

SUPSI

WASH COMPETENCE CENTRE SUPSI

2012

Annual Report



22. March 2013

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"WASH is an acronym used in international development programs and refers to "Water, Sanitation and Hygiene". Access to safe water, adequate sanitation, and proper hygiene education can reduce illness and death from disease, and also impact poverty reduction and socio-economic

Philosophy of the WASH Competence Centre

The WASH Competence Centre was founded at SUPSI on the 22. March 2012, the World Water Day 2012.

WASH is an acronym used in international development programs and refers to "Water, Sanitation and Hygiene". Access to safe water, adequate sanitation, and proper hygiene education can reduce illness and death from disease, and also impact poverty reduction and socio-economic development.

These areas are treated together as the impact of deficiencies in each area overlap strongly, and so to achieve a strong positive impact on public health, they need to be addressed together. The WASH competence centre, is an interdepartmental network of SUPSI staff members involved in the domain of water resources in all mandates attributed by law to the Swiss Universities of Applied Sciences: teaching, research and services (see also Bundesgesetz vom 6. Oktober 1995 über die Fachhochschulen, Fachhochschulgesetz, FHSG).

Members have experience in cooperation and development projects at international level.

Remind:

The United Nations have declared 2013 as the International Year of Water Co-operation. The objective is to raise awareness, both on the potential for increased cooperation and on the challenges facing water management in light of the increase in demand for water access, allocation and services.

Visit the [official UN website on the IYWC](#)



Staff

Staff member, Department*	Profession	Main geographic work experience
Sebastian Pera (Coordinator) DECD	Hydrogeologist	Argentina, Cuba, Indonesia, Chad
Claudio Valsangiacomo (Coordinator) DECD	Microbiologist	Zimbabwe, Pakistan, Philippines, Central Asia, Haiti, Caucasus Region
Marcus Hoffmann DECD	Physicist	Azerbaijan, Caribbean, Indonesia, Slovenia
Pamela Principi DIT	Microbiologist	South Africa, China
Enrica Massardi DHS	Nurse	Afghanistan, Sierra Leone, Nicaragua, Cambodia, Togo
Paola Solcà DBSS	Sociologist Anthropologist	South Africa, Nicaragua, Bolivia, Argentina, Romania, Burkina Faso
Renzo Longhi DIT	Environmental scientist	South Africa, Romania, Santo Domingo, China
Jennifer Duyne DECD	Social Anthropologist	India, Bangladesh, Sri Lanka, Indonesia
Massimiliano Cannata DECD	Environmental Engineer	Vietnam, Brazil, Romania
Andrea Rizzoli DIT	Control Engineer	Europe
Francesca Cellina DECD	Environmental Engineer	Europe

*) DECD: Department for Environment Constructions and Design, DIT: Department of Innovative Technologies, DHS: Department of Health Sciences, DBSS: Department of Business and Social Sciences



From left: Claudio Valsangiacomo, Sebastian Pera, Marcus Hoffmann, Pamela Principi, Enrica Massardi, Paola Solcà, Renzo Longhi (Jennifer Duyne, Massimiliano Cannata, Andrea Rizzoli and Francesca Cellina are missing on this picture).



Teaching



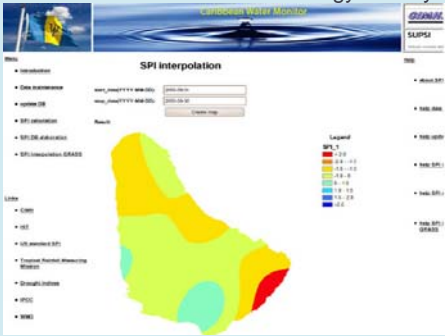
The WASH CC is involved both in graduate/postgraduate education and in continuing education.


