

“Asia and the Pacific: Megacities, Water, and Climate Change” First MAWAC Regional Meeting for Asia and the Pacific (MAWAC-ASPAC)

14-15 June, 2021 - 12:00 to 15:00 pm (Jakarta time)

SUMMARY

Opening Session

Ms. Shamila Nair-Bedouelle, Assistant Director-General for the Natural Sciences of UNESCO, warmly welcomed the participants to join the meeting and share knowledge and learn from each other in the region. She has emphasized the key role of Asia and the Pacific region, a fast-growing and expanding place while facing towards the water challenges as the result of climate change, ranging from water scarcity, urban floods to sea level rise. Ms. Nair-Bedouelle further reminded the participants that these challenges can hardly be overcome by any actors or cities along, but requiring different stakeholders and megacities to collaborate and learn from each other. With the aim of speed up the progress in water resilience, she recalled that the SDG 6 Acceleration Framework was launched among UN agencies in 2020. In 2021, UNESCO is in partnership with UN-DESA to implement the Capacity Building Initiative within this important framework, and will commit itself to improving water management of Member States including the megacities.

Mr. Hans Dencker Thulstrup is the Officer-in-Charge for UNESCO Jakarta Office, UNESCO’s Regional Science Bureau for Asia and the Pacific. He attached the particular importance to the megacities in Asia and the Pacific, a region representing half of the world’s population. Speaking of the growing evident water challenges, he has presented areas of water entailing great technical potentials including the innovation in the use of non-conventional water and planning the water resources within the circular urban metabolism to reduce the demand and improve output quality. To do so, he believed that the dialogue and cooperation among different stakeholders of the megacities would lay solid ground for actualizing substantial advancement in water infrastructure, risk reduction, basin management and social-economic development. Mr. Thulstrup commits that UNESCO, together with six Field Offices in Asia and the Pacific region, will spare no effort to support the development of the cooperation framework among the stakeholders of these regional megacities in achieving water security and climate resilience.

Official statements from megacities

New Delhi

Mr. Dharmendra, IAS, Chairperson of the New Delhi Municipal Council, was speaking on behalf of New Delhi. He stated that the population of Delhi is estimated to reach 20.6 million in 2021 and 30 million by 2041. The major water concern in Delhi, as he stressed, is the shortage of potable water - the water demand is about 1,236 million gallons per day whereas only 935 million gallons are provided per day. Main systematic strategies are currently led by Delhi Jal Board and structured into several on-going schemes, which aim to augment the availability of potable and raw water, accelerate the water use efficiency, improve water infrastructures and facilities, promote Integrated Urban

Water Management including aquifer recharge, public awareness raising and other innovative approaches. Furthermore, Mr. Dharmendra expressed his expectation to the regional and global alliance for building an open dialogue, where megacities can exchange good practices and experiences, as well as internationally accepted tools and methodologies, which could lead to strategies to enhance water security, and overall sustainable development of megacities.

Tehran

Representing the Tehran City, **Mr. Hamidreza Kashfi**, Deputy of National Water and Wastewater Engineering Company, Ministry of Energy, expressed the expectation to MAWAC for being a successful model for promoting cooperation and improving water governance, which shall be dedicated by political and technical contribution from other megacities to the upcoming events. In Tehran, as Mr. Kashfi explained, the impact of climate change and growing water consumption have been intertwining thus leading to various challenges of water-related disasters and water resource management. One of the ongoing actions taken is the operation of the national working group on “Adaptation to Water Scarcity”, aiming to integrate effective mechanisms for achieving multiple social, economic and environmental benefit. At the end of his speech, Mr. Kashfi stated that Tehran has been well prepared for contributing to the MAWAC platform and support the approach to achieve water security in megacities.

The detail of Tehran official statement and presentation can be referred to “Annex (a). Official Statement and Presentation of Tehran” at the end of this report.

