



# SMART-Plant

Scale-up of low-carbon footprint  
material recovery techniques in existing  
wastewater treatment plants



## Biodrying and Dynamic Composting

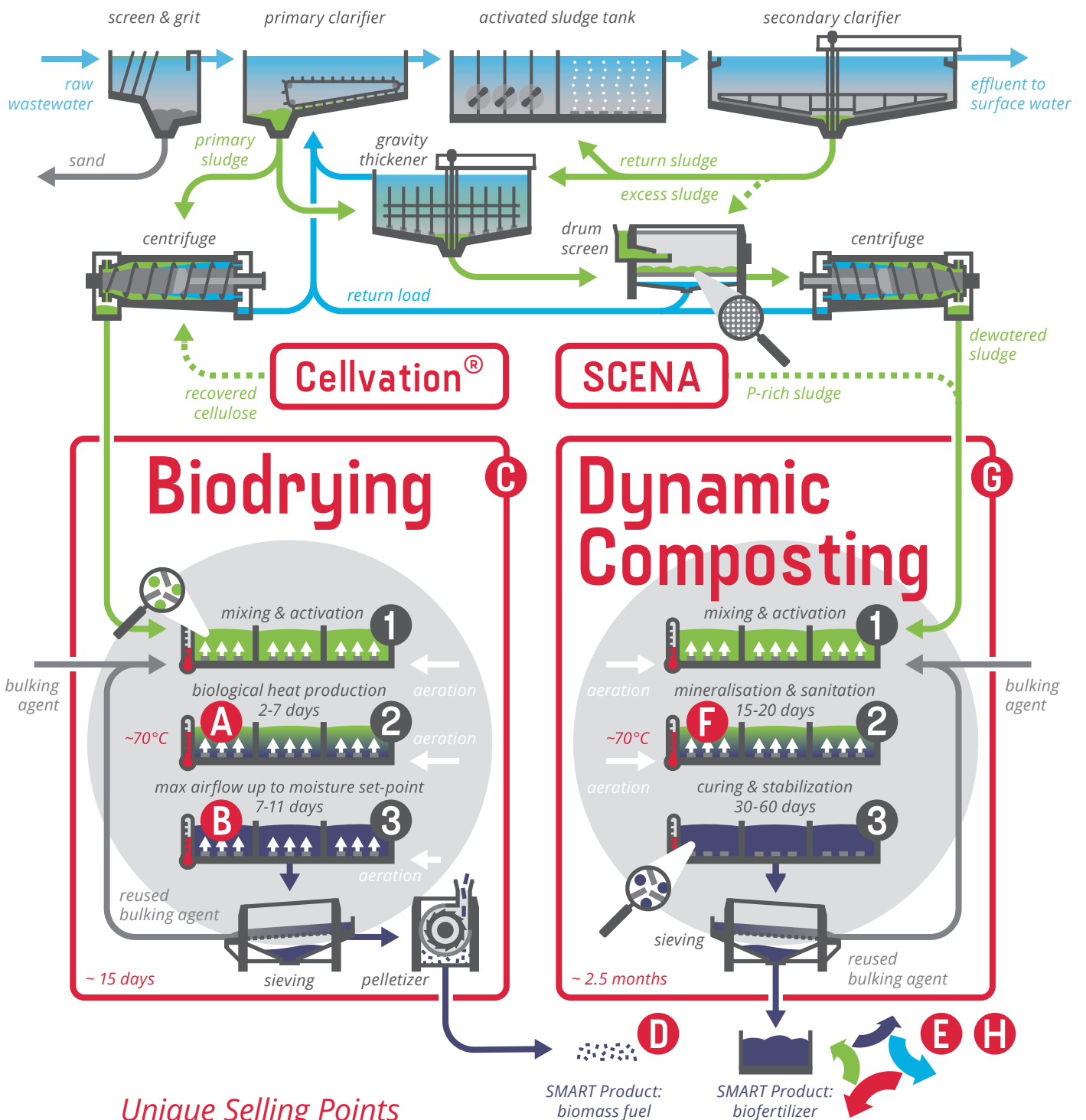
*Producing biomass fuel or  
biofertilizer from sewage sludge  
with low-energy  
biotechnology*

High prices for sludge disposal and goals of the circular economy demand for innovative processes to convert sludge into value-added materials or energy. For this purpose, BETA Tech. Center (TECNIO) from the University of Vic - Central University of Catalonia has developed advanced biodrying and composting processes to recover both energy and nutrients contained in sludge. These processes aim at producing biomass fuels with valuable calorific value and high quality biofertilizers, closing in turn material and energy cycles.

Within the SMART-Plant project, a modular pilot plant for biodrying and composting was operated at the wastewater treatment plant

of Manresa (ES). Using an energy-efficient aeration system, the biodrying plant converts cellulosic sludge into a biofuel with moisture content below 40 % and a lower calorific value between 9 and 12 MJ/kg of product. Dynamic composting of P-rich biological sludge yields a stabilised biofertilizer with high content of both phosphorus and nitrogen (> 5 % TS).





### Unique Selling Points

- A** Up to 65 % sludge moisture removal by mainly biological heat
- B** Advanced aeration control for a shorter bioprocess and optimization of land surface requirement
- C** Reduction of GHG emissions and energy consumption for moisture removal
- D** Increasing of LCV to as high as 12 MJ/kg
- E** Production of a biofertilizer with high stability + N and P content up to 5 % DM
- F** Advanced aeration control for an optimal organic carbon mineralization by maximizing the biological activity
- G** Reduction of GHG emissions and energy consumption for aeration
- H** Opportunity for tailor made fertilizers