

## Factsheet

# Learning Event: Integrated Water Resources Management

Training for Indian PhD and postdoctoral researchers  
16 to 21 November 2015, Nagpur, India



Indian Water Works Association  
*Connected with water supply & wastewater treatment.*



University of Applied Sciences and Arts Northwestern Switzerland  
School of Life Sciences



Science and Policy  
Platform of the Swiss Academy of Sciences  
Commission for Research Partnerships  
with Developing Countries KFPE

### Description of the learning event

The learning event 'Integrated Water Resources Management (IWRM)' was held in Nagpur City, India, from 16 to 21 November 2015. The aim was to provide an advanced inter- and transdisciplinary IWRM training to Indian PhD students and postdoctoral researchers. Apart from knowledge transfer and introduction to relevant tools, the learning event aimed to foster interdisciplinary thinking and communication skills through exercises, group work, problem-based learning and discussions. 21 PhD students and postdoctoral researchers in the water sector from seven Indian universities and institutes participated in the learning event.

### Outline of the learning event

The six-days learning event consisted of five one-day modules, site visits and a group work module. **Module 1 'water resources for society and environment'** set the scene of IWRM as a "coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (GWP, 2000) with a recapitulation of most pressing issues related to water resources management in India. During a site visit to a slum area where continuous tap water supply is currently being implemented, students interacted and discussed on drinking water management with government officials and representatives of the implementing public private partnership company. In **Module 2 'measures to provide water to different human usages and safeguard the quality and quantity of environmental water resources with examples from India and Europe'** the Drivers-Pressures-State-Impacts-Responses (DPSIR) framework was introduced to assess and communicate the water management situation in riverbasins and its application for decision support. Local experts provided lectures and discussions on drinking water treatment and supply in Nagpur City. **Module 3 'Life Cycle Analysis (LCA) and Life Cycle Costing (LCC) approaches to assess and manage water technologies on the basis of ecological, economic and social aspects'** presented LCA and LCC concepts followed by a lecture on economic and social aspects of water management in India. In **module 4 'open source Geographical Information Systems (GIS) for basic analyses, visualization and stakeholder interaction'** the platform QGIS ([www.qgis.org](http://www.qgis.org)) was introduced through hands-on training sessions with a thematic focus on riverbasin issues. **Module 5 'water scarcity mitigation options and alternative water sources'** discussed locally adapted water treatment techniques to overcome typical water quality issues in India. Lectures on water loss reduction in supply networks and water reuse highlighted options to reduce wastage of drinking water and to supplement water supply to different sectors (e.g. agriculture, industry). **Module 6 'group project'** lasted from day 2-6 and participants had the task to assess water management challenges based on available government reports in selected towns/communities in the Weinganga riverbasin. Each group had to come up with

IWRM objectives and specific measures for their respective town using the presented tools such as DPSIR and GIS. On the last day, representatives of each group (community members) had to propose measures in a simulated 'riverbasin management board' meeting chaired by an external water management expert to achieve objectives set at community level and coordinate the individual measures at riverbasin level.



Impressions from Learning Event on IWRM: A) Group picture, B) QGIS lecture and training, C) Discussions of observations from field visits, D) Field visit to drinking water treatment plant in Nagpur , E) Role play 'Riverbasin management board'

### Added value to participants

The participants of the learning event could benefit from lectures by Indian and Swiss researchers of the organizing institutions and external experts. This was complemented with hands on experiences in the field with many accomplished and on-going projects. This allowed underpinning points by examples from India and around the world and relevant site visits in and around Nagpur City. Well received were also the interactive components, such as the group work, exercises and discussion with internal and external resource persons. Especially the group work requiring the application of tools and approaches in parallel to the lectures fostered a deeper understanding and helped to underline their actual application and also allowed clarifying questions. This close interaction between resource persons and participants was noted by several participants as a new and valuable experience to them.

## Few comments from participants

*"Next to the excellent organization and lectures, I profited most from the challenging group task on integrated water management which requested the whole group to think in a bigger holistic picture than we are normally used to in the course of our PhD."* Ms Pratima Singh, TERI University, Delhi

*"The IWRM learning event was a great platform for interaction between students from different universities and disciplines and this multidisciplinary approach was highly appreciated. I hope we can continue with our good collaboration."* Mr Thirumurugan M., Anna University, Chennai

*"I benefitted from the various lectures and site visits and learned a lot about new, eco-friendly technologies for water treatment. A milestone during this week was the training on QGIS, which was effectively taught and will be very useful for my PhD studies."* Ms Rekha Rao, NIT Surathkal, Karnataka

## Conclusions and lessons learnt

Both organizers and participants expressed that this learning event was successful in conveying a useful and relevant training on IWRM for the target participants. While the knowledge transfer through lectures, the introduction of relevant tools and the inputs from experts provided a good basis, the interaction between participants and lecturers during exercises and especially during the group work closing in the simulation of a riverbasin management board meeting was especially appreciated. The organizers feel that this interactive approach where participants use their individual knowledge collaboratively in order to solve challenges was probably the most important success factor of this learning event.

## Contact details of the organizing institutions

This learning event was jointly organized and conducted between the Institute for Ecopreneurship of the University of Applied Sciences and Arts Northwestern Switzerland (FHNW) and the Indian Waterworks Association (IWWA), a voluntary body of Indian water professionals, with invited lecturers from the Indian Council of Scientific and Industrial Research (CSIR) of the National Environmental Engineering Research Institute (NEERI).

### University of Applied Sciences and Arts Northwestern Switzerland (FHNW)

Institute for Ecopreneurship  
Gründenstrasse 40, 4132 Muttenz

Prof. Dr Christoph Hugi  
T: +41 61 467 45 68  
christoph.hugi@fhnw.ch

Prof. Dr Thomas Wintgens  
T: +41 61 467 44 59  
thomas.wintgens@fhnw.ch

Mr Thomas Gross  
T: +41 61 467 47 05  
thomas.gross@fhnw.ch

Ms Lena Breitenmoser  
T: +41 61 467 47 05  
lena.breitenmoser@fhnw.ch

### Indian Waterworks Association (IWWA)

IWWA Nagpur Centre  
North Ambazari Road, Shankar Nagar Square,  
Nagpur 4400100

Mr N.M. Bangare, Chairman IWWA Nagpur  
Centre  
bangrenarendra@gmail.com

Prof. Dr Pawan Labhasetwar  
pk\_labhasetwar@neeri.res.in

Prof. Dr Rajesh Gupta  
rajeshguptavnit@hotmail.com