Introductory Session

Scope and Roadmap of Megacities Alliance for Water and Climate (MAWAC)

Mr. Alexandros Makarigakis, Programme Specialist of UNESCO, acts as the focal point of MAWAC Secretariat based at UNESCO Headquarters. He started the introduction by reminding the current water challenges in urban systems under the impact of Climate Change, the exacerbating result of floods and droughts, and of population growth and concentration, which leads to not only higher water demand, but also the competition in different sectors. He stressed the intention and mission for UNESCO to set up this Megacities Alliance for Water and Climate since 2015, which committed to promoting multidisciplinary collaboration in water management, on global and regional level, so as to tackle this challenge. He has further illustrated the work results of MAWAC, including the 16 Megacities Monographies, the Paris-Manila cooperation project in rehabilitation of Pasig River, and the process of the expanding the network by joining the Global Alliance for Water and Climate (GAFWAC), UNESCO Cities Platform and most importantly, by establishing 4 regional chapters under the global framework. In particular, he presented the 4 key activities undergoing until 2022, and look forward to exchanging ideas with the megacities’ representatives.

1st Draft of the MAWAC Strategic Global Framework (MAWAC-SGF)

Ms. Kaixin Lin, global coordinator for the MAWAC project, presented the 1st draft of MAWAC-SGF. She explained that the 1st draft was consciously developed between UNESCO and the intergovernmental Working Group (consisted of 11 megacities), as a vision setting strategy planning the way forward of this Alliance. Regarding the content of this document, she presented the visions and objectives and particularly highlighting the multi-stakeholder model and governance structure of MAWAC, as the mechanism, which represented technical and political aspect, is unique among many cities cooperation platform. Ms. Lin stated that the MAWAC-SGF will be one of the key elements during the Discussion session, thus suggesting the representatives to refer to the complete version of document.

2nd International Conference “Water, Megacities and Climate Change” (EauMega 2022)

Mr. Jean-Marie Mouchel, Co-Chairperson of Programme Committee of the 2nd International Conference “Water, Megacities and Global Change”, highlighted the important challenges that the megacities will have to tackle in order to be resilient while facing global change, ranging from water supply, population growth, climate change to scientific contribution. In particular, he stressed the importance of adapting sanitation plants to enhance water recycling, the need to have a more holistic management approach concerning water resources and to promote discussion with all actors of a megacity. It was under such circumstance that the EauMega2022 Conference wants to further the exchange of knowledge and dialogue on said resource. In this regard, making itself an open and global opportunity to share solutions and technologies as well as creating new water cultures.

Sharing Session: Megacities Presentations

Jakarta

Mr. Dudi Gardesi Asikin, Secretary of the DKI Jakarta Water Resource Department, introduced that Jakarta is a densely built metropolitan city locating in low laying area under the risk of climate change, in particular flooding issues intensified by the increasing precipitation in recent decades. He started with the introduction of the current programme structure for flood control management and the different functions performed in highland area, middle area and lowland area of Jakarta. Considering the river discharge capacity, Jakarta has been implementing the projects in diversifying the functions of water infrastructure, such as wastewater treatment and reservoirs, by integrating with recreation, water education, runoff control, rainwater storage and clean water distribution. In this regard, Mr. Dudi Gardesi Asikin introduced the projects of Pondoc Ranggon Reservoir, Mookervarrt Daan Mogot Reservoir, and Water Treatment Plant at Government owned Pasakih Apartment Complex.

Manila

Mr. Edward R. Padilla, Department of Public Services, LGU Manila, presented the interlinkage between water and solid waste management for improving the living environment of Manila, and local communities of the barangays were mobilized in different initiatives under the Environmental Compliance Status. Operating on the daily basis, project of Manila Bay Coastal Clean Up for Baseco Beach and rivulets within the city of Manila showed progressive efforts, conducted by the government and supported by the local communities, in order to maintain the water quality of the waterways around their living environment. The programme of deputation of Environmental Officers are set to support the local environmental initiatives.

New Delhi

Mr. Nikhil Kumar, IAS, CEO of the Delhi Jal Board (DJB), New Delhi, presented the current water scenarios. In 2021, DJB provided 935 million gallons per day, sourcing from surface water (840 Mgd) and groundwater (95 Mgd). Mr. Kumar provided abundant evidence and data, and he has further explained various water challenges, such as high influx of migrants in the face of limited raw water resources, excessive groundwater extraction (65% of overexploited level), high non-revenue water (around 40%). In order to mitigate the growing water concerns, ongoing plans and projects have been conducted under the guidance system of the Master Plan of Delhi 2041 and the National Capital Region Plan 2041, placing water and sewerage as a priority within the national development strategies. Mr. Kumar emphasized five key solutions: first and foremost, to rationalize the potable water demand for future development. The Multi-Model IEC Campaign will be the key part of the overall strategy. Other important solutions include

Groundwater Recharge, Raw Water Augmentation Strategies, the Reduction of Non-Revenue Water, and the Maximization of Treated Wastewater Re-use.