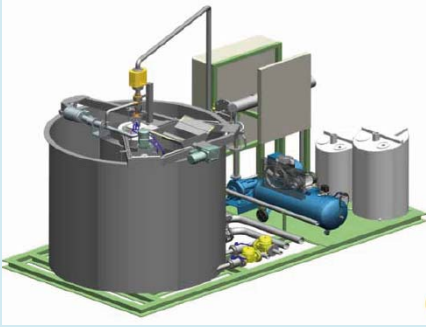

Teaching module and Staff members involved	Content	Target students
Certificate of Advanced Studies in Aqueduct management Sebastian Pera	This training course of 15 ECTS, afford all aspects (legal, economic, environmental) concerning management of drinking water networks. From water sources analysis and protection, to sewage treatment and disposal. The course provides a comprehensive picture of all involved aspects and it is addressed to managers with a strong technical background.	Aqueduct managers, Hydraulic and Environmental Engineers
Training in water lab analysis for the Swiss humanitarian aid unit Claudio Valsangiacomo	All members of the Swiss humanitarian aid unit have to be trained in water lab analysis before field assignments. The water lab training delivers skills for the use of the SHA portable laboratory. Bacteriological and basic chemical and physical parameters: E. coli, Turbidity, Conductivity, pH, Free Residual Chlorine, Nitrites/Nitrates/Ammonia, AS, Chlorid, etc.	Members of the Swiss humanitarian aid unit
Training in water lab analysis WATSAN course @UNI-NE Claudio Valsangiacomo	Course within the module offered at Centre d'hydrogéologie et de géothermie (CHYN) Université de Neuchâtel, for more details: http://www2.unine.ch/chyn/page-15833.html	Engineers and scientists who might in their professional life encounter water and sanitation problems in situations of emergency
CAS Drinking water and wastewater treatment Pamela Principi and Renzo Longhi	This course in the continuing education program offers students and operators the chance to deep on the know-how in the field of water and waste water treatment. Basics of wastewater treatment process and plant design are covered in the national and international legislative framework.	Wastewater treatment plant operators, engineers willing to deep their knowledge in the water and wastewater theme
Master of Science Engineering (Energy Environment) Pamela Principi and Renzo Longhi	In the MSE program SUPSI offers an Energy & Environment Specialization with the aim to offer the knowledge and practical experience to address environmental related projects. This specialization is oriented to the wastewater treatment topic, without overlooking biotechnological processes to recover energy from biomasses.	Engineers at bachelor level and scientists wanting to have a practical experience on projects related to environmental topics.
Training in internships in developing countries Paola Solcà and Enrica Massardi	Courses and practical training offered at DBSS and DHS for small groups of students at Bachelor level	Health and social care students who will experience clinical and educational practices in resource-poor countries

Applied research

The WASH CC is involved in various projects of applied research.

Project, main authors, country	Description	Partners
<p>Groundwater vulnerability assessment in La Habana city area</p> <p>Sebastian Pera</p> <p>Cuba</p>	<p>The assessment of groundwater vulnerability is crucial for sustainable management of water resources. Aquifers in general and karst aquifers specially, could be extremely vulnerable to pollution. Once polluted quality restoration is difficult, often impossible, and may have negative social and/or economic consequences. As water from karst aquifers are an important sources of drinking water in Cuba (80% of groundwater comes from karst aquifers) the assessment of their vulnerability to pollution is a necessary step for quality protection. In this project groundwater vulnerability maps were developed for aquifers providing drinking water to La Habana city and nearby areas.</p>	<ul style="list-style-type: none"> • Institute of Earth Sciences • Politecnico Jose Antonio Echeverria  <p>High vulnerability sink in karst aquifer</p>
<p>Bacteriological water quality before and after well cleaning</p> <p>Claudio Valsangiacomo</p> <p>Pakistan</p>	<p>During the 2013 floods in Pakistan SDC started a well cleaning program covering over 2'000 domestic wells using the standard protocol proposed by WHO (see WHO technical notes). Bacteriological quality was measured before and after cleaning. A publication is in preparation.</p>	<ul style="list-style-type: none"> • Swiss agency for development and cooperation, Humanitarian Aid, Marc-André Bünzli • Integrated Regional Support Program, Pakistan, Eng. Rashid Ali  <p>Well cleaning activity in Pakistan, soon after 2010 flood event, project in collaboration with SDC</p>

<p>Hydrogeological Investigation of the Nubian Sandstone Acquifer System (NSAS) in Northern Chad. A baseline study for a sustainable management</p> <p>Sebastian Pera</p> <p>Chad</p>	<p>The NSAS aquifer shared among Lybia, Egypt, Sudan and Chad, begins to be intensively exploited by the first two countries, having also better knowledge of the hydrogeology and characteristics of the aquifer. The last two countries are still lacking of such information and may suffer negative impact of exploitation. The project aim to minimize negative consequences of exploitation by contributing to a better understanding of the hydrogeology of the NSAS in Chad.</p>	<ul style="list-style-type: none"> • Université de N'Djamena • Université de Neuchâtel • UNOSAT – UNITAR  <p>Shallow Well in Chad, 2013</p>
<p>Combat water shortage by supporting land use improvement in forest areas</p> <p>Marcus Hoffmann</p> <p>Indonesia</p>	<p>During this proposed project, the Institute of Earth Science launched a collaboration with the Faculty of Forestry, University Gadjah Mada, Yogyakarta, Java, with the goal to study the effect of deforestation and agroforestry on the groundwater composition in terms of its use as drinking water. After a one week field trip to some candidate locations for the intended measurements, both institutions developed the base for a Spatial Decision Support System.</p>	<ul style="list-style-type: none"> • Institute of Earth Sciences (DACD) • Faculty of Forestry, University Gadjah Mada, Yogyakarta, Java, Indonesia  <p>Investigation of candidates for measurements</p>
<p>Caribbean Water Monitor</p> <p>Marcus Hoffmann</p> <p>Barbados and Trinidad & Tobago (Caribbean)</p>	<p>The objectives were the preparation of drought-relevant base documentation, the development of operative web-based tools and drought information material for Barbados and Trinidad & Tobago. The two of the most suitable parameter to measure drought trends in general are the Standard Precipitation Index (SPI) and the Deviation from Normal (DfN). The developed WEB-based tool manages the available data calculating both parameters and displays them for all measuring stations. In 2012, the area of interest has been extended to Jamaica.</p>	<ul style="list-style-type: none"> • Institute of Earth Sciences (DACD) • Caribbean Institute for Meteorology and Hydrology  <p>Dynamic Webpage to represent drought regions (red)</p>

