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[1]

Although home to 18% of the global population – around 1.15 billion people – India only has around 4% of the world’s fresh water resources. With climate change and urbanisation increasing the pressure on a scarce resource, an EU-funded project’s improvement of natural water treatment systems couldn’t come at a better time.

Ganges

Urbanisation and a growing population are stretching India’s water supplies to their limits, as wetlands, swamps and river floodplains make way for urban areas. A succession of failed monsoons, coupled with limited surface water resources, is also piling on the pressure, and has led to increased dependence on groundwater. With supplies dwindling, new, sustainable approaches are needed.

The [Saph Pani](#) [2] project (the name means ‘clean’ or ‘pure’ water in Hindi) has improved existing techniques – all of which take a natural approach to ensuring water supply – and increased understanding of what works where.

The team is currently putting together recommendations for all stakeholders, which will be ready by the time the project ends in September 2014. While the recommendations will specifically address Indian stakeholders, the techniques tested could be applied anywhere in the world.

A helping hand from Mother Nature

“India has a long history in water harvesting. There are a lot of structures in place, but there has not been a lot of scientific activity to improve techniques and adapt them to urban areas,” explains project coordinator Thomas Wintgens.

The Saph Pani team of Indian and European researchers is focused on three natural techniques with the potential to top up water supplies:

- Bank filtration – surface water from rivers and lakes percolates through natural underground gravel, sand or silt and is pumped out from recovery wells at banksides. This removes some impurities, such as bacteria, viruses, parasites and organic compounds.
- Managed aquifer recharge – the storage of water in structures such as dams, ponds or dug wells.
- Wetlands – wastewater treatment technologies that mimic natural processes such as the interaction between soil-micro-organisms and pollutants, and that of plants and other life forms with pollutants in natural settings.

Nine case studies tested the various techniques – to establish which structures work best, and in which environmental conditions. The locations were chosen for their very different geographic and climatic characteristics, as well as the range of natural phenomena that they have to deal with, from drought and flooding to saltwater infiltration.

Matching technique with terrain

“All of the techniques worked out; all have their place,” says Wintgens. “River bank filtration was very successful in the north of India, for example.” The project was able to improve the system’s flood-resilience, and enhance how it is operated, in cooperation with the local water utility.

Meanwhile the efficacy of managed aquifer recharge (MAR) was found to depend on the quality of the raw water and the geological setting, but simple MAR structures – such as check-dams – can have a visible impact on the on the availability of local groundwater.

Both river bank filtration and MAR can be used to produce drinking water, although post-treatment is usually required.

In Mumbai, the team constructed a wetland on the campus of the Indian Institute of Technology Bombay to treat some of the wastewater generated on-site. After natural filtering and biological treatment through the wetland, the water is ready for further upgrading and recycling.

The facility will remain in place at the institute, allowing local researchers and students to continue the research.

Wintgens is keen to emphasise the involvement of Indian research in the teams, and underlines how the effective collaboration established within Saph Pani has been key to the project’s success. He is confident that collaboration will continue, perhaps in the form of demonstration or research projects, or as bilateral cooperation and local implementation projects.

See also:

[CORDIS](#) [3]

Project:

Enhancement of natural water systems and treatment methods for safe and sustainable water supply in India

Project Acronym:

SAPH PANI

Project website:

<http://www.saphpani.eu> [2]

Contact:

[Contact](#) [4]

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- [2] <http://www.saphpani.eu>
- [3] http://cordis.europa.eu/projects/rcn/100556_en.html
- [4] <mailto:info@saphpani.eu>