The Basel Conference Switzerland

Basel Conference on IWRM for Participants of Central Asian Countries

Overall Programme

Basel, Switzerland
November 24-26, 2014

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Department of Foreign Affairs FDFA
Swiss Agency for Development and Cooperation SDC

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Participants

Government officials and parliamentarians from Kazakhstan, Kirghizstan, Tajikistan, Turkmenistan, Uzbekistan, IFAS representatives.

Venue

Hotel Merian in Basel situated on the river Rhine (Rheingasse 2).

The hotel and meeting venue "Merian Basel" is a historic landmark building, located right in the city center of Basel and on the river bank of the famous "Rhein". The building itself was initially mentioned in the early 14th century as it was located on the bridgehead and became an important entity of social and political life between former dived villages "Grossbasel" and "Kleinbasel". The building as it stands today was initially mentioned in 1841, when inaugurating the "Meriansaal", the place where the meetings will take place.

Dress code

Casual welcome dinner on Sunday evening: smart casual (without tie).

For all the Conference and diners: business (with tie), bring also warm clothing for Field Visit.

Additional comments

The modules are not strictly organized along the guiding theme because of the time constraint of certain speakers.

The moderators perform in their personal capacity.

Programme overview

Module 1: Challenges, risks and resilience in IWRM

Global risks and their management

Module 2: State of river basin and aquifers

History, experience, challenges, mitigation, resilience

Policy and transboundary aspects

Module 3: Research & development, technology and higher education

Networks and methods

Developments in science and technology as well as education

Innovative monitoring and modeling

Development of international water law

Module 4: Field visit to the Rhine basin

Transboundary cooperation in the Rhine basin

Flood risks management and cooperation in Europe

Projects: Rheinfelden waterpower station, regulation lake of Biel, alarm station Weil, ground water recharge of Lange Erlen in Basel

Module 5: Round tables

1st Round table: Common features and differences in river basin and aquifer management, including suggestions by participants

2nd Round table: Key dimensions of future IWRM strategies, including suggestions by participants

Conclusions of 1st and 2nd round table: Future attention, lessons learned from the Basel Conference

Detailed programme

SUNDAY, 23 November 2014

During the day	**Hotel Merian (Basel Rheingasse 2)** Delegations arrive at EuroAirport Basel and will be welcomed
18:30	**Casual standing welcome dinner with some practical information on the conference**

MONDAY, 24 November 2014

Venue: Hotel Merian, Basel

	Module 1: Challenges, risks and resilience in IWRM Global risks and their management
	Moderator: Peter A. Fischer, Economics-Editor-in-chief of Neue Zürcher Zeitung
8.30	**Opening of the Basel Conference by State Secretary of Federal Department of Foreign Affairs, Yves Rossier** Swiss commitments – addressing global and regional challenges The Swiss engagement in Central Asia and its outlook Engagement of Switzerland for the Post-2015 Agenda, with special focus on water
9.00	**Interventions by the delegations** Each delegation will have the opportunity to give a statement at this stage of the conference. In the context of each presentation the participants will also be encouraged to actively contribute to the debate.
10.00	**Herbert Oberhänsli: Vice President Economics & International Relations, Nestlé SA** Mitigation of water risks in global and regional economic activities – a private sector view
10.45	**Coffee break**
11.00	**Prof. Anton Schleiss: Director of Hydraulic Engineering Lab, Swiss Federal Institute of Technology Lausanne** Worldwide role of hydropower in sustainable multipurpose development On-going research initiatives in Switzerland
12.00	**Dr. Shenggen Fan: Director General, International Food Policy Research Institute - IFPRI** Ensuring food and nutrition security in a green economy in arid and semiarid regions
13.00	**Closing of module 1 (moderator) followed by lunch**
	Lunch

	Module 2: State of river basins and aquifers History, experience, challenges, mitigation, resilience Policy and transboundary aspects
	Moderator: Volker Frobarth
14.30	**Daniel Valensuela: Deputy General Director, International Office for Water / International Network of River Basin Organizations** Lessons learned from 10 years of river basin management at global level **Christian Bréthaut: Coordinator of GOUVRHÔNE Project, University of Geneva** Transboundary water management in the Rhône river basin (GOUVRHÔNE Project)
15.30	**Prof. Wolfgang Kinzelbach, Institute of Environmental Engineering, Swiss Federal Institute of Technology Zurich** Role of groundwater as buffer in the context of conjunctive use in irrigation societies. Global perspective and China experience **Gabriel de Los Cobos, Head of Hydrogeology Branch (Geology, Soil & Waste), State of Geneva** Management of the Geneva aquifer: History, sustainable exploitation of groundwater, transboundary cooperation between Switzerland and France (incl. European context)
16.30	**Coffee break**
17.00	**Prof. Bernhard Wehrli: Institute of Biogeochemistry and Pollutant Dynamics (IBP), Swiss Federal Institute of Technology Zurich and Swiss Federal Institute of Aquatic Sciences and Technology (Eawag)** **Cooperating for sustainable water management** Improving and maintaining water quality (incl. Swiss experience) Combining education, research and development
18.00	**Closing of module 2 (moderator)**
18.55	**Historic Basel tramway (departure for)**
20.00	**Official dinner with cultural program** Diner at restaurant '**Löwenzorn**' with medieval theme Welcome address on behalf of the government of the city of Basel by Executive Councilor Christoph Brutschin Welcome address by Pio Wennubst, Ambassador, Assistant Director General of SDC

