KEY MESSAGES FROM EACH MEGACITY

Mr. Samhan¹ and Mr. Gaafar² from Cairo, mentioned three challenges faced Cairo during the pandemic: water revenue; availability of critical materials as chemicals, fuel, spare parts and PPEs; lack of investments to meet the urgent necessity of funding emergency responses. The Cairo action for pandemic was technically intervened through three areas: response, recovery and resilience, and taking a chance to increase the available budget for water resources as well as promoting affordable and sustainable access to sanitation. In terms of risk prevention, a nation-wide project of pre-paid cards for water is foreseen, using daily sampling programs along the Nile river, so that it can detect any accidental, chemical or discharge of Nile cruises or untreated sewages.

In Guangzhou, introduced by Mr. Wang³, although water service is relatively well accessible by households, the migrant workers became one of the most vulnerable group. They were neither always accommodate with an unstable living condition, nor able to back to their hometown because of the restriction policy of domestic travel. He concluded that while the basic infrastructure needs to over the wider region including the vulnerable groups, there was a high requirement to provide urgent services. Finally, he recommended a de-politicizing challenges faced by human beings, and in the case of COVID-19, there should be an equitable dialogue where the expert’s voices could be prioritized and highly valued.

Ms. Kocamemi⁴ from Istanbul introduced the water consumption increased about 30% in Istanbul, though the water service remained uninterrupted. Special policy allowed three-month water bill suspension among unaffordable households during the pandemic. On the research of virus transmission through water, an ongoing project is collecting and analyzing the samples, and has statistically observed the wastewater treatment plant in 81 cities, where the inactive COVID-19 virus was detected from sludge. It was also highlighted the system of wastewater treatment plants were able to protect the water supply dam, and the precaution adopted for water staffs, making the cross-contamination least likelihood to occur.

In Jakarta, represented by Mr. Hernowo⁵, the water utility service is maintained normal, partly due to up to 43% decrease in water consumption rates in the industrial and commercial activity restriction. The Water Kiosks project have been implemented alongside 170 hand washing stations in different critical areas, especially covering the population group without a continuous service to water supply through the pipe network, high density and low-income communities. The city has brought up an opportunity to upgrade automatization of the water network, and to digitalize the costumer management and billing system, which will endure after the pandemic.

Mr. Ahmad⁶ and Mr. Anwar⁷, both from Karachi, explained that 20% of extra demand in households was occurred during the early months, while coverage of water supply became more challenging due to the economic reopening, as there is 45% of water shortage in normal circumstances. In the financial part, the government has covered 60% of operational costs of the water utility. In the technology part, water recycling and solution of water losses could be the key aspect for future endeavors. Beyond the implication on reinforcing resilience through urban planning, they emphasized the crucial role of SDG and a common platform to generate multi-level collaboration and mutual learning among cities.

As Mr. Badmus⁸ from Lagos highlighted, prior to take the decision of the lockdown, they needed to stack all chemical materials but also experienced increase in prices on some chemical and detergents materials. In Lagos, residential water consumption increased. However, it showed dramatic decrease in on the commercial water consumption levels. One of the main lessons learned during the pandemic period is the digital
transformation, especially on the water consumption tracking levels. It is a key element in fighting this pandemic to adapt the way which is reliable and secure for social distancing life.

Mr. Lucich from Lima highlighted the specific issue of migration. Due to the Lock-down, large amount of urban population went back to their hometowns in rural areas. It generated an augmentation of water demand, which the operators in those areas might not be ready to face. He also emphasized the aggravating influence of other natural disasters on vulnerable groups and necessitated the technology in water management in the future. The Peruvian government faced a financial decrease due to the reduction of water consumption. Nevertheless, responses were implemented: authorize company to utilize reserved funds to maintain operation of water supply, extend the payment for the bills that overpasses the normal water consumption rate into 24-40 months and the non-cutting. Moreover, Lima utilized technology through websites, platforms and phone lines available to customers, among other actions such as the insurance of the operation of drinking water or tap water companies and the surveillance of water supply into hospitals, penitentiaries, or any other critical areas in the city.

Mexico City was represented by three speakers, Ms. Ramírez, Mr. Palma and Mr. Lomnitz. As the cities of Jakarta and Lima, Mexico City implemented restriction measures to the industrial and commercial sector. The National Commission of Water (CONAGUA) worked in order to avoid any water disruption in spite of a 40%-50% water revenue reduction as the result of the lower water consumption. Ms. Ramírez explained the key point is to avoid the cutting of the services, according to the national recommendations by CONAGUA to service providers. The continuity of the service provision was also challenged by high rate of electricity. Both Mr. Palma and Ms. Patricia emphasized the close relation between the federal level institution and the water companies commission. While considering the application of new technology, Mr. Lomnitz emphasized the localization and decentralization of water supply at a community scale. He believed that the adoption of simple technology during urgent circumstances and severe contingencies, could allow local populations, particularly those living in impoverished area, not to be entirely dependent to the main water network.