Tehran

Mr. Ali Chavoshian, Director of the Regional Centre on Urban Water Management (RCUWM) on behalf of the Tehran Municipality and Ministry of Energy, presented a comprehensive water outlook of Tehran City, ranging from hydro-geographic characteristics to the water infrastructure and treatment capacities of Tehran. While facing the increasing challenges of climate change and growing population, Tehran has implemented projects of improving water quality, flood control and seasonal river restoration led by the Municipality - the positive result was awarded by the International Society of City and Regional Planners (ISOCARP) in 2017. Furthermore, Mr. Chavoshian introduced the Ministry of Energy, Tehran Municipality and Ministry of Interior as the three key authorities leading the water and climate actions in Tehran, and the cross-sectoral cooperation has been practiced and promoted in Tehran.

The detail of Tehran official statement and presentation can be referred to “Annex (a). Official Statement and Presentation of Tehran” at the end of this report.

Discussion

Mr. Alexandros Makarigakis, moderated the discussion session on behalf of the MAWAC Secretariat. He thanked the attendance to the discussion, joined by the representatives from 6 megacities in ASPAC: Jakarta, Karachi (Sindh), Manila, New Delhi, Seoul and Tehran. He introduced the proposed 4 key activities contained in the invitation letters sent to Mayors and / or Governors of Megacities in order to solicit comment and support from the participating officials. The intervention and session received the appreciation of the participants who expressed their interest in moving ahead with the proposals. The session concluded that the MAWAC Secretariat would explore the possibilities to organize the 2nd MAWAC-ASPAC meeting in September or October 2021.

The discussion detail can be referred to “Annex I. Note of the Discussion” at the end of this report.

Closing Remarks

Mr. Hans Dencker Thulstrup, Officer-in-Charge of UNESCO Jakarta Office, expressed his sincerest gratitude to the participants from Jakarta, Karachi, Manila, New Delhi, Seoul and Tehran, for the two-day meeting. Taking it as the first step to establish the regional alliance, he also proposed the possibility to identify a few key priorities that the ASPAC region could take forward and tackle within the MAWAC framework. These can include topics such as solid waste management, river restoration, urban rivers, flood management and so on. At the end of meeting, Mr. Thulstrup committed the support from UNESCO and looked forward to the participations of megacities in Asia and the Pacific region.

Annex I. Note of the Discussion

Moderator Mr. Alexandros Makarigakis, UNESCO
Note taker Ms. Kaixin Lin, Ms. Nardi Margherita, UNESCO
Participants (Megacities representatives): Jakarta, Karachi(Sindh), Manila, New Delhi, Seoul, Tehran

Mr. Alexandros Makarigakis, speaking on behalf of the MAWAC Secretariat, recapitulated the remarks from the presentations, and invited the representatives of each megacity to contribute their opinions on the items as below:

Main items

Item 1. Regional Session and Mayors' Congress at the 2nd International Conference "Water, Megacities and Global Change" (EauMega 2022)

The conference will be organized from 11th to 14th January 2021, in UNESCO Headquarters in Paris, France. The provisional agenda includes but is not limited to:

- 1st day Opening Ceremony with High Level Panel;
- 2nd day Regional Sessions for 4 regions, where representatives from each region can commonly decide the programme setting for this session;
- 3rd day Parallel Sessions, Roundtables and Technical visits;
- 4th day Roundtable and Closing ceremony of the technical part of the Conference, followed by the political component at the General Assembly of the Megacities Alliance for Water and Climate (Mayors and governors taking the floor);

Expected outputs of the EauMega 2022:

- The official establishment of the MAWAC through the Mayors' Congress;
- Signature of the MAWAC Strategic Global Framework;
- Youth Declaration;
- Publication of the 15 best papers in an open-access international scientific journal;
- UNESCO electronic publication of the proceedings of the conference;
- More than 800 expected participants, from over 100 countries, further to the current 20 partners for the Conference.

