EU-India STI Cooperation Days
8-9 November 2012, Hyderabad
www.euindiacoop.org/2012

Saph Pani -

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

Elango Lakshmanan
Dept. of Geology
Anna University
Chennai, INDIA
www.elango.5u.com

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

Saph Pani in brief

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

- **Co-founded by FP7 framework of European Commission**
- **Since 1st October 2011 *(2011-2014)***
- **20 partners from 8 countries (>50% Indian partners) Academic=7, Research=5, SME=2**
- **Budget € 4.7 Million**
- **EC funding € 3.5 Million**

Tapping this resource

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

Source: Guardian / wikitravel

Partnership

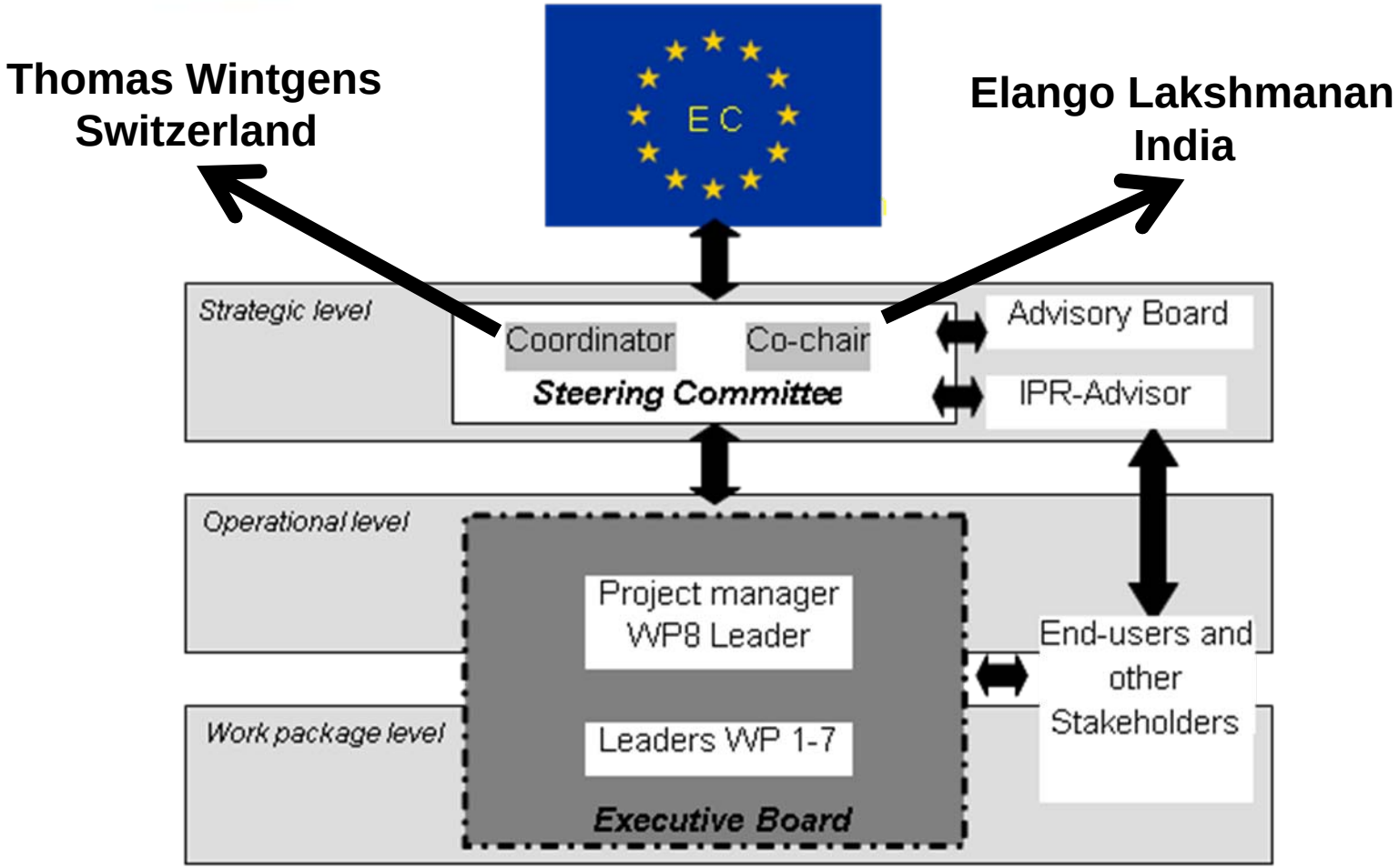
No.	Institute/Organisation	Country
1	University of Applied Sciences Northwestern Switzerland	Switzerland
2	Uttarakhand Jal Sansthan	India
3	National Institute of Hydrology	India
4	IIT Roorkee	India
5	Veolia Water India	India
6	Anna University	India
7	SPT consultants (SME)	India
8	Raipur Municipal Cooperation	India
9	Akshay Jaldhara (SME)	India
10	National Geophysical Research Institute	India
11	IIT Bombay	India
12	DHI (India) Water & Environment Pvt Ltd	India
13	Competence Centre for Water Berlin	Germany
14	BRGM Service Eau	France
15	Centre of environmental management and decision support	Austria
16	University of Applied Sciences HTW Dresden	Germany
17	UNESCO IHE Delft	Netherlands
18	International Water Management Institute	Sri Lanka
19	Commonwealth Scientific and Industrial Research Land and Water	Australia
20	Freie Universität Berlin	Germany

