



**Global Institute for Water
Environment and Health**

Leadership For Positive Change

GIWEH participation during the event: World Water Week in Stockholm

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1. Brief on GIWEH

The Global Institute for Water, Environment and Health (Geneva, Switzerland) was established in March 2007 under the initiative of European and Middle Eastern scientists.

The GIWEH is a Swiss-based, not-for-profit technical, research and training organization, located in the centre of Geneva, very close to numerous international organizations, NGOs, the United Nations Office at Geneva (UNOG), as well as many multinational private companies.

a) *GIWEH network*

The GIWEH has friendly relations with such organizations as:

- United Nations Environment Programme, UNEP (collaboration in international events' organization, preparation of the publication "Green Growth Policy in Korea: A Case Study").
- World Intellectual Property Organization, WIPO (collaboration in international conferences and events' organization, publication of the report "Desalination Technologies and the Use of Alternative Energies for Desalination").
- International Chamber of Commerce, ICC (publication: "Peace and Prosperity through World Trade").

World Health Organization (WHO), World Meteorological Organization (WMO), Green Cross International, École Polytechnique Fédérale de Lausanne (EPFL, Switzerland), King Abdul-Aziz University (Jeddah, Saudi Arabia), Birmingham University (the United Kingdom), Evian Group, IMD (Lausanne, Switzerland), Graduate Institute of International and Development Studies (Geneva, Switzerland), etc.



b) GIWEH missions

The GIWEH runs training programs in field of water resources and environmental management: a training program for officials from the Great Lakes Region, organized by the Graduate Institute of International and Development Studies in 2012; trainings within the framework of the Capacity Building for International Relations (CABIR) project financed by the Swiss Agency for Development and Cooperation (SDC) and implemented by Geneva Graduate Institute of International and Development Studies (Yerevan, Armenia, 19-30 November 2012; Tbilisi, Georgia, 26-28 February 2013); lectures for Program “Global Health & Development Policy Program” at School for International Training (SIT, Geneva, Switzerland) or a training program called “Water Governance Leadership for positive change” for officials in 2014 in Turkey.

c) GIWEH Awards

The GIWEH Water Award is granted every year at the GIWEH Side Event on World Water Day at the United Nations Office in Geneva (UNOG). Between 2009 and 2013 the award went to South Korea, and to France and Switzerland, Saudi Arabia, Palestine, India. In 2014, Mr. Candra Samekto, School of Agriculture and Food Science, University of Queensland, Australia [SEP] and Dr. Firdes Yenilmez, Akdeniz University, Department of Environmental Engineering, Antalya Turkey [SEP] received the award.



*Ms. Shirouk AL-ABAYACHI,
GIWEH advisory board,
Dr. Firdes YENILMEZ, Akdeniz University*



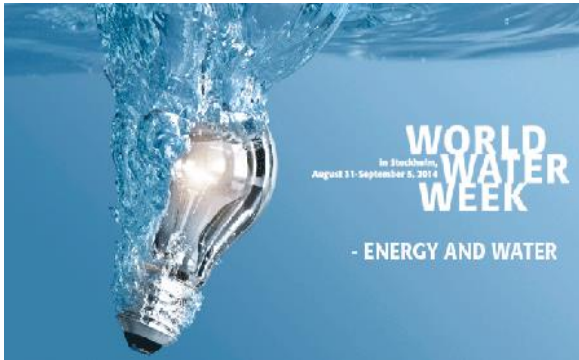
*Mr. Candra SAMEKTO,
University of Queensland*

2. World Water Week Presentation

The World Water Week is an annual event which focuses on the globe’s water issues. The event was created in 1991 and it is prepared and organized by the Stockholm

International Water Institute (SIWI). Each year, the institute suggests a thematic: last year, the theme was Energy and Water. For the 2015 edition, the theme will be Water for Development.

As the World Water Week is a professional event, only experts, practitioners, decision-makers, business innovators and young professionals from a range of sectors and countries can participate. This is a great opportunity for everyone to exchange ideas and to contribute for finding solutions about water's issues. Booths and seminars are scheduled in order to facilitate the communication between experts. Last year over « 3,000 individuals and 270 convening organizations from 143 countries¹ » attended the event.



