

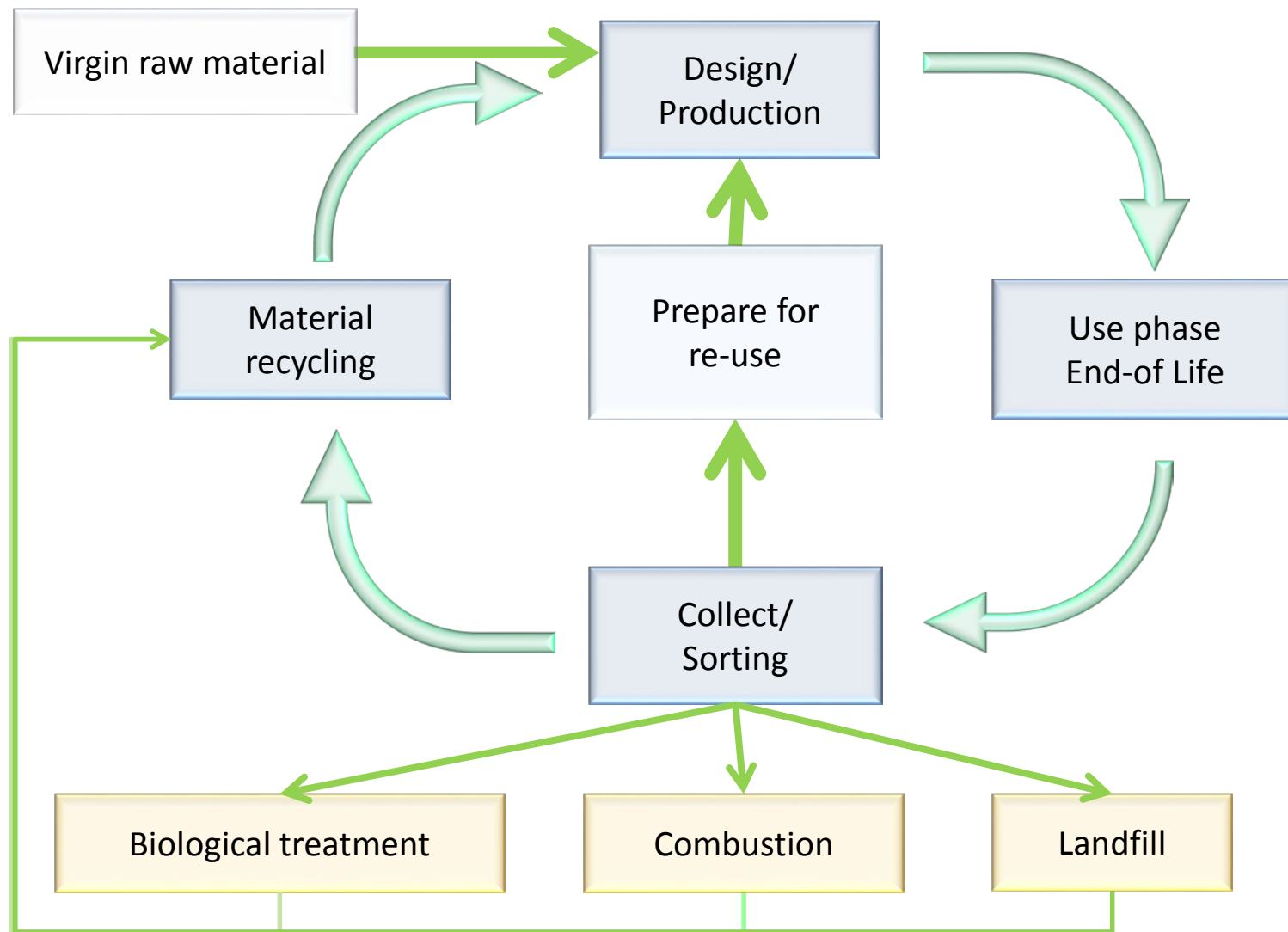


Resource efficiency needs holistic perspectives

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Resource efficient society - circular economy



Solutions in a broader sense – the holistic perspective

- **Why are only few solutions implemented?**
 - What are the obstacles, what are drivers?
- **Experience and stakeholder dialogue:**
 - Often isolated solutions are put in practice-more systemic are not
 - Optimisation needs several criteria, e.g. water and energy
 - Cooperation between stakeholders is needed (e.g. manufacturing and recycling industry)
- **Examples show the need of a broader perspective:**
 - Circular economy, waste as a resource
 - Energy and materials