TUESDAY, 25 November 2014

Venue: Hotel Merian, Basel

	Module 3: Research & development, technology and higher education Networks and methods Developments in science and technology as well as education Innovative monitoring and modeling Development of international water law
	Moderator: Volker Frobarth
8.15	**Gudrun Schwilch, Head of Natural Resource Cluster, Centre for Development and Environment (CDE), University of Bern** **Thorunn Petursdottir, Expert with Soil Conservation Service of Iceland (SCSI)** **Mitigation of land and water degradation by sustainable land management** Global knowledge platform (WOCAT), European research collaboration (RECARE), Restoration and resilience training
9.30	**Bruce Stewart, Director Water and Climate Department, World Meteorological Organization (WMO)** Hydrology and water data management: The case for common standards, joint products and cooperative approaches (WMO and UN-Water activities) **Paul Haener, Head of 'Water Information System Unit', International Office for Water** Innovation in water modeling and monitoring with an ongoing pilot in Central Asia (iMoMo)
10.30	**UNITAR-UNOSAT (a cooperation with CERN)** **Einar Bjorgo, UNOSAT Manager, UNITAR** Video presentation on water resources mapping: case of UNOSAT's ResEau Chad project
10.45	**Coffee break**
11.00	**Prof. Mara Tignino, Lecturer and Coordinator of the Platform for International Water Law, Faculty of Law of the University of Geneva** Latest development of international law in the context of IWRM Short briefing on UNITAR's course

11.45	**Closing of module 3 (moderator)**
12.00	**Standing lunch**

Field visit

	Module 4: Field visit to the Rhine basin with presentation on transboundary cooperation
	Organizer and Moderator: Manfred Spreafico, Prof. Emeritus of University of Berne, Former President of the International Commission for the Hydrology of the Rhine Basin
13.15	**Introduction to field visits and presentation of transboundary cooperation in the Rhine basin (European context)**
14.00	**Visit of the waterpower station of Rheinfelden (departure for)** Water use in a bilateral context Sharing infrastructure between two bordering countries Sluices and fish channels
15.15	**Visit of the Hagneck channel inflow into the lake of Bienne (departure for)** **Paul Dändliker, Swiss Federal Office for the Environment, Switzerland** Jura rivers and lakes corrections
16.15	**Oliver Overney, Swiss Federal Office for the Environment, Switzerland** Swiss flood protection strategy with brief outlook on the European context
17.00	**Visit of the lake Bienne regulation and other infrastructures at Aare - Port (departure for)** Explanations by Paul Dändliker
17.30	**Departure to Basel, Hotel Merian**
20.00	**Departure to Bottmingen castle**
20.30	**Diner at restaurant Weiherschloss (Bottmingen castle)** Welcome address by Arthur Mattli, Ambassador, Assistant State Secretary of FDFA

WEDNESDAY, 26 November 2014

Field visit

	Module 4: Field visit to the Rhine basin (continuation of module 4) Visit of the international monitoring and alarm station Weil Visit of the groundwater recharge infrastructure Lange Erlen in Basel
	Organizer and Moderator: Manfred Spreafico, Prof. Emeritus of University of Berne, Former President of the International Commission for the Hydrology of the Rhine Basin
8.00	**Michael Szönyi: Zurich General Insurance** Integrated flood risk management – an insurer's view
8.45	**Visit of the international monitoring and alarm station Weil (departure for)** Water monitoring for control and planning Control station for water quality of the international alarm system of the Rhine river
10.30	**Visit of the groundwater recharge facility Lange Erlen, Basel (departure for)** Recharge infrastructure for infiltration of surface water into groundwater for water supply
12.00	**Departure to Hotel Merian in Basel**
12.15	**Closing of module 4 (moderator/organizer)**
12.30	**Buffet lunch**

