

# GROW-Newsletter 01/2019

**Dear Readers,**

Since we published the first GROW Newsletter, the GROW partners have made substantial progress in their research projects. We are glad to share the highlights of the past few months with you. Also we would like to take this opportunity to remind you of the **upcoming GROW mid-term conference: [register now](#)** (open until 1 February 2019)!

This newsletter will feature the following:

- An overview of what to expect from the GROW mid-term conference
- Interview with Prof Stefan Uhlenbrook and Dr Angela Ortigara (UNESCO World Water Assessment Programme)
- Highlights from three GROW projects: iWaGSS, TRUST, WANDEL (we'll be introducing the other projects in subsequent newsletters)
- Cross-cutting topics at a glance
- GROW in the spotlight
- News and developments in international water management

Enjoy reading!

Kind regards,  
The GROWnet team

---

## Register now for the upcoming GROW mid-term conference

Preparations are in full swing for the upcoming GROW mid-term conference, which will take place on 20-21 February 2019 in Frankfurt am Main (Germany). The conference will be opened by **Dr Christian Alecke** (BMBF), followed by keynote speaker **Prof Stefan Uhlenbrook** (UNESCO World Water Assessment Programme) who will share insights into the status quo, challenges and knowledge gaps in achieving the SDG 6.

Each of the GROW-projects will present their work and share insights on the developments, successes and hurdles they have experienced in the first year. The second day will feature five thematic breakout sessions in which participants will be encouraged to discuss approaches for transferring research results from the GROW projects into practice. The sessions will include talks from **inspiring speakers** working in international organisations and the private sector: **Dr Graham Alabaster** (UN-Habitat GEMI Initiative), **Dr Heike Bach** (Vista GmbH, Remote Sensing in Geosciences), **Dr Marius Claassen** (CSIR South Africa), **Barbara Gerhager** (GIZ), **Godehard Hennies** (Wasserverbandstag e.V.), **Christian Malewski** (Wupperverband), **Benjamin Plaga** (Volkswagen/WELLE), **Mauricio Scheer** (SANEPAR), **Alicia Minaya** (Centro de Competencias del Agua, Peru) and **Philipp Wagnitz** (Programme Lead Freshwater at WWF Germany).

**For further information and registration, please visit the [conference website](#).** Participation is free of charge but requires [registration](#). Closing date for registrations is **1 February 2019**. The conference language is **English**.

---

## Interview with Prof Stefan Uhlenbrook and Dr Angela Ortigara (UNESCO, WWAP)

### **Stefan Uhlenbrook and Angela Ortigara talk to GRoW about the SDG 6 synthesis report and science-policy dialogue**

Prof Stefan Uhlenbrook and Dr Angela Ortigara from the UNESCO World Water Assessment Programme recently published a paper in the journal *Water* discussing the UN's Sustainable Development Goal 6 Synthesis Report on Water and Sanitation 2018, and expedient science-policy dialogue to enable and accelerate progress towards achieving SDG 6. In their view, the GRoW programme could contribute to the SDG 6 process in many ways. In particular, they mention taking part in the [UN Sustainable Development Solutions Network](#), and showing what has been learned on-site and which interventions have led to which outcomes – with concrete examples of successful actions. Both authors say that findings need to be translated into simple language and that local platforms for communication between, for instance, universities and municipal policymakers need to be strengthened.

Find the full interview on [page 4](#)

---

## Highlights from iWaGSS, TRUST and WANDEL

### Innovative drone approach provides iWaGSS with extensive data

iWaGSS is developing and testing an innovative water governance system in the Lower Olifants River Basin in South Africa with the help of qualitative and quantitative water monitoring. Since the first kick-off meeting in South Africa in October 2017, the project has made significant progress. The regional partners have shown great interest in actively supporting the project. The new drone, a Yuneec multicopter, was successfully put into operation in 2018, and three water-quality monitoring stations have been installed along the river.

Find out more on [page 6](#).

