

## Role in the project

The Institute for Water Quality, Resources and Waste Management of Vienna University of Technology is responsible for the methodological framework that is required to evaluate different sewage sludge options with regard to resource conservation and environmental performance. Investigated options are: Direct application to agricultural soils, mono-incineration and ashes to soil, mono-incineration and ashes to landfill, cement manufacture, co-incineration with coal, SUSAN-technology, and wet-chemical-treatment of sewage sludge.

## Applied methods

Material flow analysis (MFA)  
Statistical entropy analysis (SEA)  
LCA impact analysis  
Error propagation and data reconciliation

## Exemplary result(s)

Figure 1 shows the flow of phosphorous as determined for the SUSAN technology. The losses of P in the system are rather small and more than 90% of P is directed to agriculture. On the other hand, Figure 2 shows exemplarily for zinc that the SUSAN technology performs a beneficial and important cleaning process by transferring more than 99% of Zn into a concentrate qualified for safe underground disposal.

Figure 1

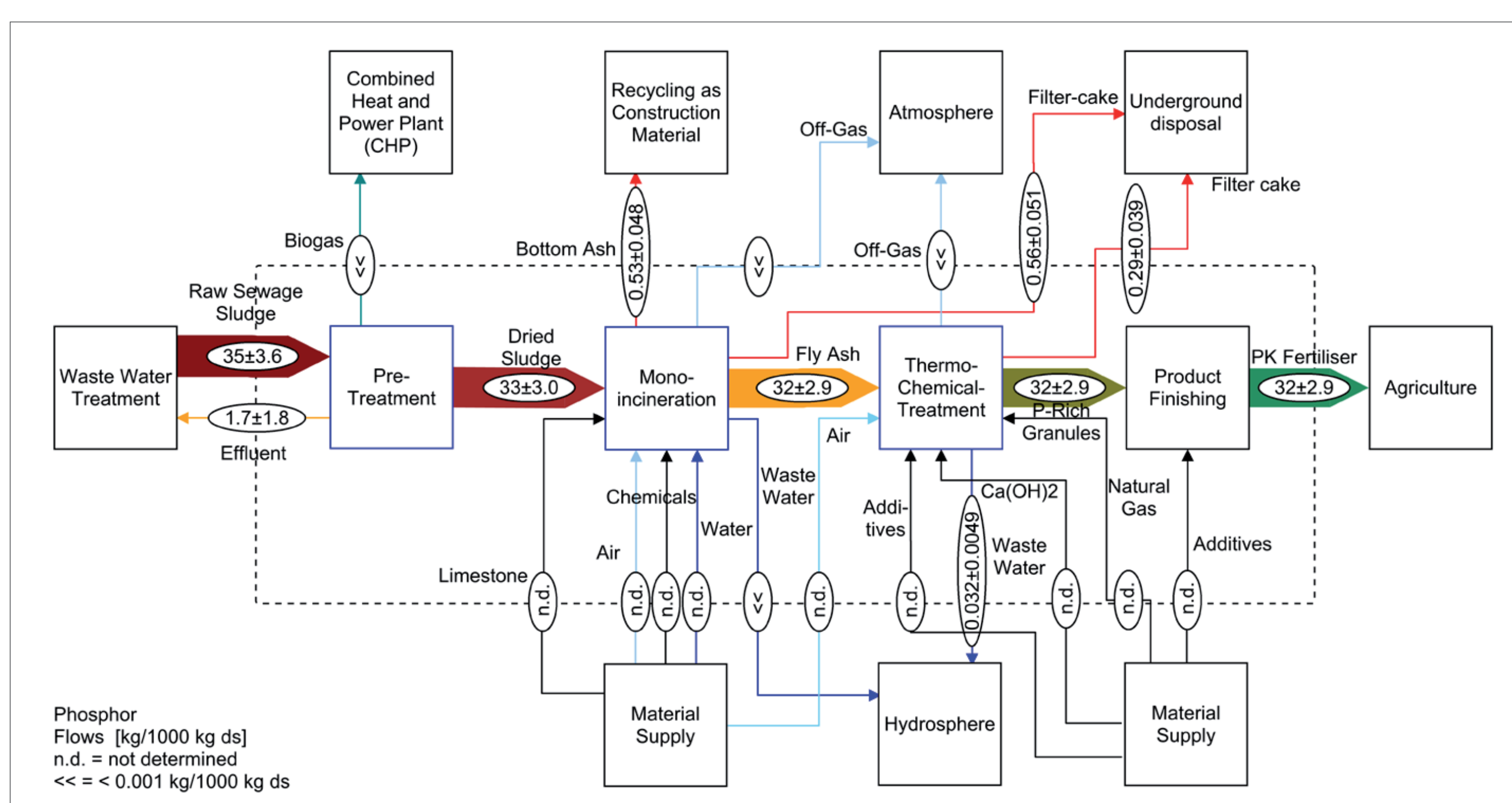


Figure 2

