note presentation, preceding the panel reflections, are outlined below:

Dr. Shamshad Akhtar, Under-Secretary General of United Nations and Executive Secretary of ESCAP, drew the audience's attention to two important and inter-related issues to ensure a proper focus on water and sanitation within the framework of improving readiness to implement SDG 6 in the Asia-Pacific region. First, the region needs to kick start policy and institutional reforms to ensure a practical shift towards resilient water-hazard infrastructures. These reforms should promote technical solutions for decentralized wastewater treatment systems. Second, smart budget appraisals can lead to impactful investments in efficient water and sanitation services to ensure sound returns on investments as well as direct and indirect benefits.

H.E. Mr. Gamini Jayawickrama Perera, Minister of Sustainable Development and Wildlife of Sri Lanka, pointed out that Sri Lanka, being an agricultural country, depends on its water sources for food production. When wastewater is discharged into inland surface waters for irrigation purposes, secondary treatment is mandatory by law. New projects are introducing low cost treatment methods. Therefore, dominant wastewater treatment types are preliminary, primary and advanced primary, and secondary types. Minister Jayawickrama also gave one example of a low-cost treatment that has been introduced to piggery farming and is a combination of biogas plant and a reed bed. Minister Jayawickrama concluded his remarks by reminding the audience of the cross-cutting features of water availability, an issue upon which every aspect of development hinges.

Following the video-statement of Ms. Irina Bokova, the UNESCO Director General (accessed at <http://www.unescap.org/events/commemoration-world-water-day-2017>), **Dr. Ramasamy Jayakumar, Chief of Natural Science, UNESCO**, shared main messages in the regional key note address at the WWDR2017 and highlighted a few points from the first part of the report: by 2050, an extra 2.3 billion people (40 percent) of the global population is expected to be living in river basins under severe water stress. Yet, today two-thirds of the global population (approximately 4 billion people) lives under conditions of severe water scarcity at least one month per year. Climate change is and will continue to worsen the availability of fresh water, especially due to the intensification of droughts and floods. The treatment of wastewater remains a unique solution to offset water scarcity and improve freshwater quality, something which is already happening in Singapore where NEWater is mixed with their reused water supply whenever there are water scarcities. When adequately treated and safely applied, domestic wastewater is a source of both water and nutrients. Water can be reused for irrigated agriculture to enhance food security. Wastewater can also be a cost-effective and sustainable source of energy and nutrients. Additionally, other recoverable by-products can directly benefit food and energy security. Thus, wastewater can serve as a significant revenue stream to help cover the investment and operational costs of wastewater and sanitation.

Further moderated by **Mr. Hongjoo Hahm**, Deputy Executive Secretary, ESCAP, the following key questions were covered by the distinguished panel. A number of policy solutions that address the issues and bottlenecks in viewing wastewater as an untapped resource were proposed:

- If wastewater were a currency, would we waste it?
- What is the most impactful policy lever in the region to address the SDG 6 on water and sanitation for all to ensure the successful implementation of SDG 11 to make cities and human settlements inclusive, safe, resilient, and sustainable?
- How can we ensure that wastewater remains an untapped resource? How can we ensure the readiness of SDG 6 in the region? How can we spark the work of service providers on wastewater treatment and empower new business opportunities?

2. PANEL REFLECTIONS PROCEEDINGS

MODERATOR introduced **Dr. Wah Wah, Director General (DG) of the Central Statistical Organization of the Ministry of Planning and Finance of Myanmar**, who was asked to reflect on the WWDR 2017 report and to share the types of data and methodologies used to monitor statistics on wastewater in Myanmar. The following highlights were shared with the audience by the DG:

