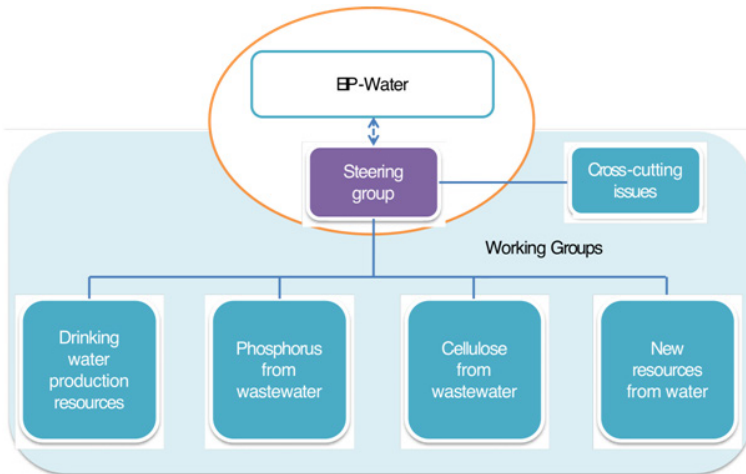


Steering Group

- Chair (Energy and Resource Factory of the Dutch Water Authorities, Henry van Veldhuizen)
- Secretariat (KWR, Theo van den Hoven)
- Chair WG Phosphorus from wastewater (KWB, Boris Lesjean)
- Chair WG Cellulose from wastewater (BWA, Coos Wessels)
- Chair WG Drinking water production resources (Reststoffenuie, Olaf van der Kolk)
- Chair WG Cross-cutting issues (IVL, Østen Ekengren)



WssTP

ARREAU works within the philosophy of the European Technology Platform for Water (WssTP) and aims to cooperate to jointly achieve a better commercial and advanced position for the European water sector, while respecting the individual commercial interests of our near-market partners.

Information

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Initiators



Action Group ARREAU

Accelerating Resource Recovery
from the Water Cycle

ARREAU will develop market plans for viable and profitable value chains for resources from the water cycle. We will build on existing cutting-edge initiatives in several regions in Europe where resources of high added-value are being produced, such as phosphorus and cellulose from wastewater treatment, and iron and calcium carbonate from drinking water production.

ARREAU will use innovative concepts for (alternative) water supply, wastewater treatment and recovery of resources. Moreover, high priority will be given to minimising loss of water, energy and resources in the water and wastewater infrastructures.

Although technologies for the recovery of resources are available, they have yet to make a breakthrough because of a number of bottlenecks, including:

- Highly fragmented (quality, quantity, geographical availability) supply of residuals from the water cycle.
- Legal and regulatory barriers that prohibit the use of residuals as resources.
- Low public acceptance of the direct reuse of wastewater resources.

Overall objective

The overall objective of the ARREAU Action Group is to use innovative concepts to develop market plans to exploit and commercialise opportunities for resources recovered from the water cycle and for the enabling technologies.



EIP Water

Boosting opportunities – Innovating water



The ARREAU Action Group will initially use technologies and data from its own members and their related networks. We will first focus on the current state-of-the-art resource recovery, such as:

- Iron sludge from drinking water in the Netherlands. In this case a value chain has been developed that produces granular iron hydroxide that can be used as a filter material, for example in biogas purification (H₂S removal). This case is partly funded by the Dutch government within its Water Top Sector initiative.
- Phosphorus from wastewater in Belgium, Germany, Switzerland and the Netherlands.
- Several routes for P-recovery are being explored, as are ways to produce high-value fertilisers from these resources. Demonstrations of the recovery and the end-use of these products will be established. This case will build on the results of national initiatives and on FP7-projects such as "P-REX".
- Cellulose from wastewater in France, Germany and the Netherlands. Cellulose will be harvested at full-scale at wastewater treatment plants. Value chains will be developed for cellulose as a resource, for example as building blocks for bioplastics.

Deliverables

ARREAU Action Group will produce a number of deliverables, such as:

- An overview of current viable and profitable European value chains, involving the efficient and profitable recovery and application of phosphorus (struvite) and cellulose from wastewater treatment, and granular iron hydroxide and calcium carbonate from drinking water production.
 - A framework for the further exploitation and development of viable resource value chains throughout Europe.
- An overview of potential new regional markets and business opportunities for resource recovery from the water cycle.

The innovation to which the ARREAU Action Group aspires concerns the design and operation of value chains. Currently, different strategies to bring residuals to the market can be distinguished – examples include: 1) a “free market” system and 2) a shared service centre in developing and supplying the market (see next page).

In view of the current low-value applications of recovered resources, the ARREAU Action Group should play a pivotal role in the development of more sustainable and viable value chains of the highest added value.

Best practices

Successful cases, like the valorisation of drinking water residuals by Reststoffenuie in the Netherlands and resource recovery from wastewater at several European sites, will serve as examples or templates for other resources and other regions in Europe and beyond.

Organisation

The ARREAU Action Group is organised into working groups (WGs) which focus on the different resources from the water cycle – e.g., drinking water production residuals, phosphorus and cellulose. The WGs will work with water authorities, drinking water utilities and also end-users.

A separate working group will address cross-cutting issues. These issues include - among others - life-cycle assessment (LCA), market exploration, public acceptance and consumer perception.

A Steering Group, made up of the chairs of the different WGs, will be responsible for strategy and communication.

Free market and shared service

In the ‘free market’ system, utilities seek individually for solutions to dispose or sell their residuals. In some member states residuals are brought to the market by a public bidding system, e.g. in Belgium and Germany. The bidder with the lowest cost will have the opportunity to collect the residual and can find an end-user for it. In this situation the water utility has no control on the re-use application and profits of the residuals are minimal.

As an alternative to the ‘free market’ system, a shared service coordinated approach can be established (Figure). In this case the value chain director can coordinate between the end-users and the water cycle operators to find stable and sustainable re-use applications. Moreover, by pooling residuals from many places, a stable flow with a constant (high) quality can be delivered to new applications and markets that provide a high value for the residuals. In The Netherlands this system functions already for many years for drinking water residuals, with a specific SME entity (Reststoffenuie) in the coordinating role. Other existing companies, like for example fertilizer companies, could take such a role as well for e.g. recovered nutrients from brines or wastewater.