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organized by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

Project Organisation



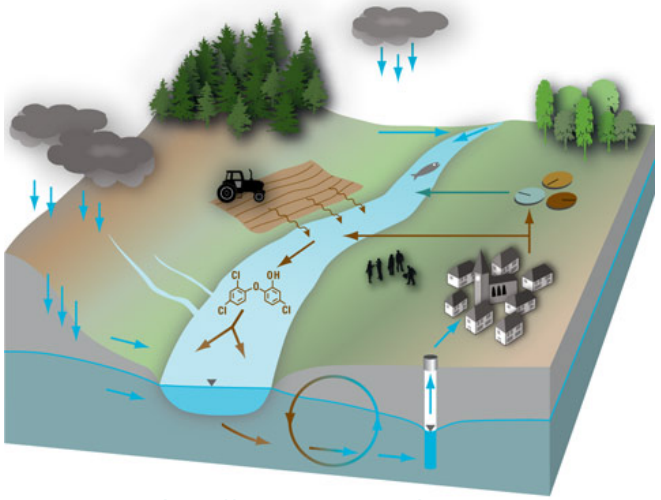
This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

Objectives

- Improve scientific understanding natural treatment processes
- Fate and removal of important water quality parameters
- Investigate hydrological characteristics and eco-system functions
- Improve water resources management strategies
- Evaluate the socio-economic value of natural water treatment



