



## Workshop “Assessment and Management of Indirect Potable Reuse”

6<sup>th</sup> – 8<sup>th</sup> March 2018 in Koblenz

### Organization

The workshop is jointly organized by the German Federal Institute of Hydrology (BfG), the International Centre for Water Resources and Global Change (ICWRGC), the UNESCO-IHP's International Initiative on Water Quality (IIWQ) in conjunction with the Water-JPI project FRAME and its partner institutions, BRGM (French Geological Survey), IRSA (Institute of Aquatic Research, Italy), TUM (Technical University of Munich, Germany), NIVA (Norwegian Institute of Water Research) and ISS (National Institute of Health, Italy).

### Venue and dates

The workshop will be hosted at the German Federal Institute of Hydrology, Am Mainzer Tor 1, 56068 Koblenz, Germany from the 5th to 8th March 2018.

### Contact

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Project homepage: [www.frame-project.eu](http://www.frame-project.eu)

### Rationale

The practice of the purposeful addition of highly treated reclaimed water after passage through an environmental buffer to augment a drinking water supply is referred to as planned or intentional indirect potable reuse (IPR). IPR provides options to maintain sufficient water quantities for communities in the future and is crucial to achieving sustainable development goals of the UN 2030 agenda. However, the application of IPR technologies is still limited by a perceived higher risk and regulatory constraints.

### Objectives

This workshop aims to review innovations in regulation, treatment and assessment techniques and management options in the field of IPR, as well as the direction of future developments. Thereby the main focus is to initiate a discussion with stakeholders, decision-makers and scientists involved in IPR at a cross-border level, giving also the opportunity to consider related challenges and enhance opportunities for collaboration in the future.

## Workshop topics

- Water quality assessment
  - Pathogens
  - Chemicals of emerging concern and transformation products
  - *In vitro* and *in vivo* bioassays
  - Antibiotic resistance
  - Modelling strategies
- Innovative treatment processes
  - Ozonation, activated carbon
  - Sequential biofiltration
  - Sequential managed aquifer recharge
- Regulatory frameworks and public perception
  - Experience in California, Australia
  - EU initiatives on water reuse
  - Innovative policy approaches
  - Hazard identification
- Potable Water reuse in practice
  - Koksijde, Belgium
  - Windhoek, Namibia
  - Port de la Selva, Spain
  - United States

## Participants

The workshop is targeted to scientists and engineers from the fields of water reuse, wastewater treatment and drinking water production as well as policy experts for water quality. Keynotes on the main topics will be provided by international experts.

## Registration

Please register by visiting [www.frame-project.eu](http://www.frame-project.eu) before **9th February 2018**.

Posters are welcome, please provide the title during registration.

There are no workshop fees. Bursaries are available to cover transport and accommodation for participants from developing countries, please visit the project website for more details.

## **Program 5<sup>th</sup> March 2018**

19:00 Get together (Restaurant Café Einstein, Koblenz)

## **Program 6<sup>th</sup> March 2018**

09:00 Registration

09:30 Welcome and introduction  
Birgit Esser (Director of the Federal Institute of Hydrology, BfG)

09:40 Scope and objectives of the Water JPI project FRAME and the workshop  
Thomas Ternes (BfG)

10:00 Keynote: Potable Reuse: WHO Guidance for Producing Safe Drinking-water  
David Cunliffe (South Australia Health)

10:45 Coffee break and poster session

11:15 Keynote: Water reuse and resource recovery: Innovation, best practices and policies  
Sarantuyaa Zandaryaa (UNESCO)

### **Session 1: Water Reuse in Practice**

(Session chair: Siegfried Demuth and Thomas Ternes)

11:45 Keynote: 50 years of DPR in Windhoek  
Pierre van Rensburg (Department of Urban and Transport Planning)

12:15 Lunch and poster session

13:15 Keynote: Reuse at the Flemish coast: past, present and future  
Emmanuel van Houtte (IWVA, Belgium)

13:45 Potable water reuse in the United States  
Jörg Drewes (TUM)

14:15 Discussion

14:45 Coffee break and poster session

### **Session 2: Innovative techniques and modelling in approaches to water reuse**

(Session chair: Jörg Drewes)

15:00 Innovative treatment concepts for IPR  
Uwe Hübner (TUM)

15:30 Introducing sequential biofiltration for advanced water treatment and reuse  
Johann Müller (TUM)

16:00 Modelling the fate of CECs in groundwater recharge  
Marie Pettenati (BRGM)

16:30 Introduction to Decision Support Software and FRAME Handbook for end-users  
Thomas Loïc (Géohyd), Stefano Polesello (IRSA)

16:45 Discussion

17:30 End of the first day

19:30 Dinner

## **Program 7<sup>th</sup> March 2018**

### **Session 3: Regulation and Assessment**

(Session chair: David Cunliffe)

- 9:00 Water reuse: European and German perspective  
Manuela Helmecke, German Federal Environment Agency (UBA)
- 9:30 French perspective on IPR  
Marie Pettenati (BRGM)
- 10:00 Italian perspective on IPR  
T.B.A.
- 10:30 Coffee break and poster session

### **Session 4: Water Quality - Emerging contaminants**

(Session chair: Giuseppe Mascolo)

- 11:00 Target analysis: analytical multi-method & results from monitoring campaign  
Nina Hermes (BfG)
- 11:30 Bioassay assessment  
Karina Petersen (NIVA), Mario Carere (ISS)
- 12:00 New assessment parameters for IPR evaluation  
Thomas Ternes (BfG)
- 12:30 Lunch and poster session

### **Afternoon program**

- 14:30 Boat tour on the Rhine River from Koblenz to Boppard

## **Program 8<sup>th</sup> March 2018**

- 09:00 Keynote: Innovations in sanitation: resource recovery and water reuse in developing countries  
Karl Linden (University of Colorado, USA)

### **Session 5: Future visions for the assessment of emerging contaminants**

(Session chair: Karl Linden)

- 09:30 New insights by suspect screening  
Kevin Jewell (BfG)
- 09:45 Non-target analysis: A new tool for process evaluation?  
Giuseppe Mascolo (IRSA)
- 10:15 Fate of antibiotic resistance in advanced treatment processes  
Soňa Fajnorova (TUM)
- 10:45 Coffee break
- 11:00 Panel discussion about the future of IPR in Europe
- 12:00 Closing remarks
- 12:15 End of workshop

## Summary of Program

For a detailed program, please visit [www.frame-project.eu](http://www.frame-project.eu).

5<sup>th</sup> March 2018

- Get-together dinner (Restaurant Café Einstein, Koblenz), 19:00

6<sup>th</sup> March 2018

- Registration and introduction, 09:00 – 10:45
- Overview: WHO guidelines for potable water reuse – David Cunliffe (South Australia Health)
- Water reuse and resource recovery: Innovation, best practices and policies – Sarantuyaa Zandaryaa (UNESCO)
- **Session 1:** Water reuse in practice, 11:15 – 14:45
- Reuse at the Flemish coast: past, present and future – Emmanuel van Houtte (IWVA, Belgium)
- 50 years of DPR in Windhoek – Pierre van Rensburg (Department of Urban and Transport Planning, City of Windhoek)
- **Session 2:** Innovative techniques and modelling in approaches to water reuse, 15:00 – 17:30
- 19:30 Dinner

7<sup>th</sup> March 2018

- **Session 3:** Regulation and assessment, 9:00 – 10:30
- **Session 4:** Water Quality - Emerging contaminants, 11:00 – 12:30
- Afternoon program: Boat tour on the Rhine River from Koblenz to Boppard, 14:30

8<sup>th</sup> March 2018

- Appropriate technologies for IPR in developing countries – Karl Linden (U. Colorado, USA), 09:00
- **Session 5:** Future visions for CEC assessment, 09:30 – 12:15
- End of workshop, 12:15