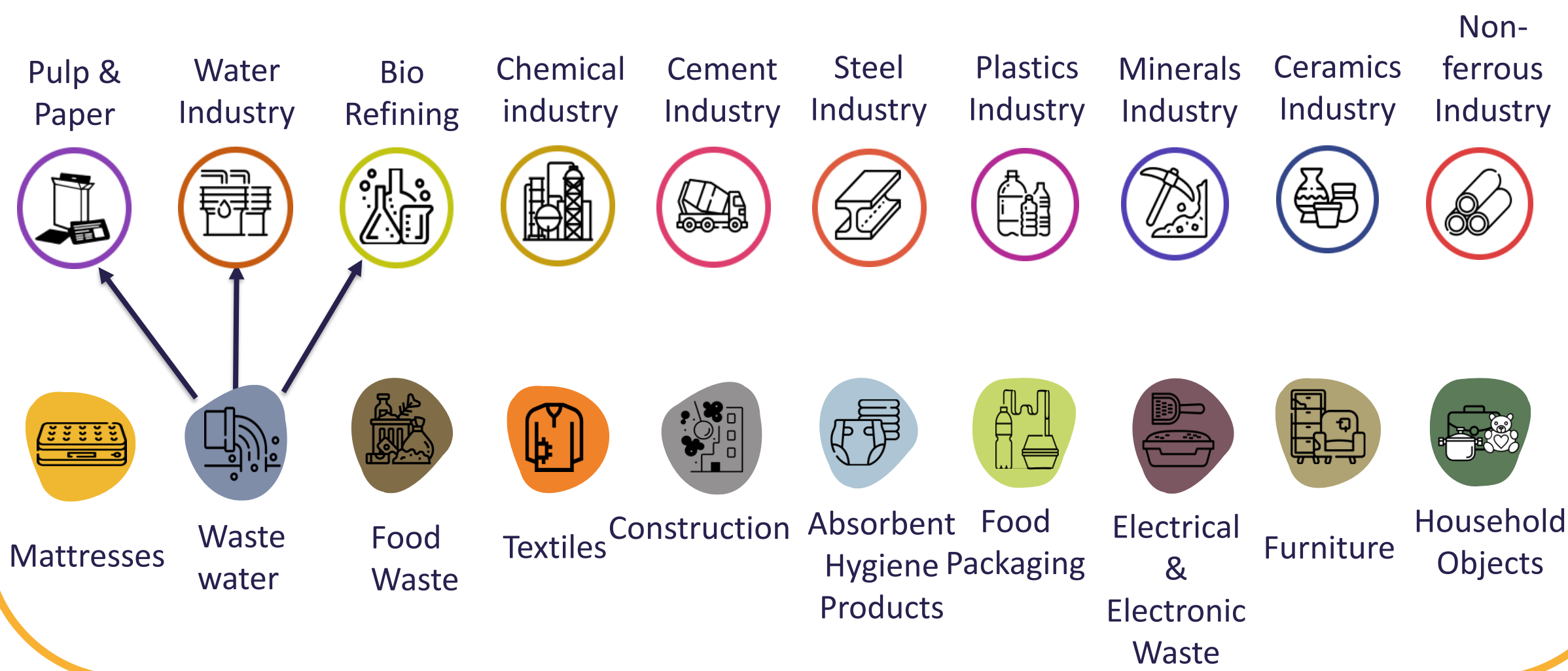


T3.3 WTP, WWTP and circular water demonstrator design and technology advancement

(Task roles || Leader: AQUA (supported by FCCM) || Participants: CART; EKOD; MIRA; KIMB; FCCM; ELE; ECOW || M3-M30 || D3.3