Venue: Hotel Merian, Basel

	Module 5: Concluding sessions with round tables
	Moderator: Manfred Spreafico
14.30	**First round table – Overall conclusions on common features and differences in river basin and aquifer management, including suggestions by participants** Overview and deliberation on outcomes of the modules 1 – 4 in the IWRM of river basins and aquifers Focus on state, challenges, risks and solutions
	Moderator: Volker Frobarth
15.15	**Second round table – Overall conclusions on key dimensions of future IWRM strategies (21st century policy framework), including suggestions by participants** Overview and deliberation on outcomes of modules 1 – 4 for future IWRM in the context of post-2015 Agenda
16.00	**Conclusions of first and second round table** Determine core topics for future attention Lessons learned from the Basel Conference
17.00	**Closing of the Basel Conference by Manuel Sager, Director General of the Swiss Agency for Development and Cooperation - SDC**
after-wards	**Departure according to individual schedules**
eve-ning	**Casual dinner for delegates departing on November 27**

Presenters' CVs and abstracts

Herbert Oberhänsli: Vice President Economics & International Relations, Nestlé SA

CV

Vice President / Head Economics and International Relations (Chief Economist) / Assistant to the Chairman of the Nestlé Group – Economic Affairs, Nestlé S.A, Vevey/Switzerland.

1985 to date: Nestlé S.A., Vevey, consecutively deputy head investors relations, assistant for economic affairs to the CEO and chairman of Nestlé Group; present position since 2010.

1982-85: Swiss Ministry of Economics, Bern: economics department and directorate for the export credit insurance within the Federal Office for Foreign Economic Affairs. Work on competitiveness of Switzerland in the global economy, responsible for building up a country risk evaluation system.

1974-82: Swiss Institute for International Economics at the University of St. Gallen: participating in, then leading various projects in international economics and innovation research mandated by industry, Swiss National Bank, Swiss Ministry of Economics and the government financed Swiss Science Foundation. Main subjects: imports from developing countries, impact of exchange rate changes on Swiss competitiveness, risk from foreign debt, innovation in small and medium sized enterprises, stabilisation of commodity prices in times of inflation.

Abstract

Mitigation of water risks in global and regional economic activities – a private sector view

For centuries, water has been a driver of growth, prosperity and human wellbeing. And for a very long time it was abundant.Only some 10 years ago, global annual withdrawals driven by population growth and higher prosperity started to exceed sustainable availabilities, and the gap continues to increase rapidly. Water overuse, a matter of mainly local interest to industry (and, obviously, governments as well as many stakeholders around a watershed) has turned into a major issue of global concern. In the list of major risks for economic and human development set up by a group of analysts at the World Economic Forum, water ranked among the top three for three consecutive years now – initially as an environmental challenge, but then quickly re-defined and extended to a societal risk.

How does water matter for a company like Nestlé? First, the farmers withdrawing water growing the food that we transform in our factories should not be affected by water shortage. But actually, as the biggest users of freshwater – about 70% of all water withdrawn for human use goes to farms – their risk to suffer from water scarcity is highest, with a possible scenario of 30% global shortfalls in cereal production worldwide by 2025. Second, we need water – not big volumes – for our factories, for workers and their families. Third, we can only be successful if water is safe for the consumers of our products, to prepare the dishes and beverages. We address this triple challenge with own action, action in partnership (e.g., also with DDC) and action in broad coalitions, such as the 2030 Water Resources Group. Last but not least, we participate in the public policy dialogue on water, for instance with the blog of our chairman, www.Water-Challenge.com.

Prof. Anton Schleiss: Director of Hydraulic Engineering Lab, Swiss Federal Institute of Technology Lausanne

CV

Prof. Dr. Anton J. Schleiss graduated in Civil Engineering from the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland, in 1978. After joining the Laboratory of Hydraulic, Hydrology and Glaciology at ETH as a research associate and senior assistant, he obtained a Doctorate of Technical Sciences on the topic of pressure tunnel design in 1986. After that he worked for 11 years for Electrowatt Engineering Ltd. in Zurich and was involved in the design of many hydropower projects around the world as an expert on hydraulic engineering and underground waterways. Until 1996 he was Head of the Hydraulic Structures Section in the Hydropower Department at Electrowatt. In 1997 he was nominated full professor and became Director of the Laboratory of Hydraulic Constructions (LCH) in the Civil Engineering Department of the Swiss Federal Institute of Technology Lausanne (EPFL). The LCH activities comprise education, research and services in the field of both fundamental and applied hydraulics and design of hydraulic structures and schemes. The research focuses on the interaction between water, sediment-rock, air and hydraulic structures as well as associated environmental issues and involves both numerical and physical modeling. Actually 14 Ph.D. projects are ongoing at LCH under his guidance. Prof. Schleiss is also involved as an international expert in several dam and hydropower plant projects all over the world as well as flood protection projects mainly in Switzerland. From 2006 to 2012 he was Director of the Civil Engineering program of EPFL and chairman of the Swiss Committee on Dams (SwissCOLD). In 2006 he obtained the ASCE Karl Emil Hilgard Hydraulic Price as well as the J. C. Stevens Award. He was listed in 2011 among the 20 international personalities that “have made the biggest difference to the sector Water Power & Dam Construction over the last 10 years”. In 2012 he was elected vice-president of the International Commission on Large Dams (ICOLD) representing the zone Europe. 2014 he became also Council member of International Association for Hydro-Environment Engineering and Research (IAHR) and chair of the Europe Regional Division of IAHR.

