Swiss water research at the UN Summit in New York

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Topics: Water & Development | Society | Drinking Water | Wastewater

The UN Water Conference will be held in New York from 22 -24 March 2023. In addition to Federal Councillor Ignazio Cassis, Eawag researchers will also be present. Together with partners, the conference presents a commitment that contributes to the 2030 Water Action Plan. It will also illustrate with projects how research approaches can be directly applied in practice through multilateral cooperation. One of these approaches is the Water Flow Diagram (WFD), which was developed under the lead of Eawag.

In collaboration with partners, Eawag researchers have developed the WFD - a visualisation tool for identifying relevant water problems in a city. By illustrating all water flows in a holistic WFD, both the whole water system and the individual water flows can be better analysed and controlled. Specifically, the diagram present various relevant information in an intuitive way that should be understandable to all stakeholders. The diagram is designed so that the width of a water flow is proportional to its quantity. In addition, the specific processes along the water usage chain (water source, drinking water treatment, transport, use, wastewater treatment, drainage/losses and accumulation/reuse) are indicated throughout the system. This means that it becomes immediately apparent what is happening to the water flow. Another feature is a colour code. It provides information on how to assess the handling of a water flow. Green indicates good practice, while red indicates poor practice. Consequently, for example, a water flow that is contaminated with pollutants and flows unfiltered back into the groundwater is coloured red and judged to be a problematic practice.

World Water Day on 22 March 2023

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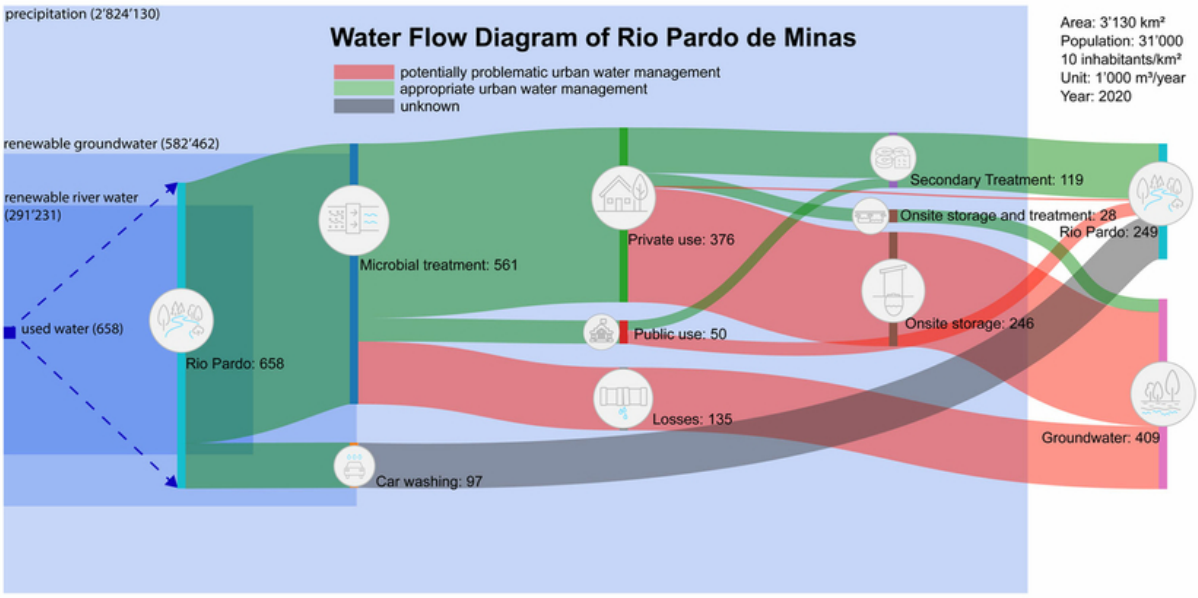
The United Nations has been calling for World Water Day since 1992. A day that celebrates water and raises awareness of the most pressing water issues. World Water Day takes place every year on 22 March and has a special theme. This year it is “Accelerating Change”. The theme aims to focus on the relevance of national and international cooperation in meeting Sustainable Development Goal 6. In this objective, the United Nations agreed to ensure clean water and sanitation for all by 2030.



A WFD using the example of the city of Rio Pardo de Minas in Brazil. (Eawag)

Towards urban water management with the WFD

Thanks to the visual representation of all water flows in an integrated diagram and the strong breakdown to the essential information, challenges on the one hand, but opportunities on the other hand, can also be identified. The WFD thus offers a scientifically sound but at the same time practical tool that decision-makers can use to quickly analyse a water system and make possible adjustments. Furthermore, the approach is not only a visualisation tool but also a communication instrument between science, practice and politics. As all stakeholders are on the same footing, the WFD facilitates and promotes discussions in the water management sector. In addition, cities become more comparable with each other, as various practical examples show.

Two case studies in the cities of Rio Pardo de Minas in Brazil and Bern in Switzerland

The WFD has already been used in several practical examples. These include both fairly small cities such as Rio Pardo de Minas in Brazil and larger cities such as Bern in Switzerland. By testing the tool through such case studies, the researchers have evaluated how the approach brings added value and, in particular, gathered feedback to make improvements. With the help of these findings, the methodology could be standardised in 2022 so that more cities agreed to implement the WFD. The next phase is to promote the acceptance of the approach among a broad public and a wide variety of municipalities. International events such

as the UN Water Conference are particularly suitable for this. These are important platforms for positioning and dissemination of new approaches in the field of water management.