Item 2. Consultation of the MAWAC Strategic Global Framework

The Strategic Global Framework served as the Terms of Reference for the Alliance. The 1st Draft was created by the group of nominated experts during the IHP Council. Currently, the 1st draft is under official consultation via the Mayors' or Governors' Office until end of June 2021 (tentative).

Mission: strengthen megacities' capacity to achieve water security and implement global agendas.

Specific objectives: sharing strategies and action plans on research, common interests; strengthen the governance of water resource management; build the knowledge base on water and climate issues; identify means and mechanism for funding.

Multi-stakeholder model

- Pillars: water and sanitation management for human well-being; climate change and water related hazards; ecosystem services; social and economic development.
- Stakeholders: decision makers; utilities and operators; academia; river basin authorities.

- Intervention scales: Service scale; city and metropolitan scale; basin scale.
- Drivers: water governance; data and information; cooperation; science, technology and innovation; financing.

Governance: UNESCO takes the role as Secretariat; Megacities are to join Operational Board (participatory mechanism) and Governing Board including the Regional and Global one (formal decision mechanism); there is a chance for other actors who are contributing to MAWAC in the unit of organization instead of city, as Partners and Contributors of MAWAC.

Element of Participation:

MAWAC Participation Framework (multi-stakeholder Model); MAWAC Governance; Megacity Water Monographies; Affiliated Network Participation (GAFWAC, UCP, IHP).

Supporting Mechanism:

Membership, which defines the eligibility, representation, application and duration of being the Member of MAWAC; Funding, including external and internal mechanism; Digital infrastructure, supported by IHP-WINS platform

Communication:

This part is vital for enabling effective participation, improving access to information, and in order to support the decision-making process and influence policy change of megacities.

Item 3. New Water Monographies (2020-2022);

The New Water Monographies (2020-2022) present an opportunity to develop a comprehensive outlook of water management in megacities, which will enable a global comparative analysis, identify common threats and possible solutions to be replicated, learning thus from one another.

Each water monography consists of 3 components: Full monography; an Executive Summary; Raw Data. The guidance and template to conduct this initiative was enclosed within the invitation letter.

It was discussed that there is an opportunity for megacities to present at the January International Conference the preliminary result of their Water Monography (in special session or side events). Participants were urged to contact the Secretariat for further information.

Item 4. Regional cooperation and regional meetings;

The Secretariat intends to regionalise the Alliance, with 4 regional chapters, which will provide the foundation of a global alliance.

As the global meeting is organized every 4 to 5 years (to be decided by Megacities Officials), regional conferences can take place more often providing an opportunity to dialogue (once per year in virtual format or two years both physical and virtual meeting), for stronger cooperation within the region and greater regional presentation during global meetings.

Remarks from the megacities

Mr. Dudi Gardesi Asikin, Secretary, DKI Jakarta Water Resource Department, considered MAWAC to be a good platform and can be useful to share their experience and learn from other cities, in order to become more sustainable. Regarding the preferences for the time for the second MAWAC-ASPAC regional meeting, they will discuss internally and September seems to be a good choice.

Ms. Sanaa Baxamoosa, Representative of Governor Sindh Office on behalf of Karachi, agreed that MAWAC is a very good initiative. Karachi would be interested to participate in the next meeting, and they may take the opportunity to present their challenges and solutions. She also seconded the proposed time for September.

Mr. Seung-Min Oh, Director of Water Circulation Policy Division, Seoul City Metropolitan, stated that Seoul shares the same issues and challenges described by other megacities, and they have a lot of common interest in solving the same issues as well. Common issues include groundwater management, precipitation in summer season (January to August) and the need of proactive actions to deal with flooding. He complemented that there may be differences in terms of the action plans or strategies among different megacities, but if we put our heads together and share our experience and ideas, we can reach better solutions for the megacities. The city of Seoul can and are willing to contribute significantly to the next meeting and alliance. However, the language can be a barrier to allow more key stakeholders of Seoul to involve and contribute.

Mr. Seyed Ali Chavoshian, Director, Regional Centre on Urban Water Management and speaking on behalf of Tehran city expressed their appreciation to be part of this initiative. Regarding the proposed dates for the next meeting, he would kindly suggest end of September or October. In addition, Tehran will strive to develop the water monograph to be presented at the January 2022 Conference. An additional challenge may be the dual management system of water management. **Ms. Saeid Ahmari**, Directorate of Environment and Sustainable Development at Municipality of Teheran, also stated their willingness to exchange experiences and cooperation and to express the gratitude for the opportunity.