Abstract

Worldwide role of hydropower in sustainable multipurpose development
On-going research initiatives in Switzerland

The purpose of this conference is to outline that hydraulic schemes are key factors of economic prosperity and of sustainable development in this millennium. After discussing various fields of application of hydraulic schemes, the present situation in the world will be presented with regard to dams and hydropower as well as irrigation. By giving the perspectives for the future, the topic of sustainable development will be briefly discussed by comparing the recovery factors of primary energy of electric power plants. Unfortunately the sustainable use of the reservoirs is not guaranteed in long term since the today’s world wide yearly loss of storage capacity due to sedimentation is already higher than the increase of capacity by the construction of new reservoirs for irrigation, drinking water and hydropower. The future tasks and strategies needed for development of hydraulic schemes will be discussed. The on-going research initiatives in Switzerland with the purpose to enhance hydropower production and to increase its flexibility in a highly uncertain market will be addressed.

Dr. Shenggen Fan: Director General, International Food Policy Research Institute - IFPRI

CV

Shenggen Fan (樊胜根) has been Director General of the International Food Policy Research Institute (IFPRI) since 2009. Dr. Fan joined IFPRI in 1995 as a research fellow, conducting extensive research on pro-poor development strategies in Africa, Asia, and the Middle East. He led IFPRI's programme on public investment before becoming the director of the Institute's Development Strategy and Governance Division in 2005.

He now serves as the Vice-Chairman of the World Economic Forum's Global Agenda Council on Food and Nutrition Security, after serving as Chairman of the Council from 2012 to 2014. In 2014, Dr. Fan received the Hunger Hero Award from the World Food Programme in recognition of his commitment to and leadership in fighting hunger worldwide. Dr. Fan received a PhD in applied economics from the University of Minnesota and bachelor's and master's degrees from Nanjing Agricultural University in China.

Abstract

Ensuring food and nutrition security in a green economy in arid and semiarid regions

More than 1 billion people live in arid and semiarid regions, where many suffer from hunger and malnutrition. Within Central Asia, much progress has been made to reduce hunger, though under nutrition remains a problem, evidenced by high rates of child stunting in the region. In addition, some countries in the region face rising prevalence of overweight and obesity, which contribute additional burdens given the particular challenges faced in arid and semiarid regions. Agriculture and the livelihoods of rural populations in arid and semiarid areas are highly dependent on availability of and access to irrigated water. In regions such as Central Asia, water is also an important source of energy for upstream countries, for example Kyrgyzstan and Tajikistan. Thus, the interactions between food, water, and energy have important implications for ensuring food security and nutrition in the region while fostering green economic development. The food security and nutrition of poor people in arid and semiarid regions is particularly threatened by high land and water constraints as well as recurring droughts which contribute to rising food prices and volatility and severe food crises. Climate change is expected to further put at risk food security and nutrition with increased frequency and intensity of extreme weather events. Sustainable intensification is critical to produce more nutritious foods with more efficient use of inputs and natural resources on a durable basis, while at the same time promoting a green economy. This presentation will focus on a nexus approach between food security, water, and energy to achieve food security and nutrition goals as well as green goals in arid and semiarid regions.

Daniel Valensuela, Deputy General Director, International Office for Water

CV

Daniel Valensuela, 66 years old, is 'General Engineer' in France, member of the state corps of Engineers of Bridge, Water and Forestry. He is the Deputy Manager of the International Office for Water IOWater), and assistant to the technical secretary of INBO (International Network of Basin Organisations). He has worked in many areas such as agronomy, rural economy and agriculture administration.

Since 1992 he has been working in the water sphere, first at the local level in France, then

at international level. In particular, he was seconded from 2001 to 2006 by the French Government to the Global Water Partnership, in Stockholm, Sweden, with the responsibility of Head of Africa Water Network. Since 2007 he has been working in the IOWater and the network INBO.
He is specialised in the implementation of the Integrated Water Resource Management approach, improvement of water governance and institutional reforms, water stakeholder participation, capacity building in the field of water as well as development of basin organisations at relevant scale. He also has expertise in adaptation to climate change in the framework of basin management.
He has actively participated in many global conferences such as the World Water Forums (Marseille, Istanbul, Mexico, Kyoto, The Hague), the Water Decade Conference (Dushanbe), and the African Seminar on Trans-boundary Water Resource Management. He was a key player in the preparation of two handbooks: 'IWRM at basin levels' and 'IWRM at transboundary basin level'.