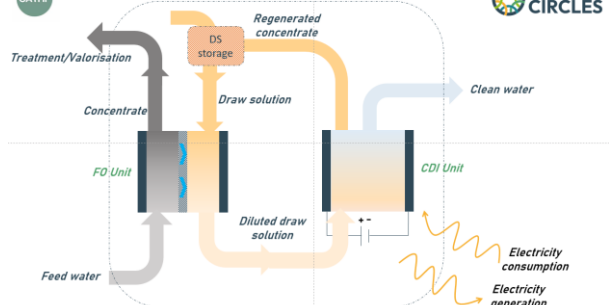
United Circles Demonstrator Value Chains of focus for the Hub



Members of the consortium



6. COUPLED FO-CDI



Selection of the supplier to build the technology at TRL 5. Studying the best location at KIMB facilities (tertiary treatment or as an independent treatment). Pending receipt of sample analyses from KIMB. Design of a study plan for the implementation of an energy recovery system and hybridization with renewable energies.

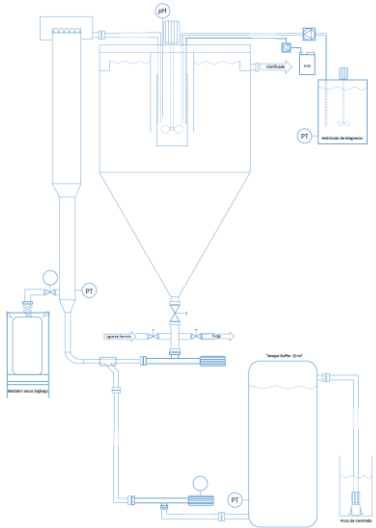
7. RBF FILTER CELLULOSE UPCYCLING TO OBTAIN PURIFIED CELLULOSE FROM UWW

Preliminary studies of the advantages and disadvantages of cellulose recovery at the Salamanca WWTP (potential reduction of sludge biomethanation, reduction of aeration to oxidize organic matter, etc.). The possibility of recovering cellulose in the pretreatment of the Kimberly-Clark WWTP will be assessed. (2% loss of cellulose pulp in washings).

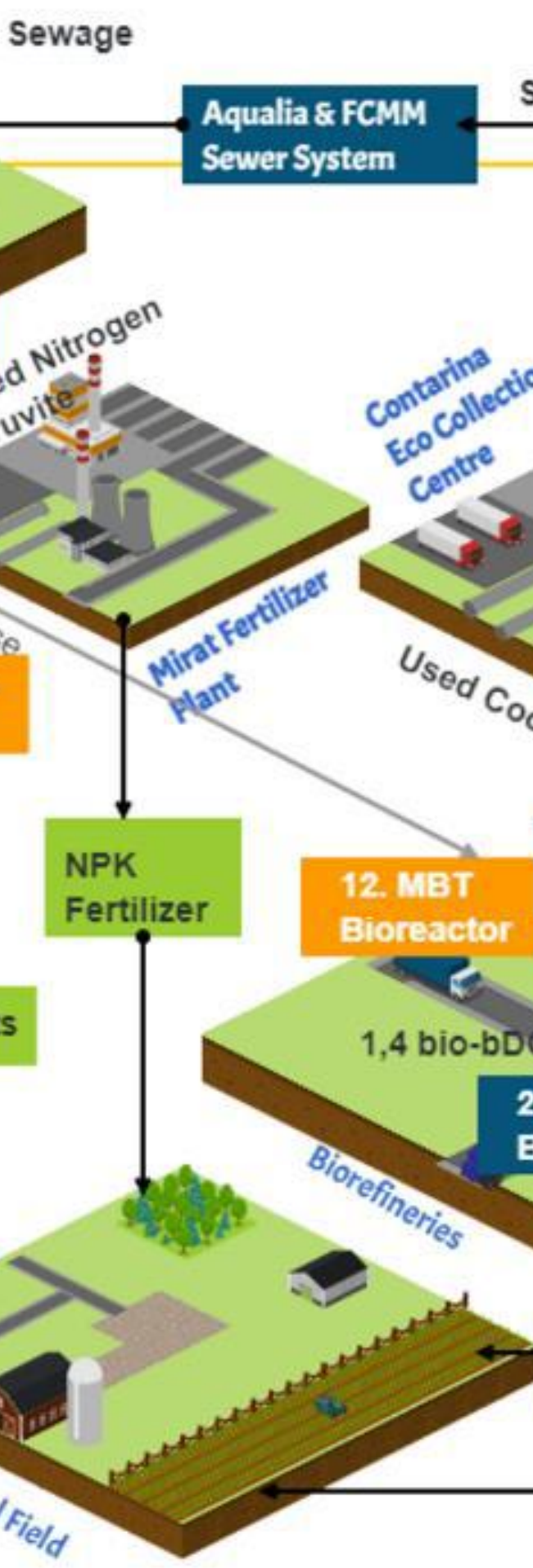
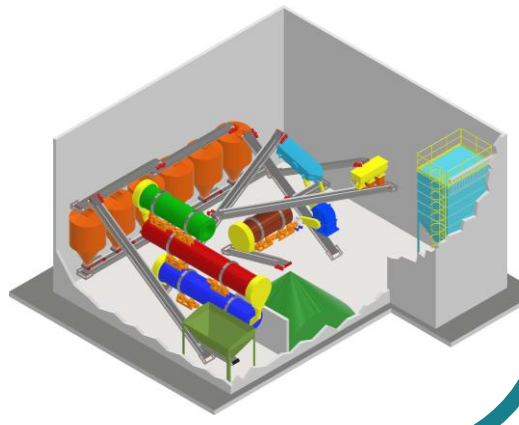


