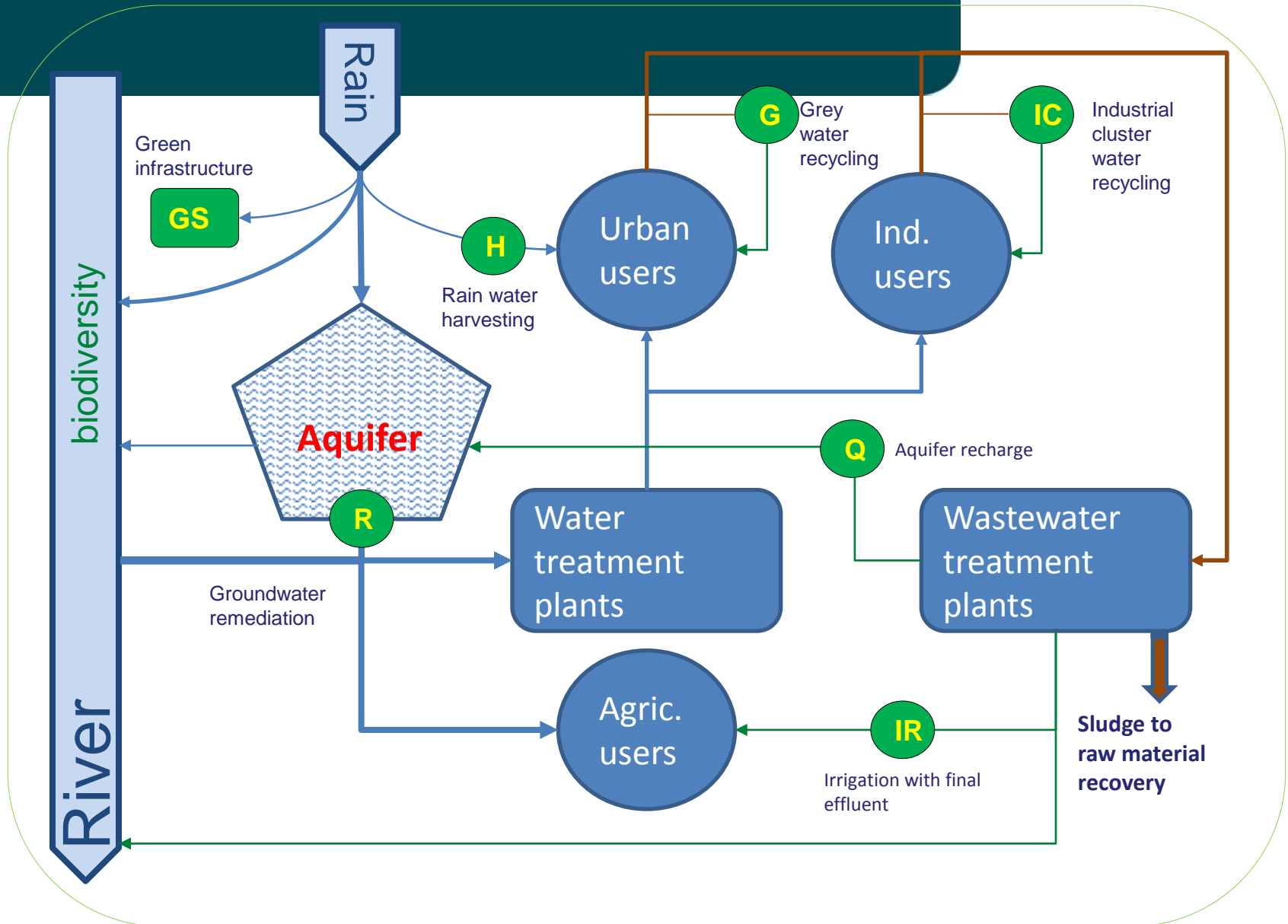


Water management overview



Industry background

The water policy of the EU is primarily codified in three directives:

- The Drinking Water Directive (98/83/EC) of 3 November 1998
- Directive 91/271/EEC on Urban Waste Water Treatment
- The Water Framework Directive (2000/60/EC) of 23 October 2000

A further directive also sets out the policy for bathing waters

- The Bathing Water Directive (2006/7/EC).

Water Treatment needs

In England and Wales the quality of drinking water is the subject of legally enforceable standards regulated by the Drinking Water Inspectorate.

There are standards for over 50 parameters covering:

- Microbiological
- chemical and
- aesthetic qualities (colour, taste, odour)

Water Treatment challenges

CAPEX, OPEX and carbon costs are general challenges. But there are also real technical challenges, including:

- Formation of disinfection by-products (THM, Bromate)
- Protozoa (Cryptosporidium)
- 'emerging' pesticides (metaldehyde, carbetamide, etc.)

Wastewater Treatment needs

Environmental permitting for discharges to surface water and groundwater are issued by the Environment Agency, subject to stringent conditions to:

- prevent eutrophication,
- enhance and restore water bodies,
- achieve good chemical and ecological status of such waters and
- reduce pollution from discharges and emissions of hazardous substances.

The revised Bathing Water Directive gives stronger focus on the protection of public health and establishes stricter microbiological standards.

Wastewater Treatment challenges

Current technical challenges include:

- Removal of P to $< 0.2\text{mg P/L}$
- Removal of NH_3 to $< 5\text{mg TN/L}$
- Priority substances including heavy metals, endocrine disrupting compounds and many other substances which are not responsive to traditional biological treatment processes (e.g. BDEs, PAHs, Tributyltin, Nonylphenol, DEHP)

Thank you.

Questions?

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