Abstract
Lessons learned from 10 years of river basin management at global level
Water management at basin level has been internationally recognized for 10 years as a necessity to improve water resource management everywhere and to achieve a balanced and sustainable water management. Some countries like Spain or France and some international rivers (like Senegal or Niger) have been experimenting water management at national or transboundary basin scale for several decades.
However, most of the countries or transboundary basins have been involved in such type of management more recently. From all these experiments, Daniel Valensuela will draw the major lessons learned and guidelines that should be used to strengthen or develop basin management in the river, lake and aquifer context, at national or transboundary level.

Christian Bréthaut: Coordinator of GOUVRHÔNE Project, University of Geneva

CV
Christian Bréthaut is researcher and lecturer at the Institute for Environmental Sciences of the University of Geneva. His work focuses on the analysis of environmental policies in general and on the management of water in particular. He also particularly works on transboundary water governance issues, on the adaptation capacities of institutions to climate changes and on the link between science and policy. He is currently coordinating the research project GOUVRHONE that analyses transboundary governance issues of the Rhone. Since August 2014, he also leads the Education & Knowledge component of the Geneva Water Hub; a platform gathering educational resources and an international research network working on water governance issues.

Abstract
Transboundary water management in the Rhône river basin (GOUVRHÔNE Project)
The operational management of the Rhone river is essentially depending on hydropower producers. Since the early 2000, several issues of coordination emerged asking for re-thinking coordination mechanisms being implemented. GOUVRHONE's research project aims to analyse the present and future governance structure of the river and to propose inputs in order to consider the Rhone not only as a tool of production but also as a true hydrosystem from which several water users benefit.

Prof. Wolfgang Kinzelbach, Institute of Environmental Engineering, ETHZ

CV

Wolfgang Kinzelbach studied physics at the Universities of Mainz and Munich. He earned his doctorate in Environmental Engineering from the University of Karlsruhe. His professional activities have taken him to Maiduguri, Nigeria, the Nuclear Research Center in Karlsruhe, and the Environmental Research Institute of the Academia Sinica in Beijing. In 1988 he was appointed full professor of Technical Hydraulics and Hydrology at the University of Kassel and in 1993 full professor of Environmental Physics at the University of Heidelberg. Since 1996 he has been full Professor of Hydromechanics at the ETH Zurich.

His research focuses on flow and transport processes in the environment with practical applications in water resources management, pollution control, remediation and nuclear waste isolation. His current main interest is sustainable water resources management in arid and semi-arid regions, mainly in Africa and China. He was awarded with the Koerber European Science Prize, the Henry Darcy medal of the European Geophysical Society, the Saudi-Arabian Prince Sultan International Prize for Water and the Muelheim Water Award. He is a fellow of the American Geophysical Union and Distinguished Affiliated Professor of the Technical University of Munich. He has published 5 books and more than 150 ISI-articles.

Abstract

Role of groundwater as buffer in the context of conjunctive use in irrigation societies; Global perspective and China experience

About one quarter of groundwater pumped worldwide is not replenished by recharge. Falling groundwater tables signalize unsustainable water use. This is mainly due to irrigated agriculture which is responsible for about 70% of groundwater pumping. Falling groundwater tables do not only increase the energy needed for pumping, they also diminish the aquifer's capability to buffer drought years, lead to decline of base flows in streams and possible degradation of water quality. Despite the energy cost, groundwater is a convenient resource available year round and at the point of use. Used conjunctively with surface water, groundwater reservoirs can help in adapting to climate variability. While surface water is easily controlled at a reservoir outlet, groundwater pumping wells are so numerous that control is a challenge. The main obstacles to rational management are wrong incentives, lack of transparent fee systems, and lack of real sanctions. We suggest that modern technology combined with drought insurance provides a vision towards a solution. An example from China illustrates that vision.

Gabriel de Los Cobos, Hydrogeologist, Geology, Soil and Waste Department (GESDEC), State of Geneva

CV

Gabriel de los Cobos qualified as a geologist and hydrogeologist at the Universities of Geneva and Neuchâtel, with a doctorate from the Swiss Federal Institute of Technology of Lausanne (EPFL). He has been involved in research and teaching and has worked in the private sector as well as on humanitarian issues, mainly in Africa. He has been a hydrogeologist since 1998 and since that time is the head of the Geology and Groundwater section in the Service of Geology, Soils and Waste of the State of Geneva. As such, he is also a member of the Transboundary Committee for Genevese

Groundwater Management.
Apart from his duties in the Department of Environment, Transport and Agriculture of the canton of Geneva, he also participates in the management and protection of the transboundary groundwater as it relates to the drinking water supply. He has written several scientific articles on the artificial recharge of the Genevese aquifer and transboundary water management. He has published a book which traces the 40-year history of the shared management of Franco-Genevese groundwater.