8. COUPLED ANAMMOX-FBR TO EXTRACT NITROGEN & PHOSPHORUS FROM UWW INTO NPK FERTILIZER

Study of improvements and optimization of the Anammox process (already installed at the Salamanca WWTP). The budgets for the programming modification and the mechanical and sensor improvements have been received. Work continues on the design of Aquavite® reactors for the precipitation of struvite from the liquid fraction of digestate.

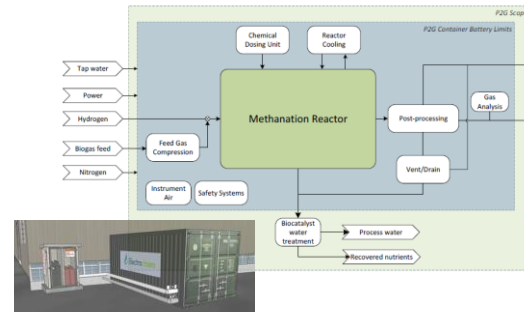


NPK fertilizer production plant design to use struvite as raw material. The treatment capacity will be adjusted to Aqualia's struvite production. Development of the preliminary design of the demonstrative plant. Working with various engineering firms for the final design and quotation.



9. H₂ & CO₂ ENHANCED METHANATION FOR P2G FOR UWW SLUDGE TO AD TO SYNGAS FOR P2G GRID LOAD BALANCING

On-site's scope definition in progress to align services and expectations. Exploring containerized solution: fast deployment, low site work and proof of concept mobility. Four supplier quotations in place. Preliminary project timeline established. Initial model for grid balancing and load following modes under development.



10. NOVEL DNF MEMBRANES FOR TERTIARY UWW PURIFICATION INCL. PFAS REMOVAL FOR AGRICULTURAL WATER REUSE

Development of the preliminary design of the demonstrative plant with a treatment capacity of approximately 20 m³/h. Final Design already done. Purchasing phase.



11. HIDROTHERMAL LIQUEFACTION OF BIO STABILIZED WASTE TO OBTAIN VALUE-ADDED BIOFUELS

Conversion of currently landfilled waste streams through HTL. Valorization tests on various waste fractions, including biostabilized waste streams.

Other processes:



Search phase for co-substrates to enhance the increase in biogas in anaerobic digestion
Design and evaluation of a plug flow tubular digestion system



Enhanced treatment for AD leachate. Methanation.



Study of the possibility of using existing biomass boilers with sewage sludge



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