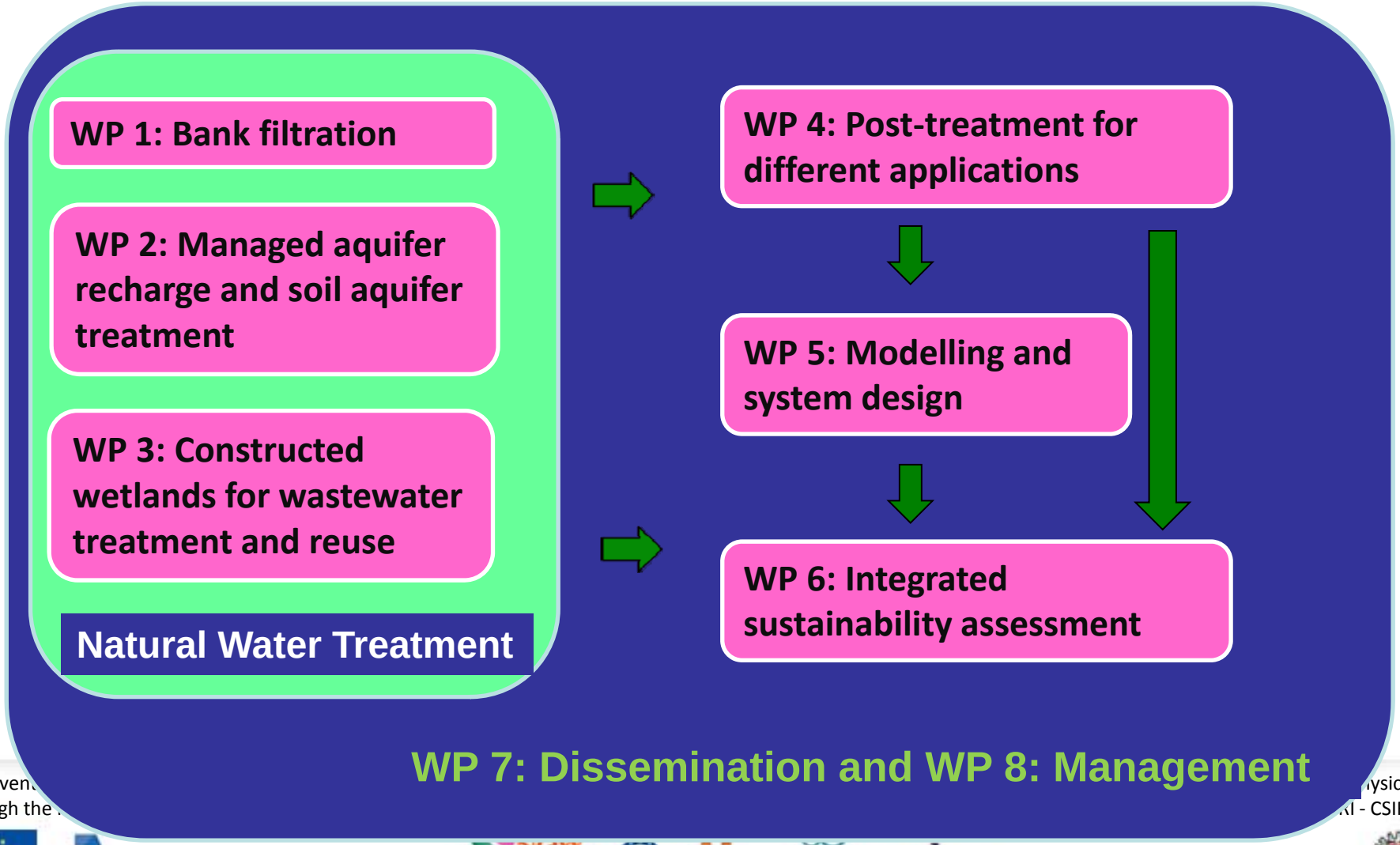
Source: http://www.eawag.ch

This event is co-financed by the European Commission through the involvement of several projects.

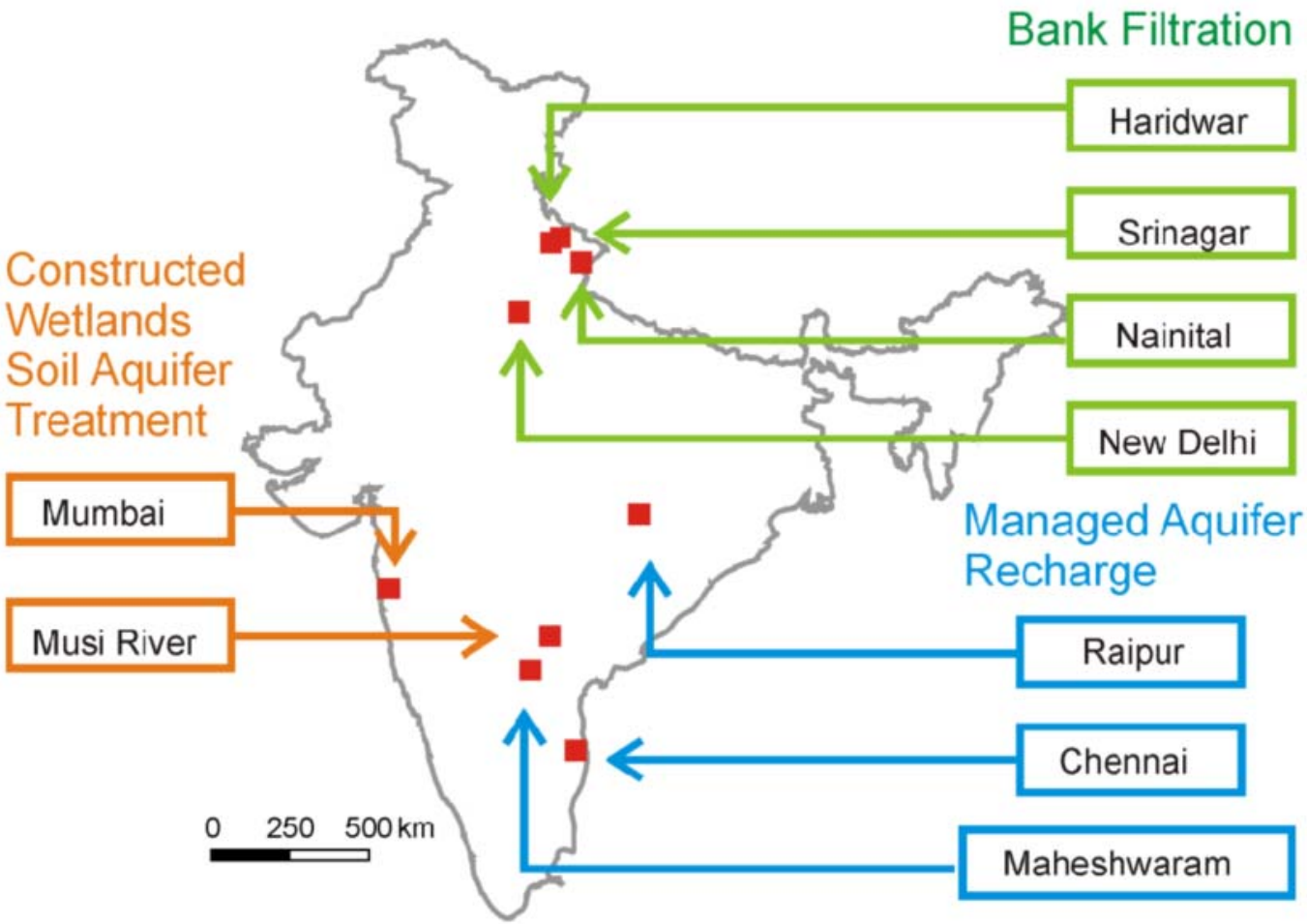
A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