Abstract

Management of the Geneva aquifer: History, sustainable exploitation of groundwater, transboundary cooperation between Switzerland and France (incl. European context)

The artificial recharge system of the transboundary Genevese aquifer has been operating successfully since 1980, thus allowing for groundwater levels that are sufficiently high to compensate for peak flows due to heavy pumping of the water, especially in the summer months when the demand is greatest. While the aquifer provides around 20% of the total drinking water supply, for over 30 years the artificial recharge system has made it possible for 450 million metric cubes of water to be used. Transboundary groundwater management, coupled with the technical success of the aquifer recharge system, have guaranteed safe drinking water for Geneva and the surrounding region by diversifying and optimising the quantitative and qualitative potential of existing water resources. An agreement relating to the use, recharge and monitoring of Franco-Swiss Genevese groundwater was signed between local French communities of Haute Savoie (Upper Savoy) and the State of Geneva in 2007. The agreement is a rare example of a transboundary aquifer management agreement between a Swiss canton and European Union communities.

Due to the radical change in demographics over the past seven years and the economic attractiveness of the Geneva region, there is an ever greater trend towards establishing a cross border approach. A committee on a "transboundary water community" was even formed in 2007. There are working groups who meet to deal with the various technical aspects of the transboundary community so as to establish a common water resources management system in the near future, in line with the needs and development of the region.

Finally, an agreement protocol for cross border cooperation in water management was signed on December 3, 2012. This Water Community is included in the Franco-Valdo-Genevese regional project which will seek to create a common strategic environmental vision across the territory and which will include patrimonial, social and economic aspects.

Prof. Bernhard Wehrli, Institute of Biogeochemistry and Pollutant Dynamics (IBP), Swiss Federal Institute of Technology Zurich and Swiss Federal Institute of Aquatic Sciences and Technology (Eawag)

CV

Bernhard Wehrli is Full Professor for Aquatic Chemistry at the Department of Environmental Systems Science at ETH Zurich. He is a member of the directorate of Swiss Federal Institute of Aquatic Science and Technology (Eawag). The research of his group is focused on the assessment of biogeochemical processes in rivers and lakes. The group combines chemical sensors, stable isotope techniques and molecular ecology to quantify carbon and nutrient cycles in aquatic systems. Part of his research is focused on the development of interdisciplinary approaches to improve the sustainable management

of water resources.
Bernhard Wehrli studied chemistry at ETH Zurich and sanitary engineering and water protection in a graduate course. After receiving his Ph.D. on the geochemistry of vanadium in the group of Werner Stumm, he spent one year working as a postdoc on weathering processes at Caltech in Pasadena. He was a guest scientist at the University of Paris 6 and more recently in Toulouse, France. He was appointed assistant professor for Aquatic Chemistry at ETH Zurich in 1991 and he got tenure in 1997.

Abstract
Cooperating for sustainable water management
Improving water quality in a sustainable way requires cooperation at the local, regional and international level. Over more than 50 years, Switzerland has developed its water infrastructure in order to improve and maintain high water quality standards in groundwater, rivers and lakes. To that end cooperation between communities was fostered within the country and international treaties, agreements and governing bodies now work towards a more sustainable management in international water systems such as the Rhine river or lake Geneva. Global treaties such as the Minamata convention are necessary to address persistent global pollutants such as mercury. Education and research are powerful vehicles to foster cooperation and mutual understanding in the water sector. Switzerland is the home of internationally renowned study programs in environmental science and actively supports research for development in the water sector.

Gudrun Schwilch, Head of Natural Resource Cluster, Centre for Development and Environment (CDE), University of Bern

CV
Gudrun Schwilch is a Senior Researcher and Head of the Natural Resources and Ecosystem Services Cluster at the Centre for Development and Environment (CDE) of the University of Bern, Switzerland. She is a physical geographer and has a PhD in Land Degradation and Development from Wageningen University, The Netherlands. Her research interests lie in sustainable land management (SLM) and desertification mitigation, natural resource management, database and decision support development, participatory processes and multi-stakeholder learning. She has been involved in the global WOCAT (World Overview of Conservation Approaches and Technologies) network in overall coordination and methodology development; and she is currently engaged in several EU research projects on land issues.

Abstract
Mitigation of land and water degradation by sustainable land management
CDE is a research center dedicated to sustainable development. Coping with the continued degradation of ecosystems (in agricultural land, pastoral land and forests) and natural resources (water, soil, flora and fauna) requires new research approaches. On the other hand, increased global concerns like climate change, disasters and food security are now seen as an opportunity of increased attention, and may trigger funds for sustainable and adaptive land and water management. The diverse forms of degradation, such as erosion by soil and water, vegetation degradation, physical and chemical deteriorations, have various effects and impacts on-site as well as off-site. This requires understanding the whole watershed system, including its socio-economic context. The concept of

Sustainable Land Management SLM is currently the most promising solution because SLM measures are economically viable, socially acceptable and ecologically compatible. The international WOCAT network documents and promotes SLM through its global platform. In the EU-RECARE project, the ecosystem service concept is operationalized for practical application in preventing and remediating degradation of soils in Europe. At the Frienisberg study site in Switzerland new measures against soil erosion are developed together with stakeholders from local, regional and national level. Inter- and transdisciplinary approaches are needed in research as well as in cross-sectoral national and international collaborations.