### TRUST puts hyperspectral drone into operation and engages actively with Peruvian community

The TRUST research project is exploiting the possibilities for developing an innovative solution to secure the drinking water supply and expedient disposal of water in the catchment area of the Rio Lurin (Peru). From the outset, TRUST has been involving local Peruvian stakeholders and authorities in the project steps. TRUST has carried out extensive field campaigns on water quality, ecology, soil moisture and land use along the Rio Lurin and at the Klingenberg dam in Saxony (Germany). The initial results are promising and have received a great deal of attention in the scientific community.

Find out more on [page 8](#).

### Wandel introduces prototype of the WANDEL-Share platform, and appears on TV

Using the water footprint methodology, WANDEL explores whether restrictions in water availability accelerate the transition to a renewable energy supply by limiting the use of conventional energy systems, or whether they hinder the transition by creating new local water conflicts. In four case studies, the project investigates different local and technological energy scenarios. Ultimately, it will create a model on a global scale. During its first year, WANDEL has made great progress in setting up *WANDEL-Share*, a GIS-based network software, and has developed fruitful collaborations in the pilot regions.

Find out more on [page 9](#).

---

## GRoW Cross-cutting topics at a glance

After the success of their first workshops, the GRoW partners continued their work on the cross-cutting topics. The second meetings on the topics of incentive mechanisms in the context of governance, hitting the targets in the Sustainable Development Goals, and water footprints were launched between September and December 2018. Below you can find more information on the progress and next steps.

### **Second workshop on the cross-cutting topic "Incentive mechanisms in the context of governance"**

On 22 October 2018, the working group met in Frankfurt am Main (Germany) to continue its work on the key issues identified earlier in the year. During its first meeting in March 2018, the group identified three sub-themes for its future work: a mechanism for turning research into practice, agricultural irrigation, and measuring governance. The second workshop aimed to delve deeper into these topics in order to share knowledge, achieve a common understanding of associated concepts, and pinpoint scope for benefitting from synergies across the projects.

Find out more on [page 11](#).

### **Second workshop on the cross-cutting topic "SDG´s: Hitting the targets"**

During its workshop on 11 December 2018 in Osnabrück, the working group continued to investigate the two main topics identified at its first meeting: conflicting targets and synergies between different SDG´s, and indicators, data and models. The participants also discussed how best to transfer knowledge from the GRoW projects to the political process.

Find out more on [page 11](#).

### **Second workshop on the cross-cutting topic "Water footprints"**

With a lively and successful workshop on 27 September 2018, the group continued its work on key issues identified during its [first meeting](#): How to link water footprints with economic and social impacts, and how trade influences water stress or vice versa. This second workshop was about further investigating the issues and identifying possible synergies within the GRoW projects.

Find out more on [page 11](#).

---

## GRoW in the spotlight

### **GRoW at COP24**

The UNFCCC 24th Conference of the Parties (COP) and 14th Session of the Meeting of the Parties to the Kyoto Protocol was held in Katowice, Poland, from 2 to 4 December. GRoW was presented at the Conference of the Parties as part of input provided by PTKA. Romy Durst (PTKA) highlighted GRoW's special focus on connecting global information on water resources and water demand with regional and local solutions. In addition, the GRoW project SaWaM (Seasonal Water Management for Semiarid Areas) was present at a side-event on climate-proofing strategies.

Find out more on [page 12](#).

## Water news

### Call for papers for the 10th International Conference on Sustainable Water Resources Management, 7 - 9 May 2019 in Alicante, Spain

The [10th International Conference on Sustainable Water Resources Management](#), which is being organised by the Wessex Institute (UK) and the University of Alicante (Spain), has opened its [call for papers](#). The conference will present recent technological and scientific developments connected to the management of surface and sub-surface water resources. Papers presented will be published by WIT Press in a volume of WIT Transactions or in an issue of the *International Journal of Sustainable Development and Planning*. For further information see [conference website](#).