Saph Pani Work Packages



Saph Pani – Study Sites

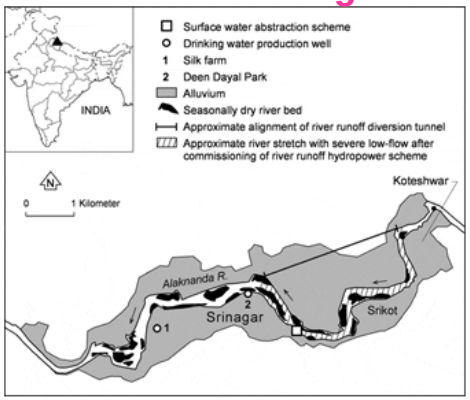


This event is co-finar ... National Geophysical
through the involvement of several projects. Research Institute (NGRI - CSIR).

WP1- Bank filtration in urban areas under varying pollutant loads and flood situations

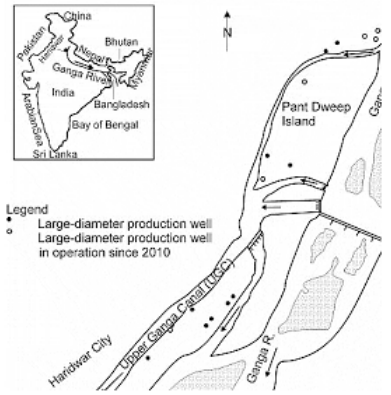
- Analyse performance and limitations of BF
- Determination of the removal of pollutants with different pollutant loads
- Technical elements for flood proof water abstraction schemes
- Development of remediation concepts
- Economic viability

RBF at Sri Nagar



Location of riverbank filtration wells at Srinagar, Uttarakhand (Sandhu et al. 2011)

RBF at Haridwar



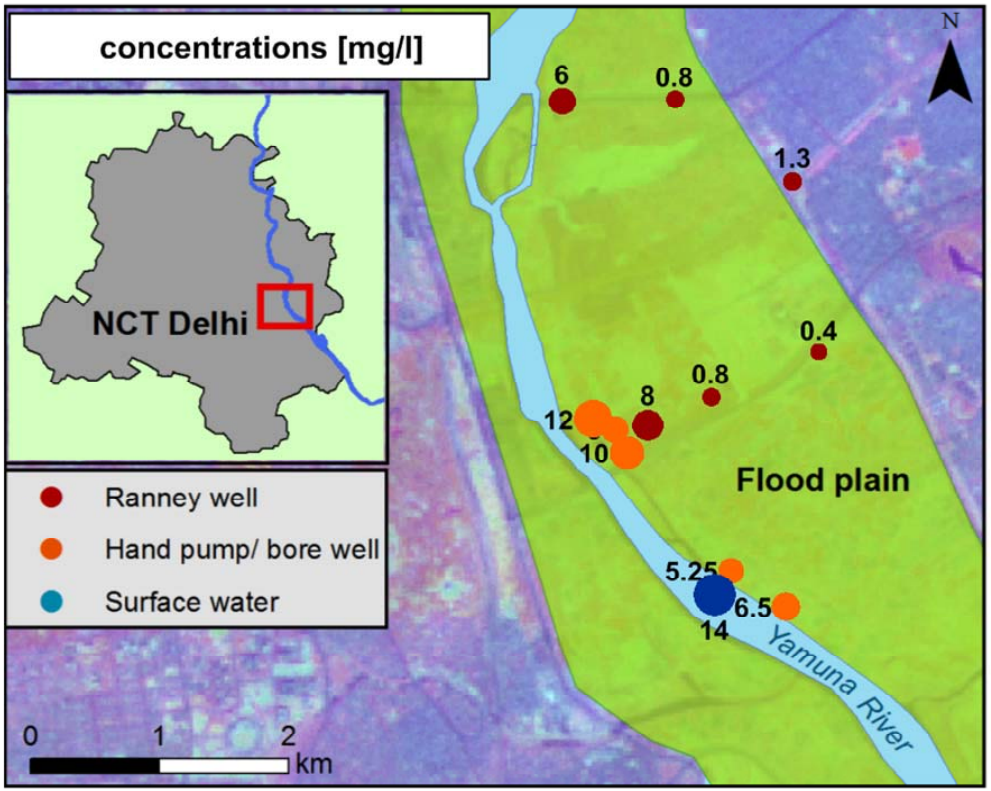
Location of riverbank filtration wells at Haridwar, Uttarakhand (Sandhu et al. 2011)