From the UN Water Conference to the 2030 Water Action Plan

After almost 50 years, the UN Water Conference will be taking place again this year. It includes the main program and side events. The first will consist of five interactive dialogues. One of these interactive dialogues “Water for Cooperation: cross-border and international water cooperation”, will be chaired by Federal Councillor Ignazio Cassis, representing Switzerland, together with Senegal. The summit will additionally be complemented by a series of side events. One of the main goals of the conference is to adopt a 2030 Water Action Plan. António Guterres, Secretary-General of the UN, also underlined this in a statement: “A sensible water action plan must emerge from the UN 2023 Water Conference in March that gives our world’s elixir of life the commitment it deserves.” Eawag and its partners are making a contribution in this context. The institute has published a commitment to the 2030 Water Action Plan, which describes the relevance of acting in partnership in urban water management. “In this way, we want to show that it makes sense for players from science, politics and practice to join forces and commit to measures in water management. This is the only way we can solve water problems,” explains Dorothee Spuhler for the Department of Sanitation, Water and Solid Waste for Development

At a side event at Columbia University, the joint commitment will be presented and explained how this can be implemented. The researchers use projects to show how new approaches and tools can be put into practice in cooperation with aid organisations. Among other things, the WFD will be presented for this purpose. They will look at the example of Rio Pardo de Minas already mentioned and another example in Dakar. It is their intention to show how, with the help of the WFD, all stakeholders involved (government, population and industry) can strengthen water security in a participatory process. “We are thus making an important contribution with regard to the 2030 Water Action Plan and Sustainable Development Goal 6 – clean water and sanitation facilities,” says Dorothee Spuhler. She wants to use the conference in New York to exchange views with politicians and players from the water sector. “We hope to motivate them to use our tool and make improvements in their community or country with its help,” Spuhler continues.

Groundwater is contaminated with pollutants in certain regions around the world. New methods of spatial data evaluation should provide information about potential risk areas. (Photo: istock)

Shared Commitment with the International Atomic Energy Agency

Eawag is also active in the research field of isotope hydrology. the institute has maintained a cooperation with the International Atomic Energy Agency (IAEA) for many years. As the IAEA has been operating a global monitoring network since the 1960s for stable water isotopes as well as the slightly radioactive tritium in groundwater, it has a valuable data set. Thanks to the partnership, Eawag has also been able to use this and already implement projects based on it. One example is the development of vulnerability maps in Africa, which show the vulnerability of groundwater. With the help of the corresponding isotope data, the age of groundwater can be determined, for example, from which conclusions can be drawn about the dynamics in the groundwater resources. If the groundwater is young, this means that rainwater seeps quickly from the surface into the groundwater. But at the same time, pollutants, such as from agriculture or industry, then also quickly enter the groundwater. Its use as drinking water can thus be questionable.

Expanding cooperation

In September 2022, Eawag and the IAEA signed an agreement, aimed at further strengthening cooperation. The focus is on the sustainable use of groundwater resources. This means that the IAEA is supported by Eawag in its efforts to promote sustainable water use in its member states, thereby contributing to the UN Sustainable Development Goals.

On the occasion of the UN Water Conference, the IAEA would like to make a special commitment to Sustainable Development Goal 6 and will therefore present a new initiative. Eawag is also involved in this as a partner. The relevance of this is demonstrated by Ignazio Cassis' visit. He has assured his participation in the event with the IAEA and Eawag.

The global water laboratory network

Again at a side event, the initiative for a global network for water laboratories under the leadership of the IAEA is presented. The IAEA is pursuing several objectives by setting up an international laboratory network. On the one hand, countries should be able to generate their own water data and ensure good water quality. On the other hand, the initiative wants to contribute to exchange on an international level and thus promote sustainable water use. The initiative focuses on training. Training is intended to improve the interpretation of monitoring data and to achieve better quality in the modelling and preparation of data for decision-makers. Researchers at Eawag have developed new methods for this, which deal with spatial data evaluation. They used existing but unused data sets of water isotopes to gain new insights. Thanks to the presentation of the data on maps. areas can be identified where groundwater is particularly vulnerable. The combination with population data also indicates where many people are at risk and thus where risk areas are located.

Cover picture: In Bern, the Water Flow Diagram (WFD) was used in practice for the first time. (Photo: Wikimedia commons, CC-BY-2.0; Editing: Eawag)

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Project page Water flow diagram

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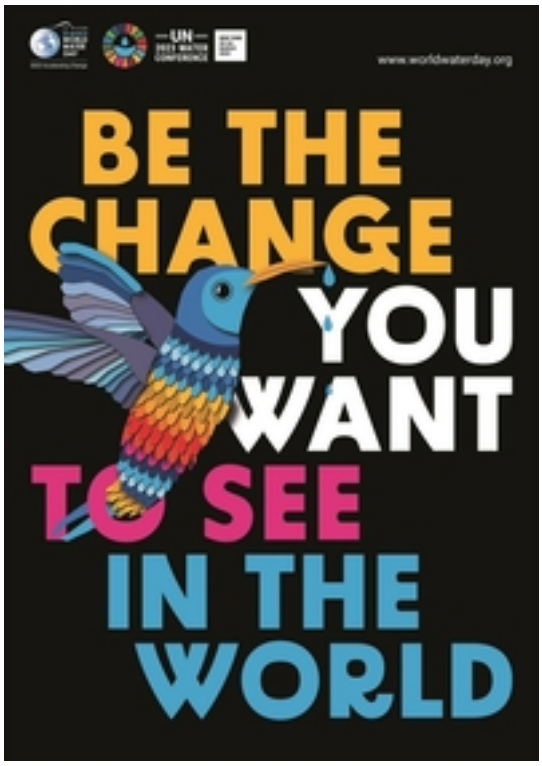
Swiss Water Partnership

UN 2023 Water Conference, New York

Launch: Global Water Analysis Laboratory



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