### Nominations for the Global Water Awards 2019: Deadline 31 January 2019

Do you know a company, project, plant, technology, deal or initiative that deserves a Global Water Award? Nominations for the [2019 awards](#) are now open. You can vote [here](#) until 31 January. The awards are divided into 13 categories, including Smart Water Company of the Year, Municipal Desalination Plant of the Year, and the Water Leaders Award. The winners will be announced at the [Global Water Summit](#) on 9 April 2019 in London. Further information on the process is available [here](#).

---

## Interview with Stefan Uhlenbrook and Angela Ortigara about the SDG 6 synthesis report and science-policy dialogue

22.01.2019

In 2018, the UN published a report entitled “Sustainable Development Goal 6: Synthesis Report on Water and Sanitation”. It reviewed progress on achieving SDG 6 at the global and regional level. A recently published research paper published in the journal *Water* discusses this report and asks how those engaged in education, training and research could contribute to enabling and accelerating progress towards achieving SDG 6. We talked to the paper’s authors, Professor Stefan Uhlenbrook and Dr Angela Ortigara from the UNESCO World Water Assessment Programme, about this paper and how GRoW researchers could engage in the SDG 6 process.

**GRoW:** What was the main objective of the SDG 6 Synthesis Report? And where did the idea to write this review paper come from?

**Uhlenbrook:** The idea was born in early 2016 when the whole SDG 6 performance process was under discussion. One of the key lessons learned from the MDGs between 2000 and 2015 was that we need a continuous monitoring and performance management system to track the progress on achieving the SDGs. Once it became clear that water would be reviewed at the High-Level Political Forum for Sustainable Development in 2018, the danger was that every agency involved in the process would produce its own report to inform policymakers, which might have caused incoherent messages. We were convinced that it would be much more efficient to synthesize everything in one report and write a comprehensive review showing where we are with regards to SDG 6 progress and highlighting the keylink between water and the agenda’s other goals. This commitment, including the German, Swiss, Dutch and Italian funding, created enthusiasm and consequently many agencies got involved, which is a really good sign.

**GRoW:** You mentioned that most of the 11 indicators now have their own report of around 60 pages. Condensing that all to produce a 200-page report must have been quite a challenge.

**Uhlenbrook:** When drafting policy recommendations, trusting in segregated assessments alone is not helpful. We have to understand the interlinkages and produce recommendations that ideally address all of the targets, as well as the other goals and all the ways in which they interact with SDG 6. SDG 6 is a key enabler in the 2030 agenda. However, as well as talking about water, we also have to understand that conflicts of interest sometimes arise with energy, agriculture, ecosystems and so forth. Therefore, we believe that a more integrated approach to reporting is essential.

**GRoW:** Why did you decide to write this particular paper as a review of the SDG 6 synthesis report? What was the idea behind writing a more research-oriented paper?

**Ortigara:** With this specific paper we wanted to reach out to people in academia and highlight the issues that we felt were most relevant for this stakeholder group.

**Uhlenbrook:** In particular, ideas around integrative thinking are very relevant for educators and we believe this is the way students should be trained early on in their career. They should be aware of the interlinkages. Being able to think in systems, instead of just in single processes, is essential. In terms of research, many gaps exist that need to be filled, so this review paper is also about us sharing our mindset with the academic community.

**GRoW:** What can the science community do to enable and accelerate progress on achieving SDG 6? Where do you see the greatest potential for its involvement?

**Uhlenbrook:** There is one simple truth: you can only manage what you can measure. We struggle with measurement and monitoring, especially at the scale where the process is actually happening. A simple example is monitoring access to improved sanitation. You can do this by surveying a couple of 'representative' households, but this is not necessarily representative for a bigger region, country or other larger management unit. If you look at data, the UN often operates on the national scale, for example with water use efficiency and water scarcity. Yet the real water scarcity is not happening at a country level. Look at Germany: this summer we had a drought, but it was very unequally distributed throughout the country. We therefore need much more disaggregated data, which requires the help of researchers. For the examples I just mentioned, satellite data and citizen science may be better and more reliable approaches. We also need better monitoring for social data, such as access to toilets, safe drinking water and many other issues. This is one major area to which science can contribute.