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World Water Week 2014: Energy and water
World Water Week 2015: water for development

3. GIWEH Involvement

- GIWEH: partner of Swiss Water Partnership

As GIWEH is part of Swiss Water Partnership (it is a multi-stakeholder platform bringing Swiss organisations from the academic, civil society, public and private sectors together to find innovative solutions for water challenges in developing and transition countries), the organization participates as a member of Swiss Water Partnership during the World Water Week in order to create a Swiss unique voice.



- GIWEH and the World Water Week in 2013

¹ <http://www.worldwaterweek.org>

In 2013, the theme was focused on « Water Cooperation – Building Partnerships ». The Swiss

Water Partnership has organized a seminar on « Turning Integrity Challenges into Opportunities » where GIWEH joined as a member. During this conference, GIWEH managed to network with many organizations government, delegation, UN and international organization, NGOs, academia and private sector such as the Minister of Water of Palestine. This was a great chance to discuss different opportunities for partnership and cooperation. For instance, GIWEH became a member of global water partnership. The organization also refreshed the cooperation relation with UNESCO-IHE and UNESCO-IHP.

Moreover, GIWEH participated in roundtables such as water management, water for peace, trans-boundary water resource entitled Achieving Justice through Trans-boundary Water Cooperation.



4. GIWEH and the World Water Week in 2014

In 2014, the theme was focused on Energy and Water. Therefore, the seminar prepared by the convening Swiss Water Partnership (SWP) and its co-convenors, including GIWEH, presented a series of advanced Swiss solutions to achieve water and energy security.

This seminar, “Tackling trade-offs between water and energy across sectors and scales”, highlighted « the main challenges to achieve water, energy and food security and discusses existing and promising future solutions (demand side, supply side and creating shared benefits) across sectors (WASH, agriculture, energy...) and scales

(household, peri-urban, basin level). The asymmetrical distribution of and competition for water and energy in a changing world require innovative solutions like joint planning and/or co-management of efficient technologies/infrastructures together with the development of coherent policies and business models contributing to their up-scaling.

The first part of the seminar was dedicated for the Swiss advanced solutions explaining the different challenges that the world has to face: managing the demand, increasing the resources available and creating shared benefits. Dr Nidal Salim, director of GIWEH, contributed to this first part as a coordinator. Then, in a second part, Dr Nidal Salim, presented concrete solutions to achieve water, energy and food security for several case countries such as Iraq and MENA region.

In addition, there was the SWP booth in the exhibition hall that was co-owned by GIWEH and nine other SWP members. Here GIWEH was able to share current and future activities with participants and delegates. This was also an opportunity for GIWEH to present its own vision and Youth Leadership Program.



Appendix

- Flyer Swiss Water Partnership for the World Water Week 2013

SWISS WATER PARTNERSHIP

BUILDING CROSS SECTOR DIALOGUE AND COOPERATION

SWISS WATER EXPERTISE AT THE WORLD WATER WEEK 2013

THE SWISS STAND: EVERY DAY ANOTHER SWP MEMBER IN THE SPOTLIGHT!

DAY	HOST	HIGHLIGHTS	
SUN 1.9.	WATERLEX Legal creativity: opportunities for water governance challenges	OPENING	VISIT THE SWISS WATER PARTNERSHIP STAND AND LEARN MORE ABOUT SWISS WATER EXPERTISE WHILST ENJOYING A DELICIOUS COFFEE & CHOCOLATE.
MON 2.9.	EAWAG Swiss Federal Institute of Aquatic Science and Technology	12:00 – 13:00: SWISS RESEARCH APERITIF learn more about innovative solutions to global water challenges	PARTICIPATE IN ONE OF THE THEMATIC EXCHANGES AND APERITIFS ON THE SWISS STAND! SIDE EVENTS WITH SWISS EXPERTISE SUN 1.9.: 17:45 – 18:45 in room Room B9/10: SPLASH Sanitation Research Programme Partners: Eawag, SDC and EDC WED 4.9.: 12:45 – 13:45 in room B9/10: Turning Integrity Challenges into Opportunities: Helvetas, Cewas, Waterlex, WIN & SWP
TUE 3.9.	HELVETAS SWISS INTERCOOPERATION Universal access to sanitation, water and hygiene CSD ENGINEERS (afternoon) Sustainable management of the urban water cycle SWISS EMBASSY AND SWISS AGENCY FOR DEVELOPMENT AND COOPERATION (evening)	12.15 – 13.15: SUSTAINABLE WATER MANAGEMENT APERITIF 17.15 – 18.00: SWISS POSITION ON A DEDICATED WATER GOAL IN THE POST-2015 DEVELOPMENT AGENDA Panel discussion (with two specialists of the SDC Global Program Water and a former member of the directorate of EAWAG). 18.00 – 19.00: SWISS WELCOME RECEPTION and welcome address by the AMBASSADOR OF SWITZERLAND and the CHAIR OF THE SWP	
WED 4.9.	CEWAS Business competence & Start-Up support in water and sanitation	10.30, 12.30, 14.30: CATALYZING INNOVATIONS FOR THE WATER SECTOR 17.30: START-UP APERITIF	
THU 5.9.	GIWEH (morning) Global Institute for Water Environment and Health WORLD VISION (afternoon) Water, sanitation, and hygiene for better child health.	12.15 – 13.15: WATER POLICY AND GOVERNANCE: ROUNDTABLE DISCUSSION AND WATER QUIZ followed by an aperitif 17.30: WATER FOR LIVE APERITIF	
FRI 6.9.	SWISS WATER PARTNERSHIP Building cross sector dialogue and cooperation	FAREWELL	

