

THE UNFOLDED POTENTIAL OF WASTEWATER IN THAILAND

Water is a common good, but what about wastewater? Is wastewater something that should just be flushed away or is it a stream of opportunities? How social innovation can drive sustainability in wastewater management: a story line from Bangkok, Thailand.

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WASTE WATER: A WELL KEPT SECRET

“Water is the driving force of all nature” wrote Leonardo da Vinci. So, it is natural to wonder: why do we waste it? And why do we pollute it? Water is the main constituent of most, if not all, living organisms, including us! Where there is water, there is life! But is this how you feel when strolling along the banks of Chao Phraya, Thailand’s main river that runs through Bangkok as an artery of a precious stream? No, probably not.

Water contamination is, in fact, one of the biggest environmental challenges that the Thai Capital is facing, where 75 % of all the waste generated at domestic level by households and restaurants along the waterway and its tributary system of canals is discharged into the river untreated [1]. This matches regional estimates by UN ESCAP, whereas, 80 to 90 % of all wastewater in developing countries of the Asia Pacific region is still discharged untreated to fresh water bodies and oceans [2], leading to irreversible damage to water ecosystems and dramatically reducing the availability of fresh water stocks for the needs of the society.

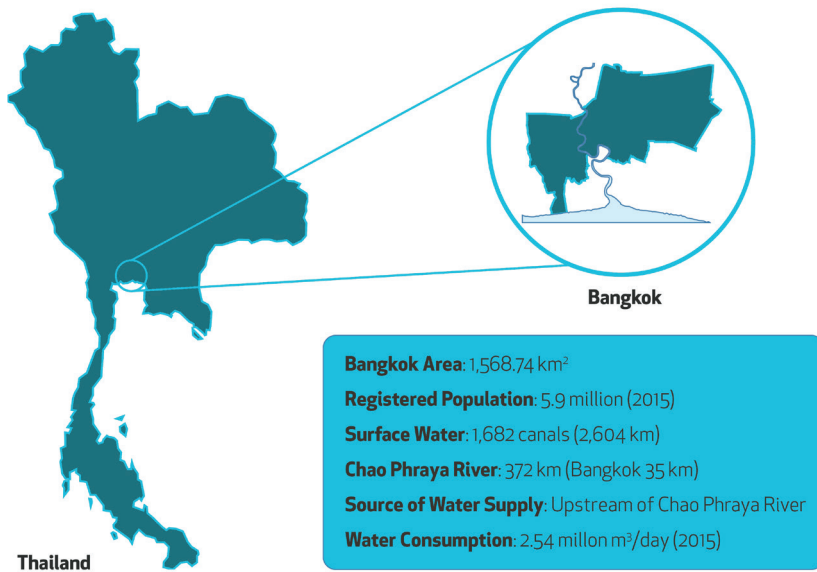
In a middle-income country like Thailand that is facing seasonal water shortages, a sustainable wastewater management needs to encompass planned water reuse (WR) on a large scale and social innovation as a driver for community engagement. In fact, WR is influenced not only by water demand and supply, but also by economic and social factors, and at foremost, by the needs of the most vulnerable and socially marginalized communities, who suffer the most from water shortage [3]. In Thailand, giant steps still need to be made on WR, with only six per cent of the wastewater being presently reused [1], and with improved social awareness and community engagement.



Source: UNESCO (2017), www.unesco.org/new/en/natural-sciences/environment/water/wwap/media-corner/

“Wastewater is an untapped resource” [4]: largely available, but scarcely used. WR has an intrinsic value not merely from an economic angle, but also from an environmental and social perspective. However, one of the major constraints to WR development is public acceptance and general trust in the reliability of the treatment system [3]. So, what can help closing the loop in the water cycle? Social innovation can bridge this gap!

Social innovation, de facto, is the development of new projects and ideas to better address issues related to the most socially vulnerable and marginalized through their inclusion in the social system. Ergo, social innovation with its system thinking and participatory approach can be a powerful driver for investments in wastewater management and WR. Active participation and engagement of local communities is pivotal to upscaling domestic wastewater management and WR, as they embody a steering stakeholder group directly involved in wastewater management. Often community actors and initiatives cannot wait for public authorities’ response to solve their problems and meet



The Bangkok Area (adapted from [2])

their needs, so they are starting to roll their sleeves and take action to clean their neighboring water bodies. And this is exactly what is happening along Bangkok's river.

SOCIAL INNOVATION AND COMMUNITY BASED MANAGEMENT ALONG THE CHAO PHRAYA CANALS

In 2015, upon demand from nine communities living along two canals, solutions to clean up the water ways from the sludge and floating debris were initiated using the bio-grease treatment methodology developed by Best Care International Thailand (BCI), an organization specialized in promoting solid waste and waste water management at the community level. The bio-grease treatment is an innovative technology integrating aspects of biotechnology, such as selected microbial strains, and nanotechnology to eliminate odors and grease from the wastewater. This method helps preventing grease formation, which can obstruct the drainage, and has proven successful not only through the application of septic tanks, but also within rivers and canals [5].

Following this successful approach, the Bangkok Metropolitan Administration (BMA), the local government responsible for providing wastewater treatment, supported replication in additional 150 local groups living along five different canals in eight districts. Through community engagement and thanks to wastewater management activities, such as biotechnology treatments, and environmental education campaigns, considerable improvements in the water quality have been made. Water clarity has increased, while odor and floating sludge have been reduced if not eliminated. In only two years, the communities benefitted from improved

water quality and increased opportunity for reuse in agriculture. In addition to the environmental benefits, wider community participation generated economic activities and additional income from producing soaps, using the water hyacinth as fodder and materials for furniture, and growing from organic agricultural crops irrigated with the improved water from the canals [5].

This strategy was further promoted through educational programs for other communities developed and funded by the BMA and was showcased at the regional project on Decentralized Wastewater Treatment System (DEWATS), which focused on a sustainable solution for rural areas and peri-urban zones with rapid urbanization rates, like the Bangkok metropolitan area [4]. Besides,

DEWATS provides tools for business opportunities and community empowerment. This generated a dramatic change in paradigm. BMA jointly with BCI established educational programs on waste and wastewater management, aiming at instilling a sense of environmental and social responsibility in every citizen, targeting four distinct interest groups: communities; educational institutions; political establishment; religious spaces.



Waste water management along the Chao Phraya Canals (photos: Aida Karazhanova)



The embeddedness of clean water and sanitation (SDG6) within the UN's sustainable development goals [6, p. 14]

“Give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime”, says an English proverb. Education is indeed a powerful tool! UN ESCAP is promoting this approach as well as other regional examples, through the SDG Help Desk, which provides interactive on-line e-learning opportunities.

TAKE HOME MESSAGE

This experience shows that social innovation can steer and advance wastewater management. Clean water is a human right, as well as a common good that requires a joint effort for everyone's well-being. Social innovation is a participatory process that can be initiated at different levels: by community groups, local governments, or bigger organizations, both

private and public. Following this example, private enterprises are currently starting training and environmental awareness activities involving other communities in three different districts in the Bangkok metropolitan area.

The case portrayed also reveals that empowering local communities throughout education can give fruitful results and strengthen partnership with local governments, to encourage community collaboration in managing natural resources, like water. “There is no life without water” and there is no development without social accountability; the interlinkages among the three dimensions of sustainable development, its social, economic and environmental aspects, as depicted in the illustration of the sustainable development goals, show how they are strictly interconnected and can indeed be met simultaneously.

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