**Ortigara:** Another fact concerns technologies and knowledge transfer. Universities often test new technologies, such as those for wastewater treatment. Those technologies, however, are not reaching the governments. Researchers usually address other academic stakeholders, but they also need to reach out to politicians and policymakers. If they did, the technologies they are developing could also be used in other contexts and upscaled.

**GRoW:** You've outlined many ways in which researchers could potentially engage, but how do you think researchers such as those in GRoW can really participate in ongoing policy processes related to SDG 6 monitoring? Where do you see concrete entry points for their involvement as part of the science community?

**Ortigara:** The UN also runs the Science Technology Innovation Forum annually (see here), which is an opportunity for researchers to engage and disseminate their findings at the highest level. However, this is not enough. Reaching out to decision makers at the local level may have a greater impact on local challenges. In general, I think we can make a difference if we communicate better with policymakers at the local level.

**Uhlenbrook:** Another aspect is that researchers are too driven by the knowledge-production side, instead of by what is needed on the ground. Many innovations are beautiful, but are often not implemented. I believe that every sustainable development project should begin by finding out what is really needed on the ground. This doesn't happen enough. I see a mismatch between research development, the needs on the ground, and the actual research being conducted.

**GRoW:** So you're saying that researchers need to focus on the demand side. I think we agree on this. But given that a lot of applied research is happening in Germany and many researchers want to make a change on the ground, could you point out a few concrete pathways for researchers to bring their findings into policymaking?

**Uhlenbrook:** There are many ways researchers can do this. For example, the Sustainable Development Solutions Network, a global network that mobilizes scientific and technological expertise and is strongly involved in capacity building, recently developed a new module on water and SDG 6. Angela and I helped with that, and the work could be expanded. I'm also sure that more knowledge could be tailored to different modules.

In addition, sharing best practices in non-scientific language would be helpful when reaching out to policymakers. Researchers tend to write papers for people who share the same background and work in the same field. Making that accessible to the global community, for example via platforms like the UN Sustainable Development Solutions Network, is a challenge. In our experience, politicians often do not listen carefully to dull statistics. Instead, very concrete examples showing what has been learned onsite and what the various interventions have achieved can help the policymaking process. At the UN, we would also love to use these convincing examples in our reports. Instead, we often struggle to find good case studies.

**Ortigara:** Policymakers need to know where successful projects were carried out, how they were implemented and what has worked and what not. It needs to be in a language that is understandable for non-scientists. On the UN level, we organise a lot of international conferences to initiate that learning. But as I have mentioned, the local level lacks platforms for communication. Which university invites municipal policymakers to explore its research? Is there any attempt to engage? Those interactions at a local level may not make a big change overnight, but we should not underestimate the power of the local level.

**Uhlenbrook:** Also, for GRoW, we should really consider a separate lessons-learned report, in addition to the project report.

**GRoW:** We are planning a synthesis report on several topics at the end of the project. It will address issues from various cross-cutting topics, as well as other matters. However, the challenge remains that the projects themselves need to make a practical impact on the ground.

**Uhlenbrook:** This is the first time I've been involved in a BMBF programme and I think it's a very good, although still uncommon, example of how the UN can be involved in research projects from the very beginning. Relevant policy decisions are mainly made at the national level. In 2020, GRoW will hold its final symposium. For that, we should bring together policymakers, especially from the key countries, and produce podium discussions and presentations that will encourage them to listen closely to GRoW's research findings and jointly develop relevant research questions for the future.