- Myanmar has an abundance of natural freshwater resources such as ground waters, rivers, lakes, stream waters, and rainwaters. However, these resources are being deteriorated through human interventions, creating disasters and leading to water scarcity in some places. The Environmental Conservation Law was enacted in 2012, and there is an urgent need for local waste management strategies.
- A national water framework directive was established through public consultations and is being implemented through an integrated water resources management, which was part of a bilateral collaboration between the Netherlands and Myanmar. The Yangon region water management committee was established by the government of the Yangon region and its cabinet to ensure the meaningful collaboration with the Union level as well as with neighboring states.
- The National Disaster Management Committee is chaired by the Vice President of the Union and addresses water-related disasters, including floods and droughts. Yangon and Male City Development Councils practice decentralized water management at the local level; for example, they have localized their water supply. Demands for freshwater is growing; therefore, wastewater management should be addressed in the context of a circular economy. Moreover, institutional mechanisms should be organized.
- Statistics on wastewater are being collected and analyzed by the environmental conservation department of the Ministry of Natural Resources and Environmental Conservation, Yangon City Development Committee, Mandalay City Development Committee and Nay Pyi Taw City Development Committee. Bottlenecks and opportunities should be identified so that resources may be adequately allocated within budget constraints. Additional issues include a low intake of the recycling technology, low awareness, and the lack of a holistic national resource policy.
- New opportunities are emerging via Myanmar's water policy and waters thanks to the SDGs, political commitment, and policy support from higher authorities. NWRC plans to support the work of local service providers by allocating a budget and financing to address cross-cutting issues. The public-private partnerships may stimulate local service providers, lead to a practical shift, and increase awareness of the 4Rs: reduce, reuse, recycle, and refuse. The final intervention from Myanmar is a vibrant call to save water, safe lives and a safe world.

MODERATOR had requested **Dr. Suthimol, Deputy Director General of Department of Drainage and Sewerage, Bangkok Metropolitan Administration (BMA)**, to describe investments made by the BMA in their decentralized wastewater treatment facilities which may provide insights for other cities.

- Bangkok faces severe water pollution as per the Biochemical Oxygen Demand (BOD) which collected water samples from 300 water quality monitoring points in various urban canals. Water pollutants come largely from domestic (75 percent), industrial, and agricultural use.
- To manage effectively the urban surface waters, water bodies, and wastewater problems, the BMA has taken multiple approaches to wastewater treatment systems based on the Building Control Act.
- First, improvements have been made in the Central Wastewater Treatment System under the master plan. Currently, eight wastewater treatment plants are being operating with an assigned budget of 612 million Thai baht per year for Operation and Maintenance (O&M). It is projected that by 2040, Bangkok will have built 19 additional wastewater plants (four of which will have been completed by 2022). It is expected that these plants will treat 96 percent of the city's wastewater. With such constructions, along with O&M plans, it is foreseen that water conditions in 21 districts will improve. However, the city will need to secure sufficient funds. The BMA is now considering a new water tariff proposal from the Bangkok Metropolitan Council.

According to the type of buildings (for instance household, government, hospital, or commercial property), different tariff formulas would be applied, along with the Polluter Pay Principle and the Service Pay Principle. The BMA fully recognizes that treated wastewater can be a valuable resource. In 2016, Bangkok already recycled 6 percent of its wastewater and used it for planting as well as cleaning streets and outdoor markets. Digested sludge as a byproduct of the wastewater treatment process serves the city's public parks.

- Second, community involvement is at the heart of successful wastewater treatment facilities. In this regard, the BMA selected communities located near canals. This is the project's second year, and 159 communities have already been taught about water quality control, project planning and budgets, and how to follow pre-treatment requirements of wastewater before using a septic tank. Residents have also had the opportunity to exchange ideas during public consultations and meetings. Furthermore, the BMA is planning an on-site and community-based wastewater treatment system called the 'Decentralized Wastewater Treatment System' (DEWATS) to serve certain areas of the city.

MODERATOR introduced **Dr. Keizrul, Chair of Wetlands International in Malaysia**, Senior Advisor **Network of Asian River Basin Organizations (NARBO)** and member of the Asia-Pacific Water Forum (APWF), to provide his comments on key messages from the WWDR 2017 report. The following lists the highlights of the intervention from NARBO:

- From the perspective of a river basin manager, the focus is on 2Qs: Quantity and Quality. From the Quantity perspective, the focus is on how we can develop water resources for water supply and irrigation schemes. Traditionally, wastewater has not been considered as a source of water. The word 'wastewater' is looked at from the "Do Not Waste Water" perspective, and emphasis is on the efficiency of water Use rather than Re-use. From the Quality perspective, wastewater is seen as a pollutant that reduces the availability of water, and wastewater treatment is under the purview of the municipality. High income countries treat about 70 percent of their industrial wastewater while low-income countries treat only 8 percent.
- From an Integrated River Basin Management perspective, we explore ways we can preserve and restore freshwater ecosystems. From an environment perspective, a UNEP study found that severe water pollution affects 1/3 of all river stretches in Africa, Asia, and Latin America. Furthermore, there are impacts on the functioning of wetlands and their ecosystem services.
- Looking at the SDG 6.3, we must halve the proportion of untreated wastewater. Moreover, we have to find ways to help low income countries meet target 6.3 since the burden is disproportionately on the shoulders of these countries where presently only 8 percent of their water is treated, leaving 92 percent untreated. Under target 6.3, they have to reduce untreated water by 46 percent (by half) whereas high income countries have to reduce it by 15 percent (half of the untreated 30 percent). One of the ways that low income countries can achieve this goal is through the use of green infrastructure.
- Healthy ecosystems can provide the same services and benefits as man-made infrastructures, but at lower costs. A well-functioning ecosystem can deliver the equivalent water availability and filtration, flood control, and shoreline protection when compared to a major physical infrastructure project. Investing in ecosystems is often cost-competitive compared to 'man-made' infrastructure investments when looking at investments in equivalent services.