Exhibitors:



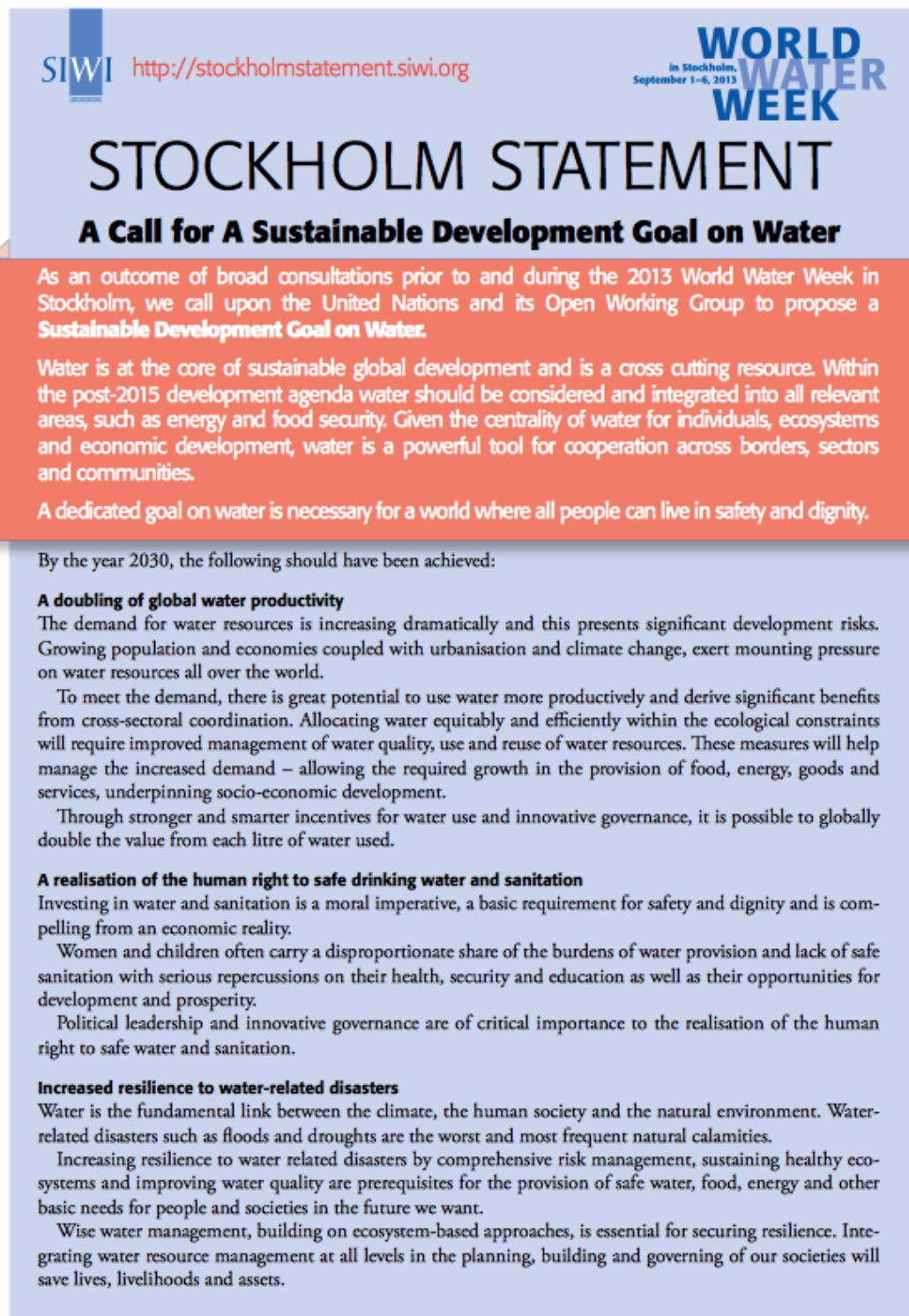
Partner:



Sponsor:



- Stockholm Statement: A call for a sustainable development Goal on Water (2013)



The graphic is a document cover for the Stockholm Statement. It features a light blue background with a white box at the top containing logos and text. The logos include 'SIWI' and 'WORLD WATER WEEK' (with 'in Stockholm, September 1-6, 2013' written below it). The main title 'STOCKHOLM STATEMENT' is in large, bold, black letters, followed by the subtitle 'A Call for A Sustainable Development Goal on Water' in a smaller, bold, black font. Below this, a red box contains the opening paragraph and a key message. The rest of the document is on a light blue background with white text, detailing the call for action and specific goals.

SIWI <http://stockholmstatement.siwi.org>

WORLD WATER WEEK
in Stockholm, September 1-6, 2013

STOCKHOLM STATEMENT

A Call for A Sustainable Development Goal on Water

As an outcome of broad consultations prior to and during the 2013 World Water Week in Stockholm, we call upon the United Nations and its Open Working Group to propose a **Sustainable Development Goal on Water**.

Water is at the core of sustainable global development and is a cross cutting resource. Within the post-2015 development agenda water should be considered and integrated into all relevant areas, such as energy and food security. Given the centrality of water for individuals, ecosystems and economic development, water is a powerful tool for cooperation across borders, sectors and communities.

A dedicated goal on water is necessary for a world where all people can live in safety and dignity.

By the year 2030, the following should have been achieved:

A doubling of global water productivity
The demand for water resources is increasing dramatically and this presents significant development risks. Growing population and economies coupled with urbanisation and climate change, exert mounting pressure on water resources all over the world.
To meet the demand, there is great potential to use water more productively and derive significant benefits from cross-sectoral coordination. Allocating water equitably and efficiently within the ecological constraints will require improved management of water quality, use and reuse of water resources. These measures will help manage the increased demand – allowing the required growth in the provision of food, energy, goods and services, underpinning socio-economic development.
Through stronger and smarter incentives for water use and innovative governance, it is possible to globally double the value from each litre of water used.

A realisation of the human right to safe drinking water and sanitation
Investing in water and sanitation is a moral imperative, a basic requirement for safety and dignity and is compelling from an economic reality.
Women and children often carry a disproportionate share of the burdens of water provision and lack of safe sanitation with serious repercussions on their health, security and education as well as their opportunities for development and prosperity.
Political leadership and innovative governance are of critical importance to the realisation of the human right to safe water and sanitation.

Increased resilience to water-related disasters
Water is the fundamental link between the climate, the human society and the natural environment. Water-related disasters such as floods and droughts are the worst and most frequent natural calamities.
Increasing resilience to water related disasters by comprehensive risk management, sustaining healthy ecosystems and improving water quality are prerequisites for the provision of safe water, food, energy and other basic needs for people and societies in the future we want.
Wise water management, building on ecosystem-based approaches, is essential for securing resilience. Integrating water resource management at all levels in the planning, building and governing of our societies will save lives, livelihoods and assets.

- Flyer Swiss Water Partnership for the World Water Week in 2014

SWISS WATER EXPERTISE AT THE WORLD WATER WEEK

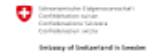
JOIN AN INTERACTIVE EVENT ON OUR BOOTH OR HAVE A COFFEE AND SWISS CHOCOLATE WHILST EXPLORING SWISS WATER EXPERTISE. SWP IS A MULTI-STAKEHOLDER PLATFORM BRINGING SWISS ORGANISATIONS ACROSS SECTORS TOGETHER TO FIND INNOVATIVE SOLUTIONS TO WATER & ENERGY SECURITY IN DEVELOPING AND TRANSITION COUNTRIES. OUR BOOTH ILLUSTRATES THE SWISS WATER EXPERTISE.