**GRoW:** Thank you very much for talking to us.

---

## Innovative drone approach provides iWaGSS with extensive data

21.01.2019

The growing complexity of available data, tools and monitoring methods for water management can complicate decision-making. iWaGSS is developing and testing an innovative water governance system in the Lower Olifants River Basin in South Africa with the help of qualitative and quantitative water monitoring. The project combines expedient surface-water monitoring technologies, modern remote sensing, and hydrological, hydraulic and morphological modelling with GIS-based risk assessment and socioeconomic analyses. This will allow early warnings of contamination risks and



eventually create a real-time online decision-support tool which will enable timely actions. Since the first kick-off meeting in South Africa in October 2017, the project has made significant progress. The regional partners have shown great interest in actively supporting the project. From the outset, iWaGSS has received substantial support from South African National Parks (SANParks) and, since it became a listed official partner in 2018, direct support from Kruger National Park.

### **Collecting hydrological and geospatial data with a drone**

The project uses an innovative method of collecting hydrological and geospatial data with a drone, and integrates this data into the monitoring system. However, the local weather conditions in the Olifants River catchment area (high temperatures and occasional high wind speeds) have posed a challenge for this technology. Despite the difficult circumstances, the new drone, a Yuneec multicopter, was successfully put into operation in 2018 and delivers good data for generating digital surface models. Three water-quality monitoring stations have been installed along the river and, after several test runs at the end of 2018, will now deliver data on numerous water-quality parameters such as toxicity, total organic carbon, chemical oxygen demand, and total nitrogen.

The researchers are working on extending the drone-assisted data collection so that it includes multiple sensors and samples. The next steps will involve adding algae monitoring, surface flow rate measurement, water sampling, and Acoustic Doppler Current Profiler cross-section units. Furthermore, in collaboration with the South African Environmental Observation Network (SAEON) and SANParks, work has begun on transferring the methodology developed under the iWaGSS project to the generation of a 14-km-long digital surface model in the very difficult-to-access Olifants Canyon in Kruger National Park. The interim modelling results of the sedimentation processes at the Phalaborwa barrage will be used in 2019 to develop improved gate operations in cooperation with the local water board, Lepelle Northern Water.

### **Close cooperation on data collection between German and South African partners**

A number of local and international project activities such as capacity-building workshops, field campaigns and technological demonstrations have been carried out. They have laid the foundation for close cooperation on data collection and research activities between the German partners and their South African counterparts – namely, the Council for Scientific and Industrial Research, SAEON and several South African universities.

Extensive dialogue with local partners and project advisory boards from SANParks, the Water Research Commission, the Department of Water and Sanitation, and the GIZ/International Water Stewardship Programme have made it possible to involve many stakeholder groups from government, administrative authorities, and industry to ensure participative project decisions and recognition. The collaboration with a local NGO, the Association for Water and Rural Development, has furthermore paved the way for involving local communities in the project progress. On 9 and 10 October 2018, the first international project status conference took place in Phalaborwa, South Africa. In total, 60 experts from Germany and Africa participated in the conference. They discussed interim results, challenges linked to data preservation, and transboundary accountability issues. They also sketched out the steps and targets for next year.

### **Goal to strengthen transboundary water governance between Mozambique and South Africa**

Aside from further extending the monitoring and modelling activities, the project's next steps will involve working on ways of improving transboundary water governance in Kruger National Park and in Limpopo National Park in neighbouring Mozambique. The main aims will be to understand the intergovernmental relations between Mozambique and South Africa, to analyse implementation gaps for regulations and to achieve agreements and set objectives for transboundary water allocations and

water quality standards in both parks. Many other stakeholders will also be involved to strengthen accountability and transboundary recognition of the project, and to provide all local partners and users with access to project-related outcomes.

With its unique and innovative approach, and its consideration of the complex socioeconomic impacts on natural ecosystem governance, iWaGSS is on the way to successfully establishing a sustainable water management system for the catchment area's water resources.

