



# Sustainable Cities and Communities



## Sustainable Development Goals Report 2023

*“Cities and communities must themselves be sustainable. More and more of the world’s population lives in urban centres, and this is often the home of our universities too. Cities can be places of great innovation and opportunity, but they can also be home to intense poverty and inequality. The interaction between universities and their communities, urban and rural, needs to be a positive one that can last for generations.”*

### **THE Impact Rankings**





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### STATISTICS

**268**

Number of publications 2019 -  
2023



## Advancing Cultural Heritage Preservation Through Digital Innovation: ITS' VR Conservation Initiative

*ITS initiated a transformative approach to cultural heritage preservation through virtual reality technology. This collaborative initiative, which joined forces with Ciputra University's Architecture Program and the Surabaya Tourism Office, addressed the fundamental limitations of traditional conservation methods by introducing advanced digital documentation techniques. At the heart of this innovation is a system combining 360-degree VR technology, LiDAR scanning, and photogrammetry. The team has successfully applied this technology to preserve historically significant spaces, including Bung Karno's boarding room and HOS Tjokroaminoto's private chamber in Peneleh, Surabaya. These digital recreations capture precise spatial dimensions, lighting conditions, and material details, creating authentic digital twins of these historic spaces.*

*The project's significance extends beyond technological achievement. By creating detailed digital archives, ITS has democratized access to these cultural treasures while ensuring their preservation for future generations. The success of these initial implementations has established a replicable methodology for digital conservation, setting a foundation for broader application across Indonesia's rich architectural heritage. As a model for future conservation efforts, it represents a significant step forward in protecting and sharing cultural heritage in the digital age, ensuring these treasures remain accessible and relevant for generations to come.*



## ITS Advances Urban Sustainability through Drainage System Training

*ITS delivered a strategic urban drainage system training program to Kediri City's Public Works Department (PUPRPKP), bridging the gap between theoretical knowledge and practical implementation in urban infrastructure management. The program trained 30 officials across various departments through five comprehensive modules, from basic rainwater flow concepts to advanced system modeling. The initiative's significance lies in its dual impact: enhancing technical expertise while strengthening sustainable urban planning capabilities. By empowering local officials with specialized knowledge. The enthusiastic response and requests for advanced training sessions demonstrate the program's effectiveness in building local capacity for sustainable urban development.*

*The training included five main topics, starting with basic principles of water flow during rainfall and advancing to accurate drainage modeling. Participants were introduced to drainage systems that manage rainwater, methods for calculating rain discharge, and determining appropriate drainage dimensions. In the later sessions, employees were also shown how to connect various drainage channels and were provided with software tools that could assist in modeling and designing effective drainage systems. Through this training and workshop, it is hoped that staff will be equipped with the necessary insights and skills to tackle drainage challenges more effectively.*



## ITS Implements Technological Solutions for Cultural Heritage Preservation

ITS has developed two meaningful initiatives that demonstrate thoughtful approaches to protecting and enhancing Indonesia's rich cultural heritage, combining technological advancement with traditional preservation methods. The first initiative introduces a solar-powered photocatalytic reactor in Pamekasan's batik industry. This system enhances traditional batik production by efficiently processing dye waste through an advanced filtration system utilizing manganese, zeolite, and activated charcoal. By integrating solar power, the system significantly reduces energy consumption while maintaining the authenticity of batik craftsmanship. The positive reception from local artisans validates that modern technology can successfully support and sustain traditional cultural practices.

In a parallel effort, ITS implemented an innovative network analysis solution at the historic Majapahit temple complex in Trowulan, Mojokerto. This project addresses accessibility challenges across 20 cultural heritage sites spread throughout three villages: Baijijong, Sentonorejo, and Jatipasar. Through the community outreach program, ITS developed a comprehensive transportation network using ArcGIS-based analysis, complemented by clear directional signage, walking route banners, and detailed tourist maps. The initiative demonstrates how improved infrastructure can enhance visitor access while preserving historical integrity.



## ITS Implements Sustainable Campus Transportation Solutions

*ITS has developed an integrated transportation system that demonstrates thoughtful approaches to sustainable urban mobility. It combines eco-friendly vehicles with comprehensive non-motorized transportation infrastructure. The first component showcases dedicated bicycle infrastructure across the campus, featuring clearly marked cycling lanes with distinctive yellow bicycle symbols and "Jalur Sepeda" signage. These paths, integrated into tree-lined streets, provide natural shade and comfortable riding conditions, encouraging the campus community to embrace cycling as a primary mode of transportation. Concurrently, ITS has introduced the i-CAR electric shuttle service, operating on designated routes with purpose-built stops. These compact electric vehicles provide zero-emission transportation, complementing the bicycle infrastructure and ensuring accessibility for all campus community members, regardless of their mobility preferences.*