<p>Waste water treatment facilities in the Antarctica</p> <p>Pamela Principi and Renzo Longhi</p> <p>Antarctica</p>	<p>The Antarctica is an emblematic case and a specific challenge for water sanitation related issues: the impact in terms of nutrient release of a small research station manning 30 people for 4 months a year, fades in the background of the inputs of the local fauna (penguins). The goal of the SUPSI BET “expedition” was the evaluation of the sustainability of the wastewater treatment system of the Maldonado research station in Antarctica. As priority aspect, we focus our attention on the waste treatment process: What kind of technology they used? How efficient is the process? Is there an impact on the nearby environment? And at the end, can we consider this approach sustainable?</p>	<ul style="list-style-type: none"> Department of Innovative Technologies SUPSI  <p>Map of Antarctica</p>
<p>Hydronet</p> <p>Pamela Principi and Renzo Longhi</p> <p>Switzerland</p>	<p>New Modular and Adaptive solution for water recycling and treatment The project Hydronet has contributed to the development of a new technology for waste water treatment based on DAF technology, high efficiency, low environmental impact and potential for decentralization of water treatment plants.</p>	<ul style="list-style-type: none"> http://www.icimsi.ch/pages/icimsi_it/Projects.jsp?projectId=12&item=BET&subitem=Projects  <p>Pilot plant</p>
<p>Woods and friends: Street soccer, peer education approach and a free instant messaging to communicate effectively</p> <p>Paola Solcà</p> <p>South Africa</p>	<p>The project aims to prevent drug and alcohol abuse and the spread of HIV/AIDS through counseling and the promotion of citizenship values using a peer education approach. Street soccer is a hook to gather the intended age group (10-13 years – Senior Primary School grades) in the Township of Masiphumelele. The novelty of this project lies in using a free instant messaging application (Mxit) as the vehicle to deliver messages amongst peers.</p>	<ul style="list-style-type: none"> Department of Business and Social Sciences, Social Work Research Unit, SUPSI Cape Peninsula University of Technology, Cape Town, South Africa  <p>Peer education activity in Masiphumelele,</p>

*) Links will function only temporarily.

Consulting activities and memberships in WASH related boards

The WASH CC is involved in following consulting activities (staff members involved are given in brackets) and memberships

Membership/Consultancy	Description	WASH staff members
AGUASAN	Swiss Community of practice on WASH issues www.aguasan.ch	Claudio Valsangiacomo and Jennifer Duyne
SWP	The SWP goal is to bring together relevant stakeholders to promote a sustainable and equitable use and management of water resources and universal access to water and sanitation. www.swisswaterpartnership.ch	Claudio Valsangiacomo (Member of the steering Board)
Swiss humanitarian aid unit	Membership in specialized groups WES (Water and Environmental Sanitation) and Med (Medicine) www.skh.ch	Claudio Valsangiacomo
Solidarit'eau suisse	solidarit'eau suisse is an initiative of SDC, the Aguasan Group and Swiss aid organizations enabling local authorities to support a drinking water project in a developing country in an efficient and transparent manner. www.solidariteausuisse.ch	Claudio Valsangiacomo (Member of the steering Board)
HydroDWG	Hydrology Domain Working Group of the OGC www.opengeospatial.org	Andrea Rizzoli (observer)
iEMSS	International Environmental Modeling & Software Society www.iemss.org	Andrea Rizzoli
Swiss Municipalities	Local energy planning processes for Municipalities. In energy planning processes at the local level, identification of the opportunities for electricity production and thermal energy recovery in waterworks systems and sewage water networks. (FC)	Francesca Cellina