---

## TRUST puts hyperspectral drone into operation and engages actively with Peruvian community

21.01.2019

Drinking water scarcity in prosperous urban areas is an increasing challenge for cities around the world. This situation, exacerbated by growing climatic extremes, is prevalent in the Rio Lurin catchment area in Lima (Peru), which is the world's second largest desert city. The TRUST research project is exploiting the possibilities for developing an innovative solution to secure the drinking water supply and expedient disposal of water in the catchment area of the Rio Lurin, one of Lima's three major drinking water sources. Using remote sensing and hydrological modelling in combination with strategic decision-making tools, the team of researchers and practitioners of natural sciences, engineering and social sciences has made significant progress in the project's first year.

As soon as the project began in November 2017, TRUST started involving local Peruvian stakeholders and authorities in the project steps. In March 2018, a transect walk was carried out with inhabitants of San Andrés de Tupicocha, a village directly impacted by planned water measures. This was followed by a number of workshops with the local school, village authorities, regional authorities and experts from the Lima region. They were conducted last year in order to evaluate different options for water supply and wastewater management in the upper Rio Lurin catchment area, and to increase awareness of the project.

### Innovative data collection approach proves to be functional

Concurrently, TRUST has carried out extensive field campaigns on water quality, ecology, soil moisture and land use along the Rio Lurin and at the Klingenberg dam in Saxony (Germany). The work in Germany was carried out to test the technologies that will ultimately be transferred to Lima. Researchers from Karlsruhe Institute of Technology innovatively combine hyperspectral data acquisition via drone and machine-learning algorithms for estimating parameters such as chlorophyll a, diatoms, green algae and subsurface soil moisture. The initial results are promising. A number of papers published in respected journals and at conferences (International Journal of Environmental Research, Public Health, Proceedings of the 37th Scientific-Technical Annual Meeting of the DGPF, 9th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing) show the innovative character of the approach. The researchers have also disseminated their findings at the Tech-Transfer event on digitalisation in water supply in Karlsruhe, and in international settings such as the Expo Agua Peru 2018 and the World Water Forum 2018.

Additionally, monitoring stations for precipitation and water flow have been installed and commissioned in Peru. Plans are also in place for hydrological analyses and modelling of the watersheds of the Rio Lurin and Rio Chillón. Together, these activities pave the way for acquiring essential data, which is so far missing. The data will help create expedient solutions and deploy a web-based software for risk management at the catchment level developed by Disy Informationssysteme GmbH. In collaboration with its local partner companies, such as SEDAPAL, the TRUST team investigates different strategies for potential inclusion in concepts and modules for water



supply and wastewater management solutions. These include non-conventional water sources, such as managed aquifer recharge and wastewater reuse.

### Comprehensive approach includes conflict mitigation strategies

A particular challenge for water management in Lima and many other parts of the world is the need to reconcile the sometimes conflicting objectives of the different water users in the upper and lower catchment areas. For example, the drinking water supply, irrigated agriculture, and industry compete for the same water resources. TRUST is tackling this important issue by conducting a conflict analysis and by including stakeholders from a variety of levels in the process of developing sustainable water management concepts. The most recent workshop brought together local partners and stakeholders with the German research team from the University of Stuttgart and the German Water Centre (TZW) in November 2018. It provided a fruitful exchange and paved the way for the next steps.

To ensure a successful continuation of the project, TRUST aims to deepen its understanding of local knowledge of the structures, responsibilities and processes necessary to use the developed tools in existing local infrastructures (metrology, web services, data structure). It will do this by continuing to make regular trips to the project area, by promoting local involvement, and by continuing its work on developing the measurement technology and data transfer activities.

---

## WANDEL introduces prototype of the WANDEL Share platform, and appears on TV

23.01.2019

Energy production and water availability are inextricably linked. Energy needs water resources (e.g. for distribution, cooling and as a source of energy), and water management requires energy (e.g. for water extraction and treatment). The nine partners in the WANDEL project aim to find out whether restrictions in water availability accelerate the transition to a renewable energy supply by limiting the use of conventional energy systems, or whether they hinder the transition by creating new local water conflicts. In the light of climate change and growing water stress, answering these questions is essential to identifying mitigating effects on the energy transition and developing practical solutions for a sustainable energy and water future.