Thorunn Petursdottir, Expert with Soil Conservation Service of Iceland (SCSI)

CV

Thorunn Petursdottir is a restoration ecologist, emphasising on transdisciplinary approaches in resilience-based management of natural resources. She is the head of the Centre for Ecosystem Restoration and Resilience-based Management, run by the Soil Conservation Service of Iceland. Her research focuses on analysing the social-ecological context of large-scale restoration projects, monitoring and evaluating their long-term impacts and how to embed ecosystem restoration into resilience-based management of natural resources.

Ms. Petursdottir is a former member of the board of directors of the Society of Ecological Restoration (www.ser.org) and currently involved in a couple of European research and network programs.

Abstract

Mitigation of land and water degradation by sustainable land management

Ecosystem degradation is one of the greatest environmental challenges the world is currently facing; affecting the wellbeing of humans all over the world. Overexploitation of natural resources combined with extreme climate condition has in many cases led to severe soil erosion and vast desertification. That is the story of Iceland after only 1100 years of settlement. Since 1907 the Icelanders have effectively worked on restoring collapsed ecosystems and preventing further ecological damages of remaining natural systems by improved management practices.

The examples of successful and partially failed projects show that ecosystem restoration is a complex social-ecological process. It shows that successful restoration relies on clear and transparent policies, comprehensive institutional capacity, profound ecoliteracy and social cohesion amongst all involved stakeholders. The Icelandic experience also reveals that each restoration project is embedded in a social-ecological focal system and needs to be treated as such. To ensure long-term progress, restoration policies needs be designed and implemented in accordance to ecological requirements. They should also be in line with local preferences and needs. Furthermore, restoration projects should be monitored and evaluated on a regular basis as part of resilience-based management plans.

Bruce Stewart, Director Water and Climate Department, World Meteorological Organization (WMO)

CV

Bruce Stewart worked as a hydrologist with the Queensland Water Resources Commission and the Northern Territory Power and Water Authority in Australia for 14

years. From 1988 to 2011 Stewart was employed by the Australian Bureau of Meteorology. He held a variety of Assistant Director level positions in the Bureau, managing the hydrology, climate, special services and national meteorological and oceanographic center functions at various times. In recent years he assisted with the establishment of the Water Division and was responsible for the Bureau's Climate Information Services. Stewart has a long history of involvement with the WMO. For the period 2004-2010 he was president of the Commission for Hydrology. In January 2011, he joined the WMO Secretariat as the Chief, Basic Systems in Hydrology. In June 2012, he was appointed Director, Climate and Water Department in the WMO.

Abstract

Hydrology and water data management: The case for common standards, joint products and cooperative approaches (WMO and UN-Water activities)

Water resources cannot be managed, unless we know where they are, in what quantity and quality, and how variable they are likely to be in the foreseeable future. Data from hydrological networks are used by public and private sectors for a variety of applications, including, inter alia, planning, designing, operating, and maintaining multipurpose water management systems; the preparation and distribution of flood forecasts and warnings aimed at protecting lives and property; the design of spillways, highways, bridges, culverts; floodplain mapping; determining and monitoring environmental or ecological flows; managing water rights and transboundary water issues; education and research; protecting water quality and regulating pollutant discharges (USGS, 2006). These applications will be significantly impacted by climate change. This presentation will focus on WMO's contribution to hydrological data collection and cover as aspects related to quality management in the collection of hydrological data, especially in regarding stream flow gauging, network design and capacity building for services delivery, especially in relation to the Global Framework for Climate Services (GFCS).

Paul Haener, Head of 'Water Information System Unit', International Office for Water

CV

After 10 years in the water management and information sector in Africa, M. Haener has developed more than 20 years of international experience with the International Office for Water in water information systems design and development : organisational and technical support to international, national and basin shared information systems on water (needs identification, definition of inter institutional agreements, rules for data and services interoperability, rules for data sharing between institutions, organising production and dissemination of the expected information; technical aspects related to common language for data interoperability, and to the technical architecture including generally Web portals, databases, GIS, metadata catalogues, knowledge management tools, …).

In this framework, he was regularly involved as project leader or key expert in various projects related to: i) The organisation of water information systems concerning national and international basins (Var river in France, Irtysh basin between Russia and Kazakhstan, Körös River between Hungary, Sabarmati river in India, Dong Nai basin in Vietnam, Aral sea basin in central Asia, Dniester basin, Mekong river sub-basin basins, Volta basin….). ii) The organisation of national and regional water related data and information exchange (Feasibility study and implementation of the Euro-Mediterranean Water information system, development of the Mexican National Water Information System, studies for Russia, Brazil, Poland Romania, Vietnam, Laos, Cambodia, Ecuador, Colombia, …).