In Mumbai, Mr. Charankar emphasized that during the pandemic the commercial water use was considerably reduced to almost zero that allowed for more water capacity for the domestic use. He added that luckily the had no issues with water supply, but only the water revenue problem. Mr. Charankar concluded his words by mentioning that their most vulnerable group affected by the pandemic was the slum areas of high densities, as they had the most limited access to water services.

Ms. Liu and Mr. Cao, speaking from Shanghai, stressed the aging infrastructure while necessitating the application of new technology in the future. In Shanghai, there are still many people residing in old apartment or community, where residents are sharing kitchen and toilet. Meanwhile, the leakage of pipelines could increase the possibility of virus transmission. Broadly, in many cities in China, large amounts of sanitizers and disinfectants have been equipped on roads, water system and sewage plants. The pandemic witnessed the chance where big data was been effectively applied to the public, for example, the inhabitants could use a new App in smartphone to identify the high affected-risk area in Shanghai and take QR health code for travel.

Mr. Ribeiro introduced certain group or areas of settlers in Sao Paulo, who are most vulnerable to the COVID-19 Pandemic with insufficient access to safe water and rely on the public water fountains and toilets. He pointed out the role of governance in effective water service delivery especially during the pandemic. The ongoing financial crisis has currently been lowering the capability of water company, supposed to provide water to the most impoverished community normally in lowest price (one of the four tiers of water tariff). Sao Paulo has been encountering the moment to improve the tariff system to better cater to the habitants’ payment capability.

In Tehran, represented by Ms. Nasser, around 5% increase of water consumption through the very first period of the pandemic, compared to 12.7% increase in Iran. She highlighted to take every citizen into account...
in combating the COVID-19. This was not only a dialogue and cooperation, among different levels between the public sector, but also among stakeholders of the utilities/operators and the academia/universities, which would bridge the communication and collaboration between all the water managers in the city. In addition, Ms. Nasseri explained the project to Chlorination as an important node of creating these linkages between such diverse actors in order to achieve a better and more efficient water treatment.

Mr. Chen\textsuperscript{17} and Mr. Tang\textsuperscript{18} from \textbf{Wuhan} explained how the wastewater, released from the two newly constructed hospital, was closely monitored and posed no additional impact to treatment plant. On the water supply side, water samples were taken regularly, as well as the additional tests were experimented to detect the three major by-products of disinfectant. He highlighted the trans-sectoral coordination behind these efforts: a cross-sectoral work team, constituted of sectors of environment, water resources and medical system, and an internal group within the sector of water resources, which liaised with utility. Scientists have been also mobilized produced guidance handbook for the public and different industries.

\textsuperscript{1} Represent Mr. Mohamed Hasan, Executive Director, of the Egyptian Water and Wastewater Regulatory Agency
\textsuperscript{2} Mr. Hisham Gaafer, Senior International Cooperation Specialist of Cairo
\textsuperscript{3} Mr. Yu Wang, Associate Professor at the Center for Social Sciences, Southern University of Science and Technology
\textsuperscript{4} Ms. Bilge Alpaslan Kocamemi, Associate Professor at the Department of Environmental Engineering at Marmara University in Istanbul
\textsuperscript{5} Mr. Priyatno Bambang Hernowo, President Director of PAM JAYA (State-owned water enterprise of Jakarta City)
\textsuperscript{6} Mr. Imran Ahmad, Professor at the Civil Engineering Department at the NED university of Engineering and Technology
\textsuperscript{7} Mr. Farhan Anwar, Town Planner of Karachi and consultant at World Bank
\textsuperscript{8} Mr. Muminu Badmus, Managing Director of Lagos Water Corporation
\textsuperscript{9} Ms. Patricia Ramirez Pineda Subdirector general National Water Commission (CONAGUA)
\textsuperscript{10} Mr. Arturo Jesús Palma Carro, Chairman of the Board of Directors of the National Association of Water and Sanitation Companies of Mexico (ANEAS), Vice president of the Mexican Hydraulics Association Asociación Nacional de Empresas de Agua y Saneamiento de México A.C. (ANEAS)
\textsuperscript{11} Mr. Enrique Lomnitz Climent, General Director of Isla Urbana of Mexico
\textsuperscript{12} Mr. Pramod Charankar, former Deputy Municipal Commissioner from the Municipal Corporation of Greater Mumbai (MCGM)
\textsuperscript{13} Ms. Chao Liu, Assistant Professor at the College of Architecture and Urban Planning, Tongji University, Shanghai
\textsuperscript{14} Mr. Buyang Cao, Professor at the College of Software Engineering, Tongji University, Shanghai
\textsuperscript{15} Thor Saad Ribeiro, Deputy coordinator of Water and Sanitation Steering Committee of Sao Paulo (representing Office of Mayor of Sao Paulo)
\textsuperscript{16} Ms. Simin Nasseri, Professor at Tehran University of Medical Sciences and Scientific advisor to the National Water and Wastewater Engineering State Company
\textsuperscript{17} Mr. Duan Chen, Deputy Director of Science & Technology Exchange and International Cooperation Division, Changjiang River Scientific Research Institute
\textsuperscript{18} Mr. Xianqiang Tang, Chief Engineer of River Basin Water Environment Research Division, Changjiang River Scientific Research Institute