### WANDEL Share platform prototype being tested

To create a globally applicable impact model of the connection between water availability and energy, WANDEL is investigating the water footprint of conventional and renewable energy systems in four case studies in Germany, Morocco and Brazil. The water footprint methodology has been adapted so that researchers can analyse energy systems throughout their supply chains and identify links to the water sector. The results feed into a web-based GIS portal called WANDEL Share. In January 2018, the first milestone was reached when software developer Mundialis proudly presented the first WANDEL Share prototype to the project team. Along with a massive data processing capacity, the portal offers a unique platform for data exchange and non-expert handling. It is currently being tested with initial data acquired in Morocco and Brazil.

During the first half of the project period, WANDEL attracted a great deal of interest from expert groups, for instance at the World Water Forum 2018 in Brazil and in the JRC SETIS magazine (SETIS = Strategic Energy Technologies Information System), and from the general public via interviews that

aired on a local German TV channel as part of a programme called Alle Wetter (11 December 2017) and press releases published by Industrieplatz Hessen, Cleantech Germany and Schattenblick, among others.

The first workshops carried out in each of the four project regions drew the attention of local stakeholders and strengthened the fruitful cooperation which is contributing enormously to the project's success. A collaboration with the Brazilian Agricultural Research Corporation (EMBRAPA) has provided WANDEL with many new insights regarding efficient water use in sugarcane farming and ethanol production.

### Efficient cooperations established

The collaboration between the Wuppertal Institute and the Moroccan research institute MENARES flourished after the successful organization of the first stakeholder workshop for the case study on solar thermal power plants in the Ouarzazate desert in April 2018. Building on the positive reception, the second stakeholder workshop in December 2018 resulted in a passionate discussion between stakeholders from agriculture, the water sectors, local administration and civil organizations about selected water-saving measures. This laid the foundation for a multi-criteria analysis that is currently being carried out by the Wuppertal Institute.

Promising collaborations between regional administrations and state electricity utilities have also been set up in Bavaria, Germany, as part of the Weser case study (energy production based on coal) and the Upper Danube case study (energy production based on hydropower). A recent highlight was winning Uniper, a private energy supplier and operator of a coal power plant, as a partner. This will enable the project partners to acquire valuable insights for developing the energy scenarios. The first international workshop in Kassel in November 2018 revealed that awareness of the water-energy nexus is still lacking. It is therefore crucial to ensure that possible solution strategies receive recognition in the future.

To overcome the obstacles to data acquisition that have been encountered in the various pilot studies, WANDEL aims to further extend local collaborations and project participation among different stakeholders. In order to communicate results to the scientific community, the project is working on its first peer-reviewed article describing its water footprint methodology. The advancement of the water footprint concept represents an important milestone. Spatially explicit information at the grid cell level, as provided by the applied hydrological modelling framework WaterGAP3, will be combined with a life cycle assessment (LCA) systems perspective that covers the full supply chains of the examined case studies. The soft-coupling of the hydrological model and the LCA systems approach provides scope for evaluating the extent to which changing water demands along an energy system's supply chain will impact water resources in the future, in addition to the implications of climate and land use change. Hence, every process and related component that uses water in the supply chain can be identified and quantified to determine the total water footprint.

Working with its wide range of partners, WANDEL is determined to overcome these challenges and continue its efforts to develop a streamlined water footprint methodology that can be used to build a water availability impact model for the energy landscape on a global scale. The development of standardised indicator sheets, transparent cross-sector and cross-level communication, expedient data generation and transfer, and public outreach will keep the researchers busy over the coming project period.