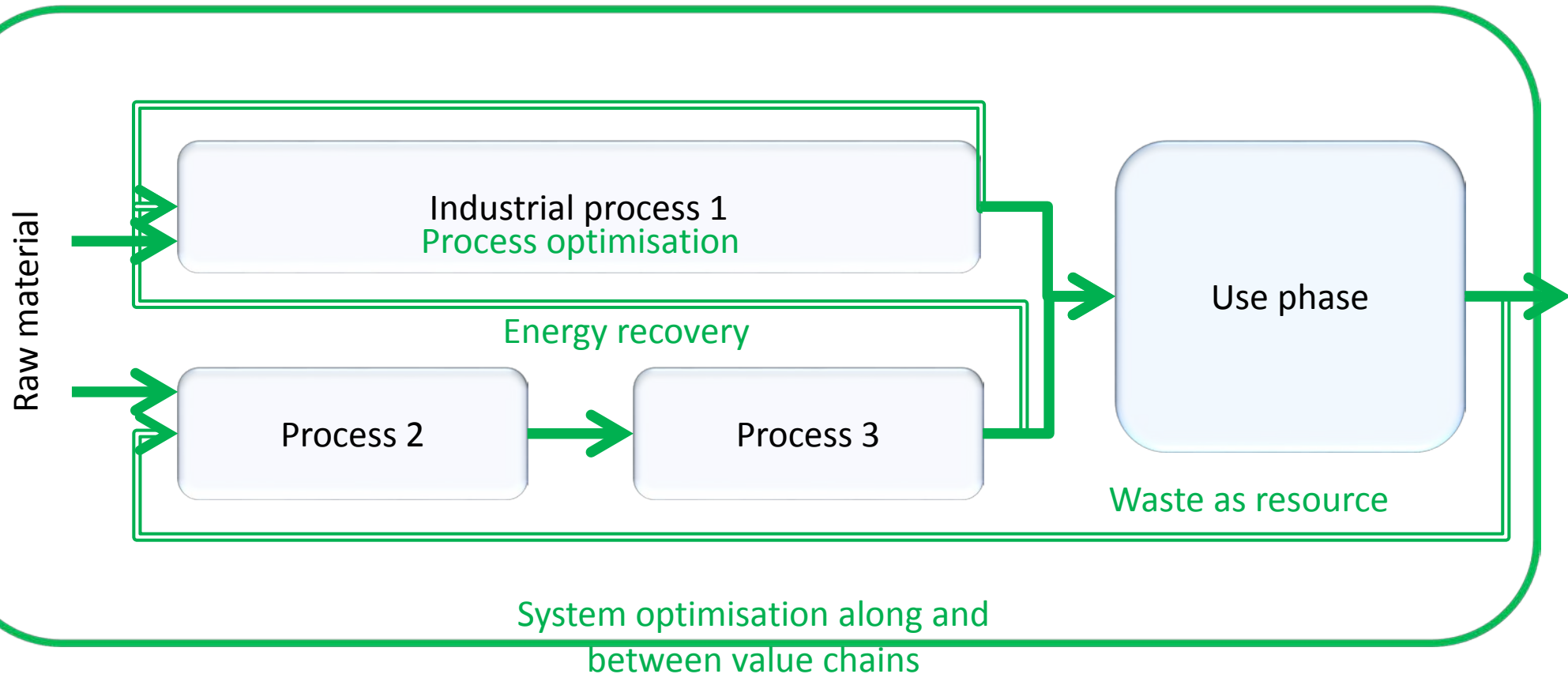


Example: **Realize**

Realizing resource-efficient recycling of vehicles

- **Project period: 2012-2015**
Funding: 1.2M€
 - **Automakers and suppliers, Dismantlers, Shredderers/Material traders**
- 1. Technical and organizational opportunities**
 - 2. Bulk and scarce materials**
 - 3. Short and long term perspective**

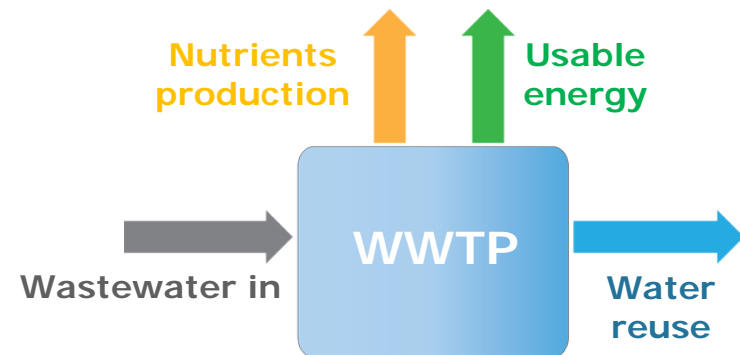
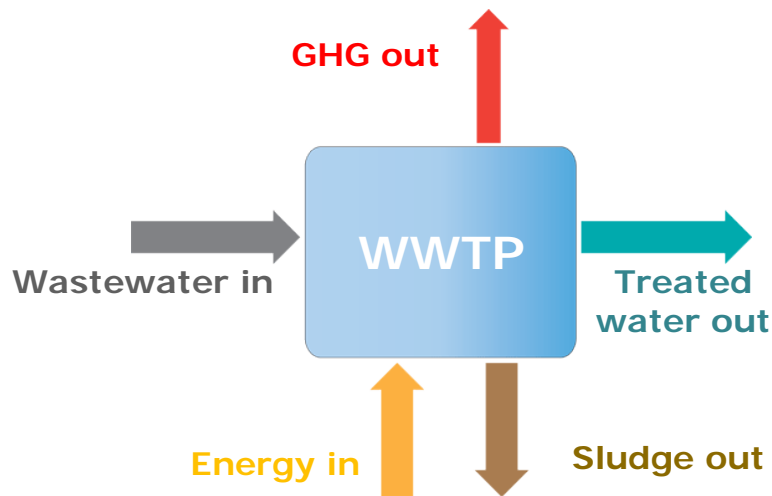
Resource efficiency: a holistic approach- dedicated measures



Waste Water Treatment Plants (WWTP)

- **WWTP today – meeting requirements**
 - A significant energy user
 - Emissions of greenhouse gases
 - Effluent might still contain viruses, pathogens and other unwanted contaminants
 - Generated sludge is a problem

- **WWTP in the future – a production facility**
 - Net energy production
 - Recovery of nutrients
 - Resource efficient treatment
 - Better treatment results
 - Water reuse
 - Generated sludge/waste is a resource



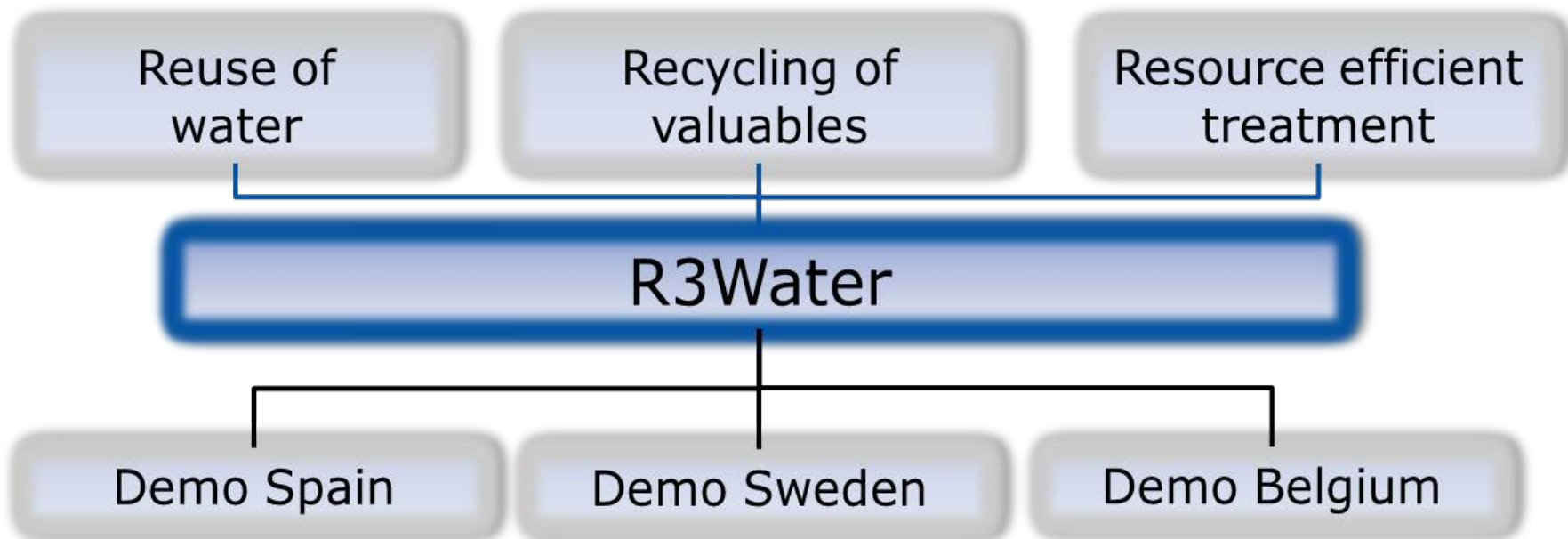


Reuse, Recovery and Resource efficiency:
Innovations in urban wastewater treatment



This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No 619093.

Demonstration of innovative solutions for Reuse of water, Recovery of valuables and Resource efficiency in urban wastewater treatment



Recycling examples and needs: Phosphorous and metals

- **REE:**
 - critical for environmental technologies
 - Supply needed as well as recycling: new methods as well as circular chain solutions
- **Phosphorous:**
 - limited availability, necessary for wealth
 - Recycling still not established well: Technical solutions, acceptance, whole chain

Energy efficiency needs holistic perspective

- **Energy v.s material**
 - Optimisation in energy efficiency not at cost of materials (e.g. buildings)
- **Waste heat: still largely unused:**
 - Further technical solutions
 - Organisational approaches

Further examples for research questions

- **Better mechanisms for recycling of materials:**
 - Interaction between recycling and producing companies
 - Specifications, design for recycling
 - Innovative business models
 - Better policies and regulation
- **Better systems for quality control**
 - to assure e.g. water quality for re-use

Important with dialogue and cooperation

- Initiatives like:

SPIRE Sustainable Process Industry through
Resource and Energy Efficiency

CERISE
Centrum för resurseffektivitet i Sverige



Thank you!

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