Mr. Alexandros Makarigakis, Programme Specialist, MAWAC Secretary, responded that the Secretariat will propose a couple of dates through a doodle to identify the date of the next meeting. Furthermore, the Secretariat suggest that the UNESCO Water family (36 Category 2 Centres and the 66 UNESCO Chairs specialized on different water topics could also contribute to the different activities identified by the megacities. Based on the action plan to be establish, UNESCO will mobilize its experts and Water Family to better support these efforts.

Conclusion and next step

The MAWAC Secretariat thanked the Megacities' Officials for their constructive inputs and information exchanged by the participants, and summarized the next steps as follows:

- The Secretariat will consult the Megacities' Officials for potential dates of the next meeting, most probably in September 2021.
- The proposed actions included in the official letters sent to the Megacities through their Ministry of Foreign Affairs will be shared with the participating officials and seek their support in achieving them (Water Monographies; comments to the SGF; participation in the International Conference). Megacities representatives, coordinators and related stakeholders are welcome to propose suggestion to the Secretariat (focal point, Mr. Alexandros Makarigakis, a.makarigakis@unesco.org), and express their interests in:
 - a) presenting their Megacities current situation, challenges and solutions being pursued in the September meeting;
 - b) commenting on the proposed SGF;
 - c) developing and presenting a water monography in the International Conference in January 2022;
 - d) developing an action plan with common elements that would like to tackle.

Annex (a). Official Statement and Presentation of Tehran

Mr. Hamidreza Kashfi, Deputy of National Water and Wastewater Engineering Company (NWWEC), Ministry of Energy (MOE), on behalf of Tehran City started his remarks by appreciating UNESCO for this initiative and stressed the Megacities Alliance for Water and Climate (MAWAC) would be a successful model for the promotion of cooperation in the field of water and climate, through the means of facilitating dialogues on water and responses to the challenges of climate change.

This success can be achieved by political and technical mobilization of megacities which have gathered together in regional session towards the upcoming international event. These megacities are fully aware of the vital role of water in their respective regions and the values of promoting activities related to water and climate change in general.

He addressed that Tehran metropolitan has been continuously experiencing the impacts of climate change through water-related disasters, including severe water scarcity and flash floods. In this context, it is vital for Tehran megacity's water supply, wastewater and storm water systems to consider climate change impacts. Such impacts in megacities water system typically heavily influence other urban systems, since water plays a fundamental role in the functioning of such systems as well as in maintaining the quality of life in a wider sense.

Mr. Kashfi further presented that the current per capita consumption of treated water in the megacity of Tehran is rather high, making it the main challenge for Tehran metropolitan water supply sustainability. Groundwater is one of the main sources of water supply in Tehran megacity, and its depletion due to over-extraction should be addressed. In addition to the above-mentioned facts, the COVID-19 pandemic applies additional pressure on the already limited Tehran water resources as more water is consumed by citizens. He also mentioned other issues, including urban river restoration and stormwater management, improving water reuse and wastewater recycle, and better consideration of water and climate in urban planning.

He highlighted that integrating and improving water governance could be an effective solution and efforts. It has been launched recently to overcome these critical water issues nationwide and in Tehran megacity. A national working group on "Adaptation to Water Scarcity" was formed, with the aim of compiling plans and mechanisms related to adaptation to water shortage. Sustainability of water resources and an appropriate response to the increasing water demand due to population growth, supplying water for promoting civilian's welfare, fair allocation and distribution, as well as water ethics, is amongst the most important aims of this working group.

The Deputy of National Water and Wastewater Engineering Company ended his remarks by pointing out that Tehran is well prepared to support the Megacities Alliance for Water and Climate (MAWAC) with the aim of presenting and exchanging its current and future challenges to water security, economic activity and social stability as well as adaptation and mitigation strategies in megacities.