## Cross-cutting topic: Incentive mechanisms in the context of governance

A number of GRoW joint research projects are working on incentives (e.g., economic, legal and reputational) to encourage better water resources management. However, much like the effectiveness of new technologies and processes, the impact of these tools depends heavily on the political and social frameworks (i.e., on governance) in the target regions. In addition, a variety of factors (such as population growth and dwindling resources) are making the water sector increasingly complex. Research projects must therefore often address the governance structures in the target regions and analyse them in detail to ensure that the tools and products are put into practice and – as far as possible – that they remain in use for the long term.

For this cross-cutting topic, the projects will jointly address various questions about incentive mechanisms in the context of governance. They will be guided by the overarching question of how we can bring about a transformation towards a (possibly new) social consensus on water governance.

Coordinator: Professor Karl-Ulrich Rudolph

Support: Michael Rosenauer, Alexander Grieb

---

## Cross-cutting topic: SDGs - Hitting the targets

The GRoW joint research projects are helping in a variety of ways to achieve the UN Sustainable Development Goals (SDGs). As well as developing and testing innovative approaches to achieving the goals, the projects are also devising concepts and key figures for evaluating progress on the goals. For GRoW, the focus is on SDG 6 (“ensure availability and sustainable management of water and sanitation for all”). Working together, the projects will address issues related to achieving SDG 6 and will leverage synergies to create an effective network that will strengthen and effectively demonstrate the ways in which the individual projects and the overall GRoW funding measure are helping to make the SDGs a reality.

Coordinator: Professor Claudia Pahl-Wostl

Support: Dr Ursula Eid

---

## Cross-cutting topic: Water footprint

Trade in virtual water is increasingly creating global links between local and regional water resources. The GRoW research projects are therefore not limiting their focus to local and regional solutions; they are also investigating how consumption is linked to and affects water resources in other parts of the world. The GRoW projects concerned with water footprint are working on methods for measuring water footprint in order to identify areas where water is being used inefficiently and implement practical measures for reducing water footprints. This cross-cutting topic aims to link the GRoW projects working in this area and to leverage potential synergies.

Coordinator: Dr Markus Berger (TU Berlin)

Support: Dr Falk Schmidt (IASS Potsdam)

---

## GRoW at COP24

21/12/2018

The [UNFCCC 24th Conference of the Parties](#) and 14th Session of the Meeting of the Parties to the Kyoto Protocol was held in Katowice, Poland, from 2nd to 4th December. Besides discussions of emissions trading, climate security, climate change financing and local climate protection, there was also an emphasis on water-related topics as being integral to achieving most other SDGs and the ambitious climate change targets.

GRoW was presented at the Conference of the Parties (COP) as part of input from Project Management Agency Karlsruhe (PTKA). Romy Durst introduced the broad portfolio of activities occurring within the German Federal Ministry of Education and Research (BMBF) and focused on the FONA3 framework programme. She highlighted GRoW's special focus on connecting global information about water resources and water demand with regional and local solutions.

In addition, the GRoW project SaWaM (Seasonal Water Management for Semiarid Areas) was present at a side-event on "climate-proofing strategies", during which Dr Lorenz and Professor Kunstmann from Karlsruhe Institute of Technology provided an overview of ongoing research and first research results within their project.

Several other events highlighted the important role of water in achieving climate change targets. UN-Water, for instance, organized an event entitled "The role of water in achieving climate neutrality" that it addressed the integration of SDG6 (water) and SDG13 (climate change). The side event highlighted the important role of water, the potential for synergies and trade-offs, and the political progress achieved so far.

After reaching a last-minute deal on a 156-page rulebook, COP24 now provides a roadmap for further implementation of the Paris Agreement. However, since collaboration at the national levels is under threat as a result of current political developments in a number of leading countries (including the USA, Germany and France), commitment at sub-national levels (local governments, cities, states, businesses and NGOs) continues to gain importance for achieving carbon emission goals. Various cities and organisations have already committed to the Paris Agreement. The same can be expected with water-related issues, as this COP highlighted the close links between these two topics.

---