Abstract

Innovation in water modeling and monitoring with an ongoing pilot in Central Asia (iMoMo)

Both at transboundary, national or local scale, the easy access to information on the status and evolution of water resources and uses is one of the keys to a successful water policy implementation.

Unfortunately, the necessary data is usually fragmented/incomplete/dispersed and heterogeneous, and when it exists, it is difficult to access and interpret. This limited access to the necessary data which can be source of conflicts and generate significant negative economic impacts, can be improved with a political will and the adoption of adhoc action plans aiming to adapt and/or complete the monitoring following the needs, make the existing data easily accessible and readable, and organizing data interpretation and the production of the information in order to answer to the expectations of the final users. Paul HAENER (International Office for Water) will underline some of the main key challenges and will briefly present some success study cases related to water data production/management/interpretation, among which the IMoMo project presently developed in Central Asia with the support of SDC.

Prof. Mara Tignino, Lecturer and Coordinator of the Platform for International Water Law, Faculty of Law of the University of Geneva

CV

Prof. Mara Tignino is a Senior Researcher and Coordinator of the Platform for International Water Law at the Faculty of Law of the University of Geneva. Her areas of expertise include the protection of water in time of armed conflict, the rights and duties of non-state actors in water resources management and the settlement of water disputes. Tignino also serves as a consultant to governments, international organizations, NGOs and the private sector. She is author of the book L'eau et la guerre: éléments pour un régime juridique with the Geneva Academy for International Humanitarian Law and Human Rights (Brussels: Bruylant 2011) and co-editor of the book International Law and Freshwater: the Multiple Challenges with Edward Elgar. Tignino received a BA in Political Science from the Libera Università Internazionale degli Studi Sociali in Rome, and a PhD and master's degree in International Law from the Graduate Institute of International and Development Studies in Geneva. She has also been a Visiting Scholar at the George Washington University School of Law in Washington DC.

Abstract

Latest development of international law in the context of IWRM

Short briefing on UNITAR's course

International law increasingly plays a significant role in the management and protection of transboundary water resources. International norms govern a panoply of water uses such as navigation, the delimitation of boundaries, the production of hydroelectricity as well as agricultural uses. Since the 1970s, the protection of the environment and the protection of basic water needs have emerged as essential requirements to take into account with the aim to achieve integrated water resources management (IWRM). International organizations such as the United Nations and the World Bank have contributed to the development of international legal and institutional frameworks on shared water resources. The presentation will put special focus on the *United Nations Convention on the Law for the Non-Navigational Uses of International Watercourses* of 1997, the *Convention on the Protection and Use of Transboundary Watercourses and International*

Lakes of 1992 and the *Draft Articles on the Law of Transboundary Aquifers* of 2008. Some case-law will also be presented to examine the role of international courts and tribunals in the development of international water law.

Michael Szönyi: Zurich General Insurance

CV

Michael Szönyi is a Senior Risk Engineer with the Zurich Insurance Company, working in the role of Flood Resilience Specialist, assessing flood hazards and flood risks and advising the company and the alliance partners on risk insights and risk mitigation strategies as part of Zurich's flood resilience program.

He provides support to our community projects in Mexico, Nepal, Indonesia and Peru on technical flood aspects, flood resilience assessment and measurement and supports the research work streams with our alliance academic organizations. In addition, Michael is leading the post-event review function, analysing large flood events around the world. This function is based on on-site research during and after the flood events in-country as well as third party review. Michael's role is based in Risk Engineering, where he previously led the Global Technical Center for Natural Hazards. He has over eight years of insurance industry experience, all with Zurich. Michael has an Advanced Master's Degree in Natural Hazards Management from the Federal Institute of Technology Zurich, ETH, and is a natural scientist with an MSc degree in Geophysics, also from ETH. In addition he holds a Teaching Degree in Geography. Michael is a Swiss Citizen and speaks German, English, French, Italian and Spanish.

Abstract

Integrated flood risk management – an insurer's view

Floods are the most critical natural hazard. The insurance industry has a role to play in flood risk management alongside the public sector. Floods are also inherently linked to droughts, the two extremes of the water cycle, and under climate change there is increasing variability that needs to be addressed. Today there is more evidence that pre-event mitigation is more cost-effective when compared to post-event intervention. We need to create better incentives for mitigation and risk reduction. At the same time, coordination for flood risk reduction basin-wide is improving, but more can be done. Often we are lacking a risk-based approach to flood protection, and there is a strong belief in absolute safety of physical protection that proves to be a fallacy. This presentation aims at providing a view of the insurance industry on best practices in integrated flood risk management in Europe and on pressure points where more can and needs to be done relating to risk awareness, coordinated and risk-based decisions, combinations of structural versus non-structural protection and providing incentives for "no-regret" or "low-regret" solutions for the future under increasing uncertainty.