MODERATOR invited **Prof. Le Huu Ti of Danang University and a former member of the Asia-Pacific Water Forum (APWF)** to share his recommendations on how to attract investments into wastewater sector. The following highlights are being quoted from the intervention:

- WWDR 2017 identified two crises involving freshwater and wastewater re-use. The re-use of wastewater was initiated by UNSGAB in 2010 as part of a proposed Wastewater Revolution in Asia, supported by ADB, IWA, UNESCAP, and UN-Habitat. Such a revolution was linked to the fresh water crisis. A revolution is needed to change completely the mindset to sustain the process of change. We need to change not only one point, but the whole process. Since then, many activities regarding untapped resources have been carried out. UNESCAP has carried out good research on examples of DEWATS projects, and the Asia-Pacific region has

achieved a great deal during the past 30 years with respect to technology, management, and financing wastewater, underlying the necessary transformation and fundamental changes in institutional settings. ESCAP's fundamental achievement in the region is to address the alignment of policy and practices, through changes in people's mindsets, and in particular communities' participation. Regional strategies are needed to make it workable.

- We learnt that the treatment of water attracts good investments, for example in China, Malaysia, the Philippines, the Republic of Korea, and Singapore. One evidence is that one dollar invested in wastewater generates from \$3 up to \$30 USD in return. Wastewater can be utilized for industrialization, according to the report of ADB. It is worth looking at the example of Surat (capital of Gujarat, India) where wastewater was treated and stored for industrialization. Wastewater may be utilized in agriculture: wastewater treatment provides many inspiring examples in agriculture. ESCAP reports on DEWATS project has shown that there are many changes taking place, for example in Indonesia, Thailand, Viet Nam, China, and Thailand. These examples provide stronger evidence than the WWDR 2017 report. The cost for one cubic meter ranges from \$2,000 USD to around \$30-\$100 USD for different qualities of water. It is necessary to understand the use of water for that purpose. Within the wastewater revolution –as a concept of ADB- there is a four-drive system, and it is an important material for change.
- On financing: it is important to start considering social capital market development rather than only looking at the usual capital for economic development. To advance forward, we need to advance wastewater revolution by building opportunities to address the SDG 6 programme which should be a platform for regional strategy on wastewater revolution and for national drivers to address the development of untapped resources. It means that States need to have a clear strategy on how to link the wastewater revolution to their SDG 6 programmes. In addition, it must involve the transformation of regional and sub-regional networks into mechanisms which raise awareness, advocate for action and improve regional cooperation on water resources. Doing so will allow us to move forward from technical considerations towards action.
- Wastewater revolution and the transformations need to be translated into areal culture adopted by everybody, and champions are needed at all levels – national, sub regional, and regional. From these champions, we will encourage the commitment of the public. It is also very important to support this concept of revolution among policy makers.

MODERATOR invited **Ms. Ruth Erlbeck, the Director of the 'Integrated Resource Management in Asian cities: the Urban Nexus Project', GIZ (German International Cooperation)**, financed by the Federal German Ministry of Economic Cooperation and Development (BMZ), to share her views from an urban perspective of policy making. The following case study was presented by Ms. Ruth Erlbeck:

- Nagpur, one of 100 Indian smart cities, is known for severe water shortages. The city demonstrates best practice examples of the Urban Nexus.
- This project presents a sustainable water management programme resulting in a win-win-situation through a reuse model based on the principles of the circular economy reused mechanism (circular economy). It has enabled the city to use limited fresh water resources only for drinking.
- Wastewater treatment facility has properly processed wastewater up to a tertiary level, and provides it to a thermal power plant to cool down their towers. The power plant now has a guaranteed water supply, also in hot and dry summer months. This is because there is always a provision of treated waste water from the waste water treatment plant.
- Water from the lake is now used entirely by the population for drinking. There is, hence, a relief and fewer concerns about potable water as more water resources have become available.
- The sludge from the waste water treatment plant is used to produce biogas which is transformed into Compressed Natural Gas (CNG for a fleet of 51 green buses (5000m³/day).
- The rest is used as energy for plants as well as to feed into the electrical grid.
- The residues are used by farmers as fertilizers.
- An interesting business model was also introduced. Agricultural byproducts have become a valuable input to biogas plants, which produce electricity, as well as Compressed Natural Gas (CNG) for public buses running

inside the city. Private players join in and feed electricity into the grid; they also sell treated water to power plants. Waste water provision contracts that are under a Public-Private Partnership (PPP) scheme succeeded in securing 100 percent of project costs (\$40 million USD) from the private sector, and it will be in effect for 32 years. This was selected as the best water management programme, and it is highly appreciated by national policy makers. The Prime Minister called it a perfect example of ‘closing the loop’ between the nexus sectors of water, energy, and food security by using synergies among different sectors based on a cross sectoral approach.

- The rationale behind the success was a national legal framework. Thermal power plants should use treated water if a sewerage system is available within 50 km of the plant. It caught the attention of the regional governments to use treated water to operate power plants. Such strong public commitments convinced the private sector to contribute to the urban nexus linkage.
- This project also looked for Peer-to-Peer learning opportunities and targeted Ulaanbaatar. Mongolia’s capital city is now reliant on coal power plants that technically require massive amounts of water. In reality, these facilities use very limited ground water resources, which are used just to cool the temperatures of the towers. We expect the Nagpur’s case to address Ulaanbaatar’s urban water and energy issues.

The Moderator thanked all speakers and opened the floor to the audience and all discussants to share their perceptions and give remarks on the issues concerning wastewater.

Remarks from the floor from discussants of APFSD on the theme of WWDR2017:

Professor Chongrak Polprasert, Thammasart University, called for a paradigm shift towards wastewater as a monetary source as well as a valuable input.

- He was highly impressed with the event and hope that it would raise awareness not only about the problems but also about the valuable resources that wastewater represents. If it is properly treated or reused for domestic, industrial, and agricultural purposes, this practice would bring about direct or indirect benefits to society.
- A great deal has already been spent - huge amounts of money- on sophisticated treatment facilities. For a paradigm shift or a revolution to occur, we should change our thinking from the idea of building other pipes for wastewater to reuse-recycle-recovery. Instead of diverting the wastewater problem off site through pipelines like what is now done in many cities, it would be more efficient for people if wastewater is managed in a decentralized way, i.e. through wetlands.
- Another way is to turn water into a currency. Another monetary currency would generate economic impacts and tangible value. People are familiar with the concept of Bitcoins, so water could become a liquid penny on the basis of a water revolution. He insists that action must start today and that we cannot wait for the government to act on wastewater and reuse.

Professor Petchporn Chawakitchareon, Chulalongkorn University, highlighted the potential uses of advanced technologies to mitigate regional water issues.

- He appreciated the fact that he had the chance to attend the forum and the event. He pointed out that environment data-mining technology can be applied to various water-related issues.
- First, data-mining can be used collaboratively with computer science to display real-time water quality. If it exceeds the designated standard, the system can automatically warn those in charge or the community to take immediate action. Second, this technology can predict water surface changes, providing raw data for a water supply plan.
- For instance, the automatic sensor assisted Vientiane, Lao PDR in analyzing water quality and in managing a well-thought-out water management plan. Furthermore, the Alum Dosage Prediction System helps Ko Si Chang Island, Thailand to monitor chemical changes in the sea and the coast. It keeps track of the level of

ammonia concentration in seawater and incidents of coral bleaching (loss of endosymbiotic algae from the coral). Such technology helps us better predict the unpredictable impacts of global warming.

