

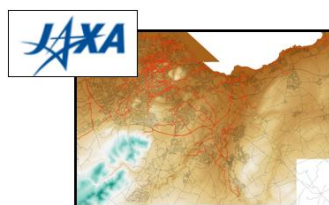
How Facebook's Data for Good could help to accelerate the provision of sanitation to millions

Background

Globally, two billion people lack access to basic sanitation facilities. In India alone, the World Bank links one in ten deaths to poor sanitation; and inadequate discharge of untreated domestic / municipal wastewater has resulted in contamination of 75% of all surface water. The planning and design of wastewater networks is an inefficient, time-consuming activity, requiring extensive data collection, and at the current rate of progress would take decades to complete.

Solution

NetCreate is an innovative digital process that uses global open source GIS datasets to automatically create an outline wastewater network on a repeatable basis. It brings together topographic data, road layout data and population distribution data from Facebook's Data for Good to assign the route of least resistance from each property to the lowest point in the catchment along defined roads. Pipe sizes are assigned based on the number of customers; manholes are inserted at junctions and defined intervals on straight pipes; cover levels are taken from topographic data; gradients and pipe depths are based on good engineering practice. A standardised approach makes it repeatable throughout countries or across regions, and configurable to specific needs.



Digital Terrain Model



Road layout



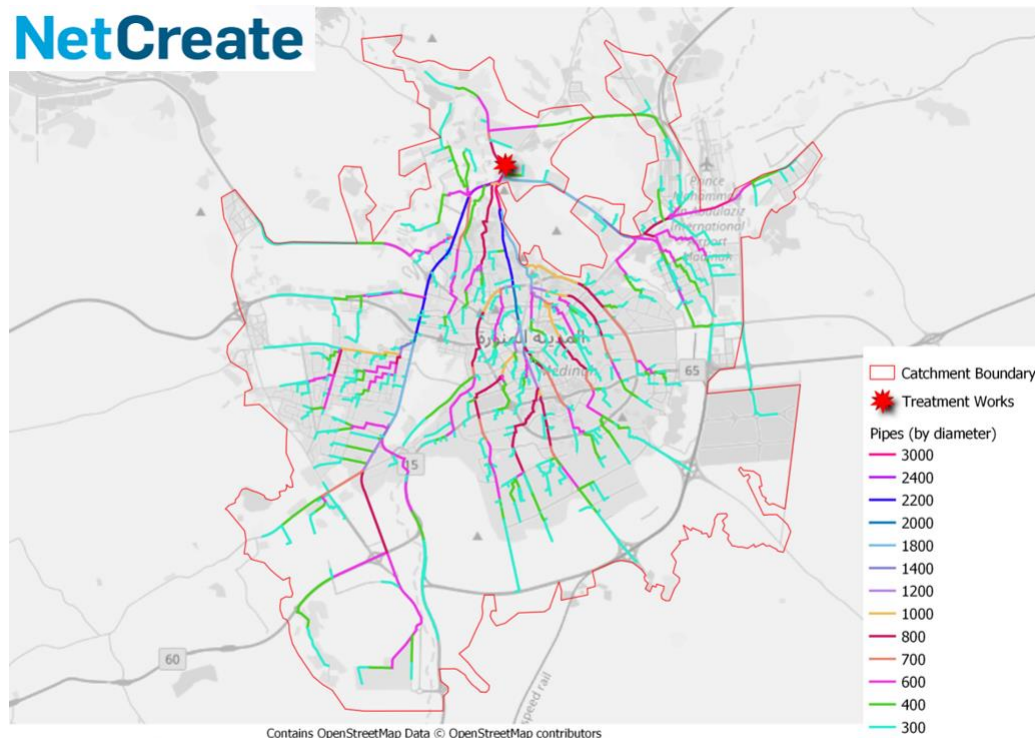
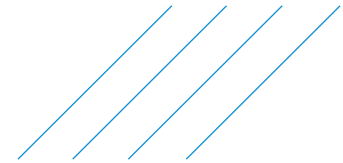
Population data

Why we used Facebook's Data for Good

In developing NetCreate, we considered several methods for obtaining population data but finally settled on Facebook's Data for Good because it provides the most current, geospatially accurate and consistent global open source available.

Testing and Trialling

NetCreate was developed in response to a need on a Master Planning project. Testing the concept on a known catchment in the UK initially, NetCreate generated a network within just 5% of the actual length of pipe. Applying the concept to our wastewater Master Planning project in Saudi Arabia NetCreate generated outline wastewater network layouts and schedules of quantities for 150 catchments which could then be imported into modelling software for hydraulic refinement. It has also been used to plan a wastewater network layout for a catchment of 600,000 population in Lucknow India.



NetCreate Conceptual Sewer Layout Medina City, population 1.5M

Benefits

NetCreate has the potential to really disrupt the norm, offering significant time and cost benefits compared with the traditional, manual approach for developing high level layouts for wastewater networks. It accelerates outline planning to allow early scope definition for schemes and programmes of work. This will allow funding to be allocated more quickly, and with greater certainty, to help facilitate the implementation of sanitation schemes in developing countries which in turn will attract business, create jobs and help develop a sustainable economy, as well as improving the environment. We are now discussing opportunities to use NetCreate with Multilateral Development Banks and International Finance Institutions.

Other Applications

NetCreate has been modified to automatically generate water supply and treated sewage effluent networks and has the potential to create other linear infrastructure networks such as stormwater, telecommunications, energy and district cooling and heating systems.

A Top 10 finalist in the Global Infrastructure Hub's InfraChallenge competition 2020, NetCreate can really help to accelerate the provision of sanitation in developing countries to benefit the poorest people in the world and help achieve UN Sustainability Goal No. 6.

For further information please view <https://vimeo.com/437120706/e9696b86facontact> or contact us at NetCreate@atkinsglobal.com.