DAY	ORGANISATION	EVENT ON SWP BOOTH	THEMATIC EVENTS WITH SWISS KNOWHOW
SUN 31.8.	WATERLEX	17.00-18.00: NETWORKING APERITIF: A coherent legal framework to cut tradeoffs to water and energy security	14.00-17.30: K22/23: TACKLING TRADEOFFS BETWEEN WATER AND ENERGY ACROSS SECTORS AND SCALES
MON 1.9.	HELVETAS SWISS INTERCOOPERATION and SKAT SDC and QUANTIS SWISS EMBASSY	12.30-13.30: INSPIRATION THROUGH NETWORKING: Fostering synergies across water, food and energy in developing countries 17.00-17.30: SDC/QUANTIS: ISO 14046 water footprint LCA standard 17.30-18.30: SWISS EMBASSY/SWP: Swiss reception and networking event	12.45-13.45: K24: Water & Energy Nexus: Smart Investments to Help Realise Human Rights
TUE 2.9.	WORLD VISION and CEWAS	15.00-17.00: CEWAS: Sustainable Water Business with Integrity 17.00-18.30: CEWAS NETWORKING APERITIF	9.00-12.30: T2: Sanitation Business Models for Safe Resource Recovery and Reuse (RRR)
WED 3.9.	ANTENNA TECHNOLOGIES and GIWEH	12.00-13.00: WATASOL: Effective scaling up of safe water 17.00-18.00: GIWEH NETWORKING APERITIF	14.00-17.30: K22/23: From Faecal Sludge to Fuel: Safe Sanitation with Business Opportunities
THUR 4.9.	EAWAG	12.00-13.00: Learn more about EAWAG'S NEW E-COMPEDIUM	
FRI 5.9.	SWP	FAREWELL	

Exhibitors:



Partner:



Sponsor:



SWISS WATER PARTNERSHIP

ADVANCED SWISS SOLUTIONS FOR WATER AND ENERGY SECURITY



Swiss Water Partnership Panel

World Water Week

Presenter: Dr. Nidal SALIM- Director GIWEH

Madame: Shirouq ABAYACHE - Ministry of Water Resources- Iraq.

Title: Water Food Energy Nexus in Iraq and Middle East

The ongoing water crisis in Iraq has directly contributed to growing levels of food deprivation, displacement and poverty. Furthermore, Iraq has one of the most extensive irrigation systems in the world but years of war, underinvestment and sanctions have prevented it from properly harnessing what little water is left. Iraq's main rivers, the Euphrates and the Tigris, provide little relief to the parched plains as hydroelectric dams in neighboring Turkey, Iran and Syria have restricted the water flow.

Water Challenges :

- Water levels in the rivers have dropped
- Water quality is deteriorating
- Failing crops have forced possibly millions of people out of rural areas and into cities
- 83 percent of sewage discharged is untreated
- Government disorganization means improvement projects are delayed
- US Government reconstruction efforts include sewage and water projects, however this cannot solve the whole problem
- Oil production requires huge amounts of water (1.6 barrels of water for each 1 barrel of oil); therefore personal and agricultural consumption competes with economic development
- Water rights dominate Iraq's relationships with neighboring countries.
- Soil salinity and water scarcity are reducing food production.
- Lack of water threatens national hydroelectric production.

To overcome these challenges, Iraq created a new water law approved on 8 March 2004. GIWEH will enhance and strengthen articles 2, 7, 8 and 9 respectively:

Second: Introduce new technologies, which include technical, administrative, and financial, and personnel development and training.

Seventh: Coordinate and work with international, regional and Arab organizations as well as NGOs involved in water resources and environment activities.

Eighth: Follow up on joint international water agreements with neighboring and riparian states to ensure a fair share in quantity and quality of water

Ninth: Preparing technical and economic feasibility studies for projects for sustainable utilization of water.

With a focus on Iraq and perhaps broaden to the MENA region, the main objectives are to highlight and implement the water-food-energy nexus by identifying entry points for bringing nexus analyses into policy debates. GIWEH's two main interests are to influence the need for change in policies and strategies and empower the youth leaders to start learning and acting.