Ms. Saku Seinan, representative of Keio University, Japan, presented opportunities of the 5D World Map System:

- The 5D World Map System is an information sharing platform created by Keio University. They look for opportunities to apply the technology to achieve SDG 2.3 – ‘End hunger, achieve food security and improved nutrition, and promote sustainable agriculture’. More specifically, they aim to double agriculture productivity and its associated income. With this goal as a starting point, Keio University leverages the functions of the 5D map to investigate SDG 2.3 interlinkages, synergies, and tradeoffs with other SDGs.
- First, 5D World Map provides time-lapse information in terms of the changes in the forest area, agriculture area, forest carbon stock, and water accessibility. These four indicators significantly affect agriculture productivity, so their transition information (year by year or day by day) will be useful for resource management and policies.
- Second, this platform helps users to look up contextual information about regional changes according to their keywords or suggested options. For example, according to the user’s choices, s/he can access visualized data for changes in forest loss in the last ten years (Malaysia) or the increases in palm oil plantation farms in past decades (Indonesia). Users can easily identify changes and causes in two different countries; such data can help them to compare SDG goals and targets in visualized maps. This platform will enable each SDG to connect to one another to maximize synergies. In addition, the platform will enable regional communities to boost their integrated activities to achieve the SDGs.

Mr. Mushtaq Ahmed Memon, UN Environment (UNEP) Asia Pacific Office, introduced the concepts of public and environmental services and linked them to wastewater issues. He introduced multiple approaches to tackling water issues through viable projects and discussed the role of the private sector in the water sector.

- We can make it happen by moving from a financial and systems approach to make it viable so that all possible avenues of wastewater and rainwaters are tapped into. We do not have to mix the different kinds of wastewater – i.e. black, grey, rainwaters, and industrial waters. They should all be segregated; otherwise, the water may become black or hazardous. Consequently, it will be very expensive to treat them to the level required to make them reusable. The segregated waste waters could be appropriately reused based on the characteristics of each source of wastewater and the requirements for each specific use such as cleaning, landscaping, irrigation for non-food crops or food crops, or mixing it with fresh water sources, etc.
- We must consider wastewater as both a public service and an environmental service. In terms of public service, we need to provide 20 liters per capita for drinking, eating, etc. At the end of the day, it will be turned into wastewater. Therefore, the question of affordability must also be considered. But we also need to price the water as an environmental service to avoid wasting this water once used, for example draining off these 20 liters. Treated water provides plenty of benefits: public health’s mantra that ‘prevention is better than cure’, biodiversity, lower GHG emissions, industrial development, and so on. Therefore, the budget for the ministries of health, education, and industry should be allocated appropriate shares from the water resources.
- How can we get the private sector to invest in a public good like water as it is a profit-oriented sector and not a charity? When we look at the full cost recovery model, we are too focused on the cost side. Instead, we must consider the efficiency of the service. It is possible to save money and lower the cost more than what it costs now? For example, technologies such as membrane and reverse osmosis are much cheaper now than ten years ago.
- To conclude, we need to embark on a systems approach. We need to put everything on the table in order to look at where we can obtain the money and how efficiently we can spend this money in order to ensure that we can convert waste water into a viable water source.

In summary, **Mr. Hongjoo Hahm, Deputy Executive Secretary of ESCAP**, Moderator of the Panel Reflections, concluded:

- Wastewater is a different commodity, and sanitation around the world has a very distinct pattern. The developed world has almost achieved 100 percent sanitation coverage. In the lower-income levels, the percentage of sanitation coverage has dramatically dropped as only 30-40 percent have access to sanitation.
- In the low-income countries, it is noted that for certain countries, sanitation level has reached almost 100 percent, i.e. in Central Asian countries. There is also a growth in sanitation coverage in countries in South-East Asia, i.e. Viet Nam saw an increase from 30 to 70 percent. This may imply that countries that have a political will and desire can make it happen and tap into recycling; for example, gardens may turn wastewater into drinking water.
- The opportunities for the private sector are growing. Changes are taking place through innovation and in urban cities. Wastewater recycling has gone from recycling wastewater to making drinking water. To illustrate, 100 percent of Singapore's wastewater is recycled. It is a revolutionary change of waste.
- This topic is important as wastewater that we produce will go directly into the ocean. Chemical levels in the ocean are a direct result of the industries. Dimensions of wastewater are much larger than what we can see and are linked to the ecosystem. We need to treat wastewater and we need to reuse water as only one percent of the world's water is potable. In the future, water will no longer be free, especially in urban areas.
- We are passionate to tackle this important subject. If we do not make changes, our economy will be hit. Water will not be free, exponentially. If more than 90 percent is reused, a great change can occur in five to ten years, which will be revolutionary.

This proceeding lays the foundation for the upcoming discussions and events linked with the SDGs related to cross-cutting water issues covering the period 2017-2018. It may serve as a baseline for future wastewater and sanitation events, for example the MCED7, 3rd Asia Pacific Water Summit, SDG week, and APFSD in 2018.