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP1- Bank filtration in urban areas under varying pollutant loads and flood situations



Concentration of a minor ion in the groundwater and the Yamuna River

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organized by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP2- Managed aquifer recharge and soil aquifer treatment

- Storm water infiltration from existing structures
- MAR for coping with seawater intrusion and groundwater overexploitation
- Percolation ponds to enhance recharge and groundwater quality

Restoration of temple tanks

Percolation tank- Maheshwaram watershed

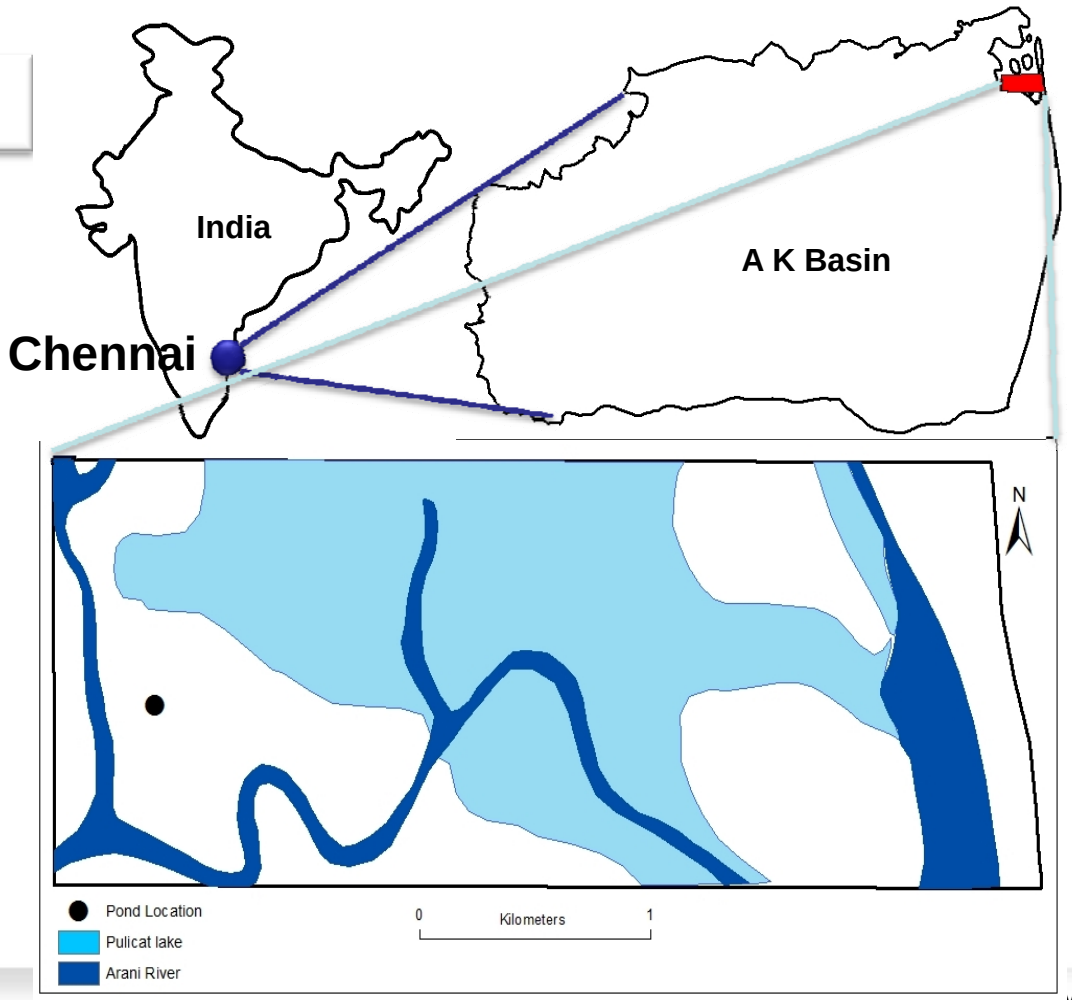
This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP2- Managed aquifer recharge and soil aquifer treatment

Chennai study site

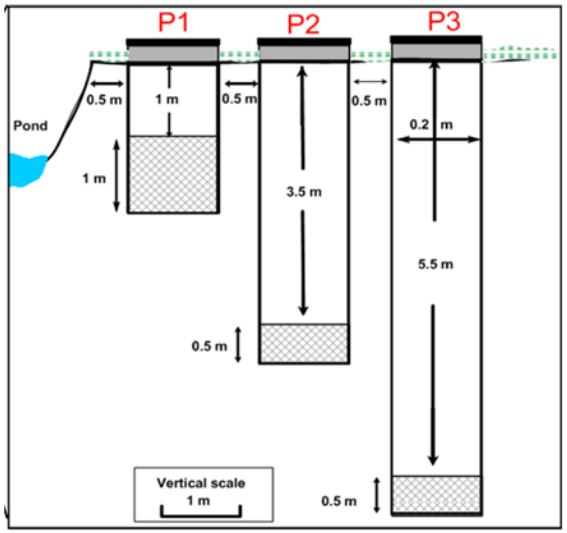


This event is co-financed by the European Commission through the involvement of several projects.

Research Institute (NGRI - CSIR).

WP2- Managed aquifer recharge and soil aquifer treatment

Some of pictures of pilot site

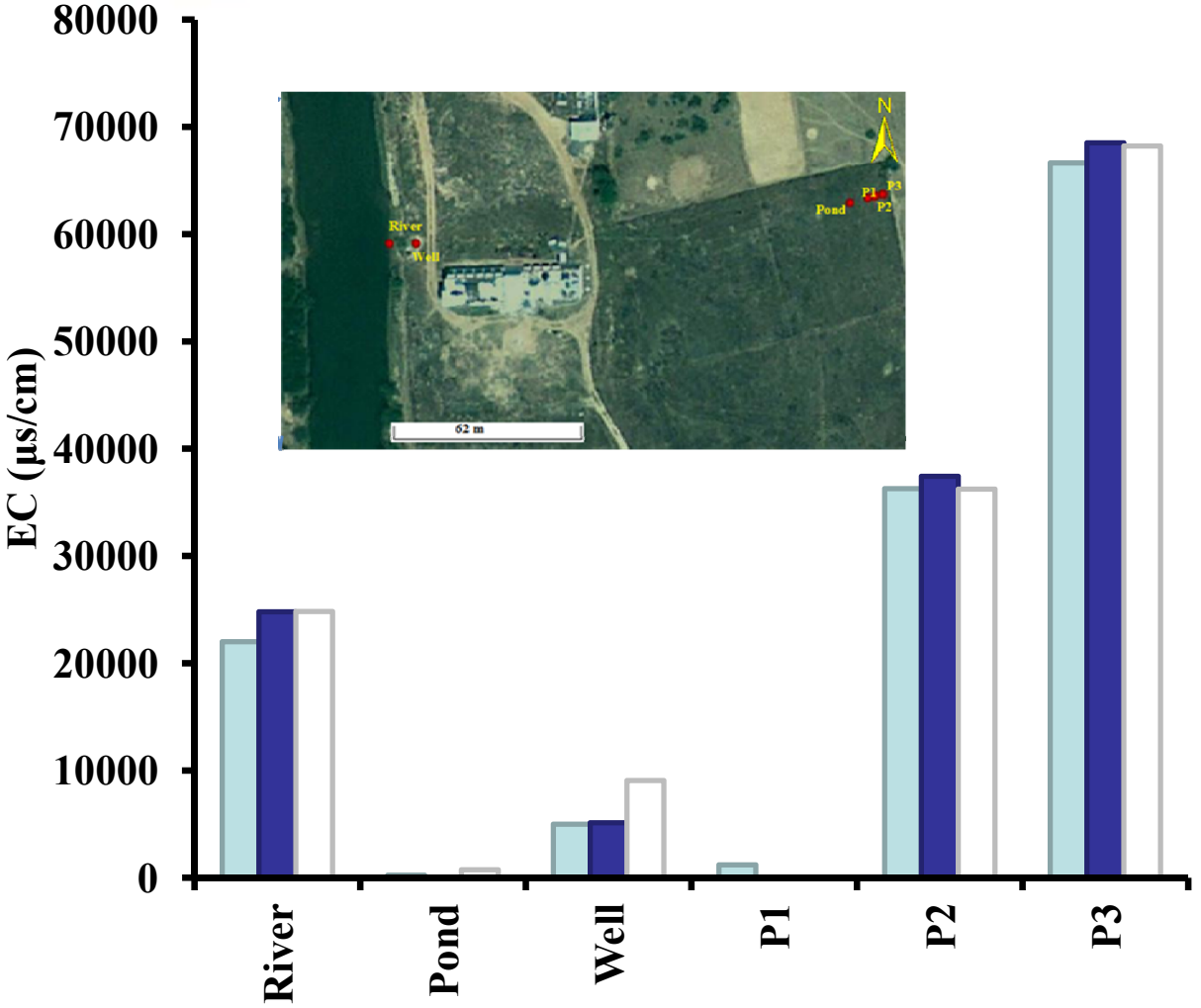


This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP2- Managed aquifer recharge and soil aquifer treatment



Dept of Science and Technology, Govt. of India

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

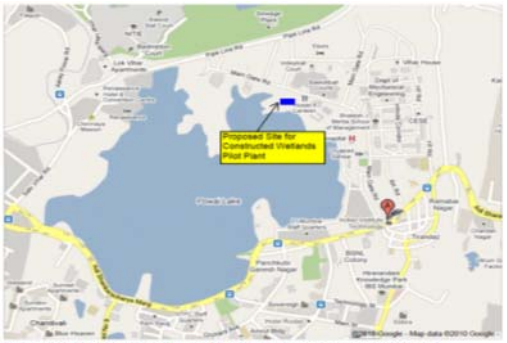
WP3- Constructed wetlands and other natural treatment systems for wastewater treatment and reuse

- Identification of strategies for enhancement of potential
- Implementation of pilot studies
- Recommendations on natural treatment systems

Musi river

Musi River watershed down stream of Hyderabad city. Wastewater irrigated areas (green) Periurban watershed catchment (blue line), bore wells (BW), dug wells (DW) and open wells (OW)

Mumbai



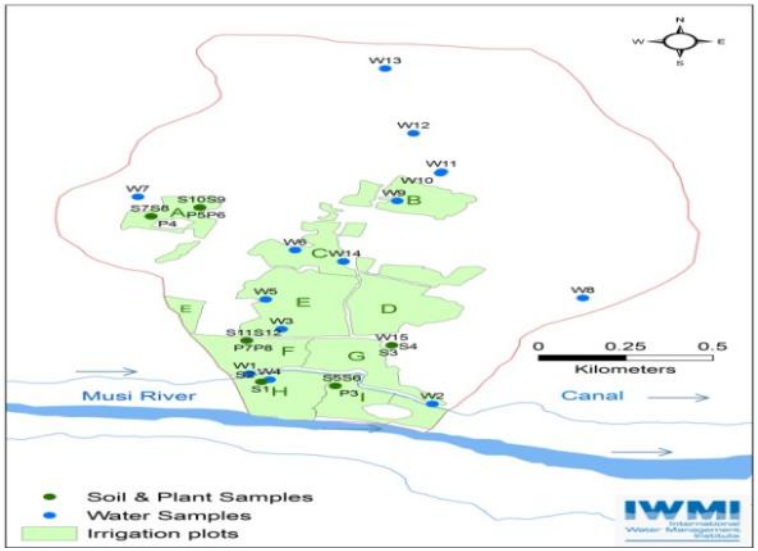
Proposed Site for Constructed Wetlands Pilot Plant in the northern suburb of Mumbai

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP3- Constructed wetlands….



Sampling locations in Hyderabad near Musi river

View (I) of allotted site before cleaning

View (II) of allotted site before cleaning

View (III) of allotted site after cleaning

View (IV) of allotted site after cleaning

Progress of site preparation for establishing CWs based pilot plan at IITB, India

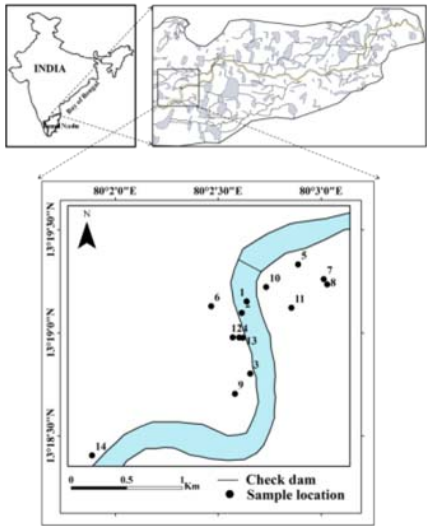
This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

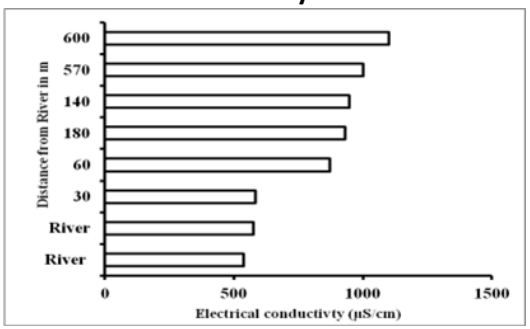
Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP4 Post treatment of water from natural treatment systems for different applications

- Assessment of raw water and product water quality
- Tailoring of post-treatment options
- Performance assessment of post treatment
- Option assessment of post treatment



Location of the study area in Chennai



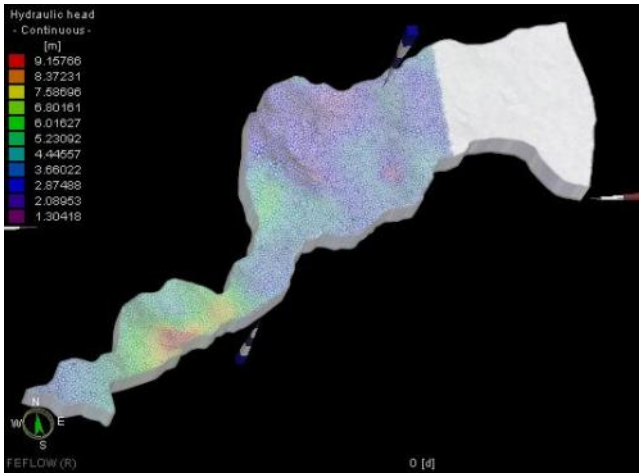
This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP5 Modelling and system design

- Modelling and optimising BF systems
- Modelling approach of Musi river wetland treatment/ SAT site
- Modelling of saltwater intrusion
- Modelling, monitoring and optimising MAR in hard rock settings
- Synthesis and recommendations



Initial groundwater level

during January 1996

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP6 Integrated sustainability management

- Assess the risks to human health and environment
- Assess economic and financial feasibility
- Assess social acceptance
- Develop integrated management plans
- Develop policy recommendations for natural treatment systems

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP7 Training and dissemination

- Networking and knowledge transfer
- Training courses
- MSc, PhD theses (Chennai=4)
- Publication with students' as lead authors
- Website
- Newsletters
- Two WP has female leaders
- Mentoring program for female Ph.D. students

Conducted

Training Course on
Bank Filtration for Sustainable Drinking Water Supply in India

13 April 2012, Vigyan Bhawan, New Delhi, India

Hosted by
India Water Week – 2012

Organised by
National Institute of Hydrology, Roorkee, India
University of Applied Sciences Dresden, Germany

Supported by
National Institute of Hydrology, Roorkee, India,
University of Applied Sciences Dresden, Germany
School of Life Sciences at the University of Applied Sciences Northwestern Switzerland

As an activity of
the research project "*Saph Pani*" www.saphpani.eu
co-funded by the European Commission within the 7th Framework Programme, grant agreement no. 282911

Coming soon…

Two Day Course
on

Managed Aquifer Recharge: Methods, Hydrogeological Requirements, Post and Pre-treatment systems

11th and 12th December 2012

Organised by
Anna University, Chennai, India

in association with
National Institute of Hydrology, Roorkee, India

As an activity under
the research project
"Saph Pani"
co-funded by the European Commission
within the 7th framework programme
Grant no: 282911
www.saphpani.eu

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

WP8 Management

- Monitoring and steering
- Facilitate communication with partners
- Project web site

Saph Pani meet
@
Delhi, India

Saph Pani meet @ Basel, Switzerland

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

Expected outcome

- Accomplish scientific objectives: knowledge, results, publications, degrees
- Demonstrate successful EU-India cooperation
- Learn from each other
- Provide visibility to the project: dissemination, training, exploitation
- Provide the research support to solutions implemented in “real life”
- BSc, MSc, PhD theses
- Workshops for end-users and scientists

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

My impressions on EU project

Large financial support

Several experts in one project

Multi disciplinary – Publication – High citation!

Industrial partners

Complementing infrastructure of partners

Sharing of analytical facilities and equipment

Funding possible to attend important conferences

Opportunity to visit tourist attractions!

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).

Thank you for your attention

Elango Lakshmanan
Anna University
INDIA
elango@annauniv.edu

The 'Saph Pani' Team

for more info www.saphpani.eu

This event is co-financed by the European Commission through the involvement of several projects.

A joint event organizated by:

Hosted by National Geophysical Research Institute (NGRI - CSIR).