Institutional partnerships

Institution	Type of partnership	Joint projects, links
FOSIT	Memorandum of understanding for joint projects in development and cooperation SUPSI-FOSIT	www.fosit.ch
KFH Development and Cooperation Office	Focal point for development and cooperation within Swiss Universities of Applied Sciences and Arts	www.kfh.ch/dc
Foundation for Education and Development (since January 2013 Education 21)	The Foundation has supported financially and practically the project "practical internship in the developing countries" at DBSS since 2002.	www.education21.ch

Media and communication

Subject, staff members involved, date	Type of media	Contents
Press release (foundation) Sebastian Pera 22.03.2012	Media (Ticino)	Kick-Off WASH Competence Centre
AMB Bellinzona (municipal water facility) Claudio Valsangiacomo 22.03.2012	Public conference	Emergency relief Philippines
Humanitarian mission on behalf of the Swiss humanitarian aid unit Claudio Valsangiacomo 27.12.2011	Swiss Television, SF1	Interview from the field, Mindanao, Philippines, flash floods in December 2011
Groundwater management in Chad Sebastian Pera 17.12.2012	Effetto Terra, Rete 1	Interview about the NUBIAN Project
Conference DC SUPSI All Staff Members 27.9.2012	SUPSI Conference	Presentations of development and cooperation projects
Dieci anni di stage all'estero. Il lavoro sociale nella pratica professionale Paola Solcà 20.9.2012	Conference and photo exposition	Celebration: 10 years anniversary
KFH Information Day Sebastian Pera 7.12.2012	Conference of the UAS	Hydrogeological Investigation of the Nubian Sandstone aquifer System (NSAS) in Northern Chad. A baseline study for a sustainable management

“Un mondo alla rovescia: quale ruolo per la cooperazione internazionale” Simposio FOSIT Paola Solà 13.10.2012	Workshop DBSS, FES, Interagire	“Professionalità nell’ambito della cooperazione internazionale: quali competenze?” Paola Solcà / Oliviero Ratti
“Giovani in onda. Esperienze socioeducative a confronto” Paola Solcà 26.04.2012	Public conference organized with NGO's	Two social projects involving youth people using new communication technologies in different context: Jinotega (Nicaragua) and Bellinzona (Switzerland)

External collaborators

External Collaborator	Type of collaboration	Specific Project, Country, etc.
Marie-Louise Vogt UNOSAT, Urban Hydraulic Ministry Chad	Field researcher in the domain of hydrogeology.	Hydrogeological project in Chad: mapping of Water resources.

Publications

Title	Journal, Book, year	Authors
Vulnerability Mapping of Cuban Karst Aquifers Using the EPIK Method	Proceedings of Cuban Geological Congress, La Habana 4 – 9 April 2011	Sebastian Pera, Willy Rodriguez Miranda, Rosa Maria Valcarce Ortega
Chapter 6 WATER of Canton Ticino Master plan	http://www4.ti.ch/fileadmin/DT/temi/piano_direttore/schede/schede_file/P06.pdf updated, 16.04.2012	Sebastian Pera, Maurizio Pozzoni, Silvio Seno
KFH project Woods and friends	http://www.kfh.ch/index.cfm?nav=14&pg=48&qtyp_id=1&&menu_type=about	Paola Solcà, Igor Sertori, Wilma Minoggio
Combat water shortage by supporting land use improvement in forest areas in Indonesia	http://www.kfh.ch/uploads/dcdo/doku/1110_Indonesia_Hoffmann_DFT.pdf	Marcus Hoffmann, Sebastian Pera
Hydrogeological investigation of the Nubian Sandstone Aquifer System in Northern Chad, baseline study for sustainable management	http://www.kfh.ch/uploads/dcdo/doku/1203_13_Chad_PERA_DFT.pdf	Sebastian Pera

Abbreviations

COHEP	Swiss Conference of Rectors of Universities of Teacher Education
CRUS	Rectors' Conference of the Swiss Universities
EU	European Union
FOSIT	Federazione delle ONG della Svizzera italiana
KFH	Rectors' Conference of the Swiss Universities of Applied Sciences
SDC	Swiss Agency for Development and Cooperation
SNSF	Swiss National Science Foundation
SUPSI	Scuola universitaria professionale della Svizzera italiana (University of Applied Sciences and Arts of Southern Switzerland). Departments: DACD : Department for Environment Constructions and Design, DTI : Department of Innovative Technologies, DSAS : Department of Business and Social Sciences, DSAN : Department of Health Sciences, DFA : Department of Teaching and Learning
UN	United Nations
UAS	Universities of Applied Sciences and Arts
UNOSAT	UNITAR's Operational Satellite Applications Programme
UNITAR	United Nations Institute for Training and Research
UTE	Universities of Teachers Education
USI	Università della Svizzera italiana
WHO	World Health Organization