**NEWS ARTICLE**

AECOM highlights its vital role in water engineering for sustainable development on World Engineering Day

**29 February 2024:** [World Engineering Day](https://worldengineeringday.net/) on 4 March is a significant occasion to recognise the pivotal role of water engineering in shaping our world. Water engineering and resource planning play crucial roles in achieving sustainable development and building resilient infrastructure. It encompasses the design, construction and management of water-related systems, including water supply, sanitation, flood control, irrigation and wastewater treatment.

The 2024 theme is ‘Engineering Solutions for a Sustainable World’, which showcases how engineers develop innovative solutions to address global challenges such as climate change in support of the UN Sustainable Development Goals (SDGs).

Celebrating engineers raises awareness about their contributions and inspires young minds to pursue careers in engineering, ensuring a talent pipeline for future generations. Globally trusted infrastructure consulting firm [AECOM](http://www.aecom.com) showcases three exceptional engineers from its ranks involved with water and stormwater engineering, which is critical to sustainable infrastructure.

**Jatin Hari, Senior Engineer, Water**

“Engineering, and in particular civil engineering, is the backbone of sustainable development,” says Jatin, who obtained his professional Registration with ECSA last year. “The focus on sustainable development is crucial as we are starting to feel the impacts of many years of unsustainable practices through climate change and degradation of infrastructure. In a developing country, sustainability is often overlooked as there is more focus placed on costs and time.”

This may result in solutions that have a negative impact over the long run. There are many stakeholders involved in infrastructure projects, some of which may not understand the value of sustainability.

“As consulting engineers, we can implement sustainable solutions in the design and construction of infrastructure. However, it is equally important that the infrastructure is operated and maintained in a sustainable manner. When developing engineering solutions, current and future risks are considered. With the fast pace of change in the world, it becomes increasingly more difficult to foresee all the risks.”

Jatin received a bursary from AECOM to complete his civil engineering degree at the University of KwaZulu-Natal. Upon graduation he started working at AECOM in the Water Systems team, where he has been for the past nine years.

During that time, he has worked mostly on local municipal or government projects but has also had some exposure to private industrial clients and international work due to a few projects in the Middle East and the UK.

“Engineers have a responsibility to consider the long term social, cultural, environmental and sustainability impacts of engineering activities. As long as this is kept front of mind, engineering solutions will contribute to a sustainable world. Furthermore, with innovation and advances in technology, engineers can now better identify and mitigate risks to sustainability,” comments Jatin.

He points to the UN Sustainable Development Goal (SDG) of the provision of clean water and sanitation. At a higher level, the majority of the water-related projects that Jatin’s team works on promote sustainability by addressing these basic human needs.

“I have been involved in projects for the supply of water to rural areas that previously had limited access. I also worked on a water transfer scheme to ensure the long-term supply of water to a region, thereby reducing the impact of low rainfall and promoting economic growth,” adds Jatin.

Engineers must also consider more detailed aspects, such as the material selection of pipes to ensure they pose no harm to the environment and humans, are more durable and prevent water losses. “Implementing smart metering is also a great way to ensure sustainable use of this precious resource,” says Jatin.

**Jessica Mandlate, Candidate Engineer, Stormwater, Water, Africa**

World Engineering Day commemorates the importance of engineering in accomplishing the UN SDGs, says Jessica. It marks how far engineering has come as a profession and how engineers are also held accountable for the role they play in ensuring that sustainable development practices are incorporated as part of the solution to address various challenges.

“The day fosters conversation among engineers, scientists, governments, policymakers and society at large to promote information sharing to address pressing global concerns, while keeping sustainable development at heart. It also serves as a day to inspire young people to choose engineering professions as a way of making a difference,” comments Jessica.

Last year, Jessica graduated from the University of the Witwatersrand with an honours degree in civil engineering and began her professional career as a candidate stormwater engineer at AECOM. She has been involved with projects to calculate runoff from catchments and designing structures.

These include culverts and erosion protection systems for effective management of high flows. Designing environmentally conscious solutions minimises the environmental impact, striking a balance between stormwater management effectiveness and promoting sustainability within ecosystems.

In addition to flood risk assessments, Jessica develops maps to communicate potential flood risks, serving as powerful tools for stakeholders. These maps highlight flood-prone areas, aiding informed decision-making on land use, infrastructure and emergency preparedness. The clear identification of flood zones empowers communities and decisionmakers to implement targeted measures for mitigating impacts, enhancing resilience and fostering sustainable development practices.

“Engineering offers a multifaceted approach to mitigate the impact of climate change and futureproof infrastructure. Whether through developing resilient infrastructure to withstand extreme weather conditions or innovating electric cars that have the capacity to reduce the carbon footprint, the role that engineers play can extend to designing sustainable water systems in areas prone to drought,” says Jessica.

Latest advancements in sustainable engineering include the use of smart stormwater management systems. Real-time data analytics allows for water levels, rainfall events and stormwater infrastructure to be monitored in real time. AI has also assisted to improve the accuracy of simulations and enhance stormwater modelling to predict runoff patterns. It assists engineers to make more informed decisions concerning designing more efficient stormwater infrastructure.

Jessica says there is a need to provide future generations of engineers with holistic engineering education that goes beyond theoretical skills. This could equip them more with design solutions to address local and global challenges.

“Most often we are told what to think and not how to think. Therefore an emphasis on aspects such as critical thinking, problem-solving and thinking outside-of-the-box could help one gain a deeper understanding of a complex challenge.”

Mentorship programmes should be encouraged to pair experienced engineers with students to facilitate knowledge transfer, providing guidance to tackle real-world challenges and offer insight to industry practices.

**Megan de Jongh, Senior Engineer – Water**

“As engineers, we have the unique opportunity and responsibility to design and implement solutions that address environmental and social challenges that can lead to a more sustainable future,” says Megan. A Senior Engineer in the Water business line, she obtained her BEng (Civil) from Stellenbosch University and has worked for AECOM for seven years.

She says that World Engineering Day creates global awareness for challenges such as climate change and water scarcity. It recognises engineering’s contribution to solving these challenges and inspires future generations to pursue careers that makes positive and lasting impacts on the world.

As stormwater engineers, the team works on various projects that target the preservation of valuable natural resources. This is particularly important in the context of sustainability. Water-sensitive urban design principles are applied to urban planning and stormwater management, which at its core aimed to promote sustainability and protect the natural water cycle.

“As engineers, it is our responsibility to consider the impact of factors such as climate change in our designs and include recommendations to our clients that could mitigate the risks,” notes Megan. Examples include urbanisation and various other environmental issues.

“Future generations should be inspired to take responsibility for designing sustainable solutions for local and global challenges. By leading the way, we as engineers can set the example to future generations of how sustainable development should be implemented and how they can make a lasting positive impact on the world,” concludes Megan.

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**Notes to the editor**

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**About AECOM**

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