Mr. Ali Chavoshian, Director of the Regional Centre on Urban Water Management (RCUWM) delivered a presentation on behalf of the Tehran delegation including Tehran Municipality, Ministry of Energy and RCUWM. He started his presentation by briefly introducing Tehran, the most populous city in Iran and Western Asia, with a population of around 8.8 million in the city and 15 million in the larger metropolitan area of Greater Tehran. Tehran's climate is arid to semi-arid, with over 700 mm average annual precipitation in the north of Tehran while less than 200 mm in the south. One of the main challenges in Tehran is water scarcity with a long term mean annual precipitation of around 230 mm.

The major water resources and water supply zones in Tehran comprise of 5 dams, which contributing to nearly 50% of the water supply network of the Megacity, while the rest is coming from groundwater. Tehran water supply system has been divided into 6 zones. Water quality in Tehran is very good and there are 53 specialized laboratories for water quality sampling of Tehran Megacity in close cooperation with Ministry of Health and Medical Education.

The annual collected wastewater and annual treated wastewater in Tehran are estimated to 397 and 226 MCM respectively; wastewater coverage is around 65 %; wastewater network length is 7329 km; annual water supply is 1174 MCM; water consumption per capita is 233 liters per day, relatively high volume for such an arid and semi-arid city; Water coverage is 100 % and water network length is 15540 km; Water treatment capacity in Tehran is 2,782,000 m³ per day or 32.2 (cms) and wastewater treatment capacity is 735,000 m³ per day or 8.5 (cms).

Urban rivers restoration action, in particular, seasonal rivers restoration, has been implemented in the Megacity and one successful project led by Tehran Municipality has received the Excellent Merit Award: International Society of City and Regional Planners, ISOCARP in 2017. There are some objectives for river restoration in Tehran including improving safety, national figure, water quality and access to water and the environment of the city which are important factors to be considered by policy-makers in their activities.

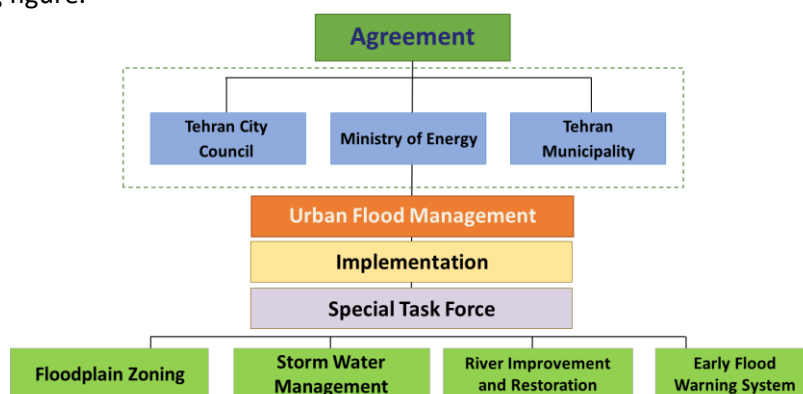
In addition, Mr. Chavoshian shared the information about storm water or urban flood management in Tehran which includes a main storm water drainage channel length of 516 km; sediment retention done for 20 sites; flood detention volume is 710,000 m³ and Tehran surface water network within the municipality territory is about 170 km.

Regarding the structure of the water management, worth noting that there are three key players in water and climate in Tehran: Ministry of Energy (overall water resources management and service of drinking water supply and sanitation), Tehran Municipality (urban planning, sustainable environment management, public green spaces as well as urban storm water management. It is a partner of MOE in wastewater collection and urban river management), and Ministry of Interior (disaster management via crisis management organization including floods). Furthermore, there are other organizations involved in water and climate management in Tehran like Department of Environment (DOE) and Ministry of Industry, Mine and Trade.

He further highlighted that inter-agency collaboration and cross-sectoral cooperation could be the source of some challenges, which requires deliberation consideration of the rules and regulations of each agency.

Iran representative finished his presentation by illustrating two examples of cooperation among key water players in Tehran.

- In 2007/8 a Trilateral agreement signed between Tehran City Council, MOE and Municipality of Tehran. As a result, a task force committee has been established dealing with Tehran Urban Flood Management as shown in the following figure.



- Cooperation between Tehran Municipality and MOE on water supply for green spaces was resulted in sustainable water supply for the green area of Tehran, reduce water consumption from groundwater sources by 60 % during the next 10 years, increase water supply capacity for green areas of city and forestation around Tehran by 20 times by 2030.