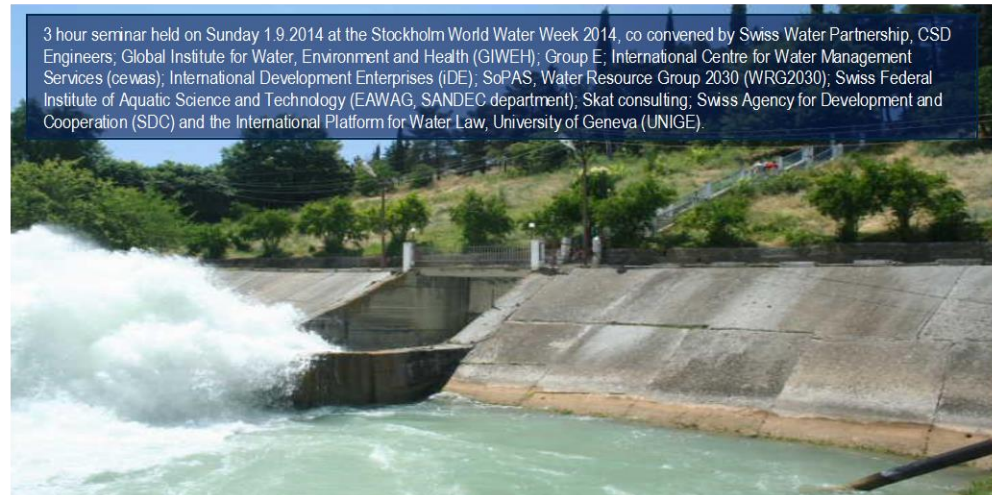
The need to change policies and strategies can start by strengthening the discussion for the "research-for-action" initiative. The initiative's goals are to inform, influence and catalyze action from the local to the global level of Sustainable Development Goals. These goals are reached by learning about good practices and then implementing the solutions that meet the needs and objectives for economic growth. Water and energy are also linked to the governance of trans-boundary river basins in Iraq and the MENA region. This governance structure should be based on negotiations and sharing transparent information, all the while being highly participatory.

To empower the youth leaders, learning about the nexus concept is accompanied with technology transfer and training future scientists in Nexus-thinking. By linking scientists and policy-makers across the region, we can build a critical group to share insights and experiences on an ongoing basis.

Iraq would like to enhance its experiences and receive the benefits from learning about good practices and the new solutions in technology. Additionally, Iraq would like to be a part of the international visions that adopt new concepts for the water strategy. Lastly, Iraq would like to empower the youth to continue these objectives.



Tackling trade-offs between water and energy across sectors and scales - Outcomes Report



- SWP Seminar outcome Report

Context



Figure 1: water food energy inter linkages

Freshwater and energy are crucial for human well-being and sustainable socio-economic development. **Population- and economic growth and changing consumer behaviors will increase the demand for food, energy and water.** By 2030, nearly half of the world's population will be living in areas of high water stress affecting energy and food security, **water resources will globally be overused by 40% and by 2035 global energy demand will increase by 50%** mainly caused by non-OECD countries and climate change exacerbates this trend. This leads to decreasing quantity and quality of available water resources and to increasing water, food and energy insecurity. **Currently most of these challenges are tackled in a silo approach with fragmented sectorial responsibilities, lack of coordination and cross sector communication.** There is consequently a need to improve the management of these limited resources and **identify synergies and shared benefits to accommodate interdependencies and minimize negative trade-offs.**

This seminar organized by the Swiss Water Partnership presents a series of advanced Swiss solutions aiming at tackling trade-offs between water and energy across sectors and scales. Solutions are discussed in the context of Tanzania and the Middle East and up-scaling potentials are identified.

Promising solutions

Increasing demand can either be dealt with by improving the management (increasing the savings, reducing the demand) or increasing the supplies, whilst negative trade-offs of the interdependencies have to be tackled by creating shared benefits. Throughout the seminar the following promising solutions were presented:

Increase efficiency, managing the demand

CSD Engineers & Groupe E presented integrated wastewater and energy management solutions in Switzerland. Whilst the lake Gruyere power plant built in 1944 only focused on energy production, over time solutions for a series of additional requirements such as drinking water intake, tourism, protection of the ecosystem and flood risk management had to be integrated. Integrated solutions identifying synergies across different interest groups and reducing trade-offs should be aimed at from the very beginning of a new project.



