The Pakistan Academy of Engineering

19th Symposium "Management of Waste"

Scheduled on December 26, 2020

ONLINE

Address of the President,
Dr.-Ing. Jameel Ahmad Khan

My dear Fellows!

Honourable Speakers!

Ladies & Gentlemen!

SALAMUN ALA MANI T-TABAUL-HUDA

"The World is on a trajectory where waste generation will drastically outpace population growth by more than double by 2050", according to a report of the World Bank Group.

"Globally around 14% of the world's food is lost after harvesting and before reaching the retail level, including through on-farm activities, storage and transportation". This is reported by the Food & Agriculture Organisation in 2019.

Astonishingly, every year around 26 mtons of food is wasted in Pakistan. Reducing food loss and waste is an important target of the Sustainable Development Goals (SDGs). SDG Target 12.3 calls for halving per capita global waste at retail & consumer levels and food loss along production & supply chains including post harvest loss, by 2030. Pakistan could save about US$ 1.13 billion annually by reducing upto 75% of the current post harvest losses according to a report of the Asian Development Bank made in 2019.

We need to properly establish the impact of reduction in food losses and waste on food security and nutrition. In order to ensure that coherent policies for food loss and waste reduction are in place, environment foot prints of food production along the supply chain have to be assessed.

Ladies & Gentlemen!

Interestingly, our sister Academy, Australian Academy of Technology and Engineering launched a comprehensive report titled “Towards a Waste Free Future” under a Webinar on November 18, 2020 . It shows that the engineering community stands for integrated waste management. It promotes creation of an Enabling Environment to face the waste challenges .

The world’s cities produce over 2 bn tonnes of waste every year. Uncollected waste and poorly disposed waste significantly affect public health and environment. Solid waste related emissions are anticipated to increase to 2.6 billion tones of CO_2 equivalent by 2050. Waste management contributes nearly 5% of global greenhouse gas emissions. Rapid urbanization is generating enormous amount of unmanageable waste. 54% of the people live in ten major cities of Pakistan. A study carried out on Solid waste for energy generation in 2016 reported that the Solid waste generation rate in Karachi is 0.572 Kg/ capita/day. The total solid waste generation is estimated at 4.765 million tons/ year. A study conducted by UNESCAP estimates that 18,000 to 20,000 tons/day of solid waste is generated in 2020.

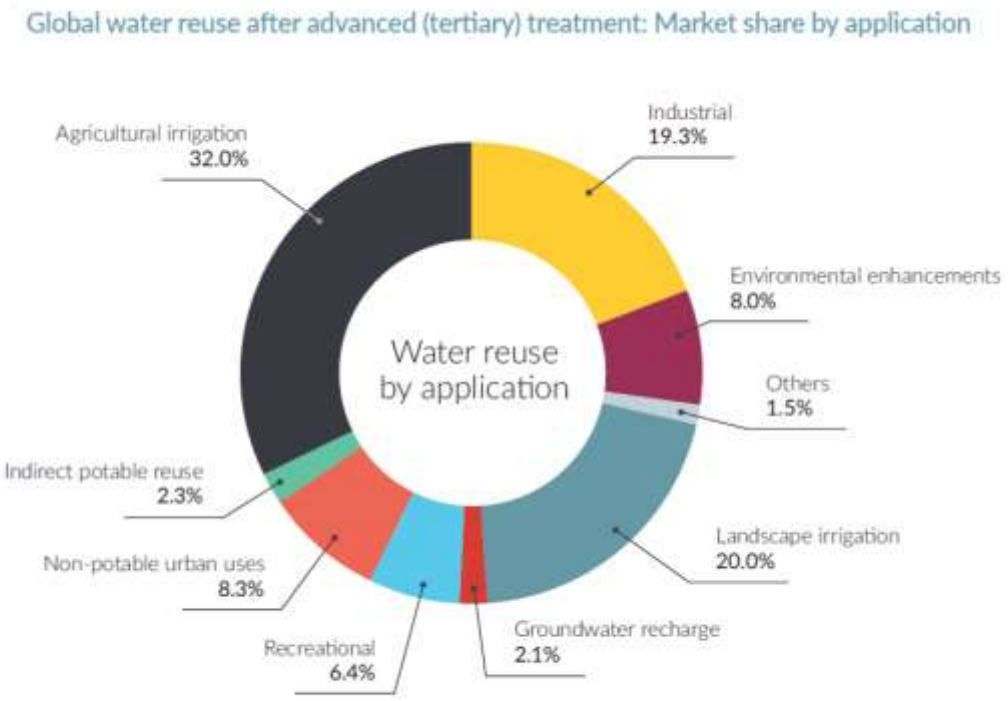
Since the introduction of the concept of sustainable development (WCED, 1987) and commitment to the United Nations Commission on Sustainable Development (EU, 1987) the apprehension of limited resources on the earth has been noticed remarkably (Tojo, 2004). Industrial waste is a key factor when assessing the sustainability of a manufacturing process. Treatment of Industrial waste is absolutely essential because of toxic content.

Goal 6 of 2030 Agenda for Sustainable Development recognises the importance of ensuring the availability and sustainable management of waste and sanitation. Pakistan receives around 145 million acre-feet of water every year but can only save 13.7 acre-ft. The country needs 40maf, but 26 maf of flood water is wasted. Poor sanitation and lack of wastewater treatment cause water-borne diseases that kill 40,000 children each year. Technologies that improve efficiency in water distribution system such as Leak Detection Technologies, Pipe Condition Assessment, Pressure Management Technologies and Metering Technologies are not in place.

Wastewater is an untapped resource. The latest UN World Water Development Report concludes: “In a world where demands for fresh water are ever growing and when limited water resources are increasingly stressed by over-abstraction, pollution and climate change, neglecting the opportunities arriving from improved waste water management is nothing less than unthinkable”. Target 6.3 of the SDGs explicitly focusses on reducing pollution and improving the disposal management and treatment of wastewater and its impact on ambient water quality.

Market share by application is exhibited in the slide based on Global Water Intelligence Data, Global Water Reuse after advanced (Tertiary) treatment.

Slide



Source: Lautze et al. (2014, Figure 2, p. 5, based on Global Water Intelligence data).

We have an excellent example in Asia where integrated waste management has been successfully executed. Singapore created the National Environment Agency in 2002 to make it a greener and cleaner place to live. The government demonstrated its commitment to the NEA by enshrining the agency’s formation in statute. In Singapore, indirect potable water reuse has been applied during the last two decades. Now, NEWater furnishes around 40% of the nation’s water request. The well known NEWater success story has greatly contributed in

transforming Singapore into a global hydro hub for innovating novel water techniques. Karachi gets only 55% of its water demand. Wastewater re-use is non-existent.

Energy and water are becoming increasingly scarce resources. We derive satisfaction that our Nuclear Power Generation is in safe hands. Nuclear Waste disposal is being adequately addressed.

There is another important sector i.e. Mining. Proper mining waste disposal needs immediate attention. Processing of one tonne of rare-earths can produce upto 2,000 tonnes of toxic waste.

Ladies & Gentlemen!

The waste hierarchy refers to the "3Rs"- Reduce, Reuse and Recycle. With this the principles of waste management are well defined. We shall be well served if the waste management agency correctly estimates the recurring cost and that the budgetary support is in place.

I hope you will enjoy the presentations made by our experts. They will be available to answer your valuable questions.

Thank you.