Figure 2: reserve storage for flood protection

IDE & SoPAS presented how more efficient irrigation technologies of smallholder farmers combined with solar energy and market approaches increase the water use efficiency. With the introduction of drip irrigation and the improved efficiency of energy sources smallholder farmers can produce more crop per drop with less energy. For sustainable dissemination a market creation approach with technical assistance and micro-finance is needed.

Increase the resources available, managing the supply

Skat consulting presented a combined solution to use hidden energy potentials in energy in drinking water and irrigation systems in Tunisia and Jordan. Often excessive hydraulic energy in water systems is destroyed, instead of being converted into electricity by upgrading existing infrastructures with micro hydro plants. There is a great potential for scaling-up these upgraded infrastructures, but hurdles such as lack of capacities, funds, no appropriate co-design have to be overcome.

EAWAG & Cewas presented examples how new synergies between sanitation, energy production and agriculture can be created by transforming waste and biomass to energy, fuels, and other useful materials. Examples include innovative composting facilities, biogas sanitation digesters, fecal sludge for animal fodder and slow pyrolysis of waste for char production. Best practices (technical solutions and business models) have to be researched and tested with adequate business models so that a series of context specific solutions are available and can be replicated elsewhere.



Figure 3: Char from waste

Create shared benefits



Figure 4: Manantali Dam on Senegal river

The international water law platform of the Geneva University presented how the joint ownership of infrastructure in a trans-boundary watercourse can foster cooperation of water and energy resources. The legal framework of the Senegal river helped in the planning, implementation and operation of joint water infra-structures such as the Diama and Manantali dams. For up-scaling, financing institutions supporting trans-boundary infrastructure projects play a key role.

The Swiss Agency for Development and Cooperation's presentation confirmed the important role of coherent policies to manage water and energy resources in trans-boundary watercourses and explained how a project to use joint water and energy resources can foster peace and cooperation among neighbouring states. The scaling up of such solutions depends on the political environment of the neighbours and on the legal framework applicable.

Scaling-up potential

Do proposed solutions match reality?

The **Water Resources Group 2030** presented the hydro-economic realities in Tanzania and how they try to support a business case for sustainable water resource management. Proposed remedies include improved farming and irrigation practices, future strategic management of water resources and promoting cross sectorial integrated planning for which many of the presented solutions are highly relevant.

The **Global Institute for Water, Environment and Health** presented the water-food-energy interdependencies in the **Near and Middle East (MENA)** and illustrated that green economy has great potential to solve some of the great challenges for this region with 57% of world's oil resources and only 1% of the global freshwater.



Panel discussion

Panelists (from left to right): Chris Zurbrügg, Anders Bertell, Nidal Salim, Alain Sapin, Bob Nanes

Success factors for promoting integrated approaches and scaling up cross-sector solutions?

- Purely technical solutions are easier to bring at scale than solutions touching upon politically sensitive issues. **Solutions across different sectors and countries require trust and time, but have the greatest potential (Anders Bertell).**
- Thinking about regional and large scale solutions is important, but in parallel small scale projects with a direct positive impact on the livelihood of the local population should be implemented (Nidal Salim).
- It is very important to act local whilst thinking global and including stakeholders from other sectors to finding integrated solutions from the beginning. (Alain Sapin)
- We have to expand our horizon and start seeing the business opportunities to generate additional value from smart waste management. We need research and test technical solutions, develop sustainable business models and put them into practice in the local context. **Scaling up does not necessarily mean making it bigger, but it also means replicating a well-functioning solution. (Chris Zurbrügg)**
- Solving problems depends a lot about the local economy and thus level of poverty and food production play an important role. **Scaling-up/replicating small scale solutions depends upon (Bob Nanes)**
 - 1) **Product design, business model and value chain;**
 - 2) **Private sector involvement and the supply chain;**
 - 3) **Communication to change the mind-set and behaviour of the people**
- To assure that these different projects are integrated in a strategic view it is crucial to doing previous analytical work pointing out different options and economic opportunities whilst involving different actors affected.

Conclusions (Olga Darazs)

- We need to **change our mind-sets and think more integrated**
- There is no one fits it all solution, a variety of **tailor made solutions** is needed
- The water, energy and food crisis is an **opportunity for new innovative solutions**

Next steps

- **Closer collaboration among co convenors coming from different sectors and scales**
- **Swiss conference on water and energy challenges and trade offs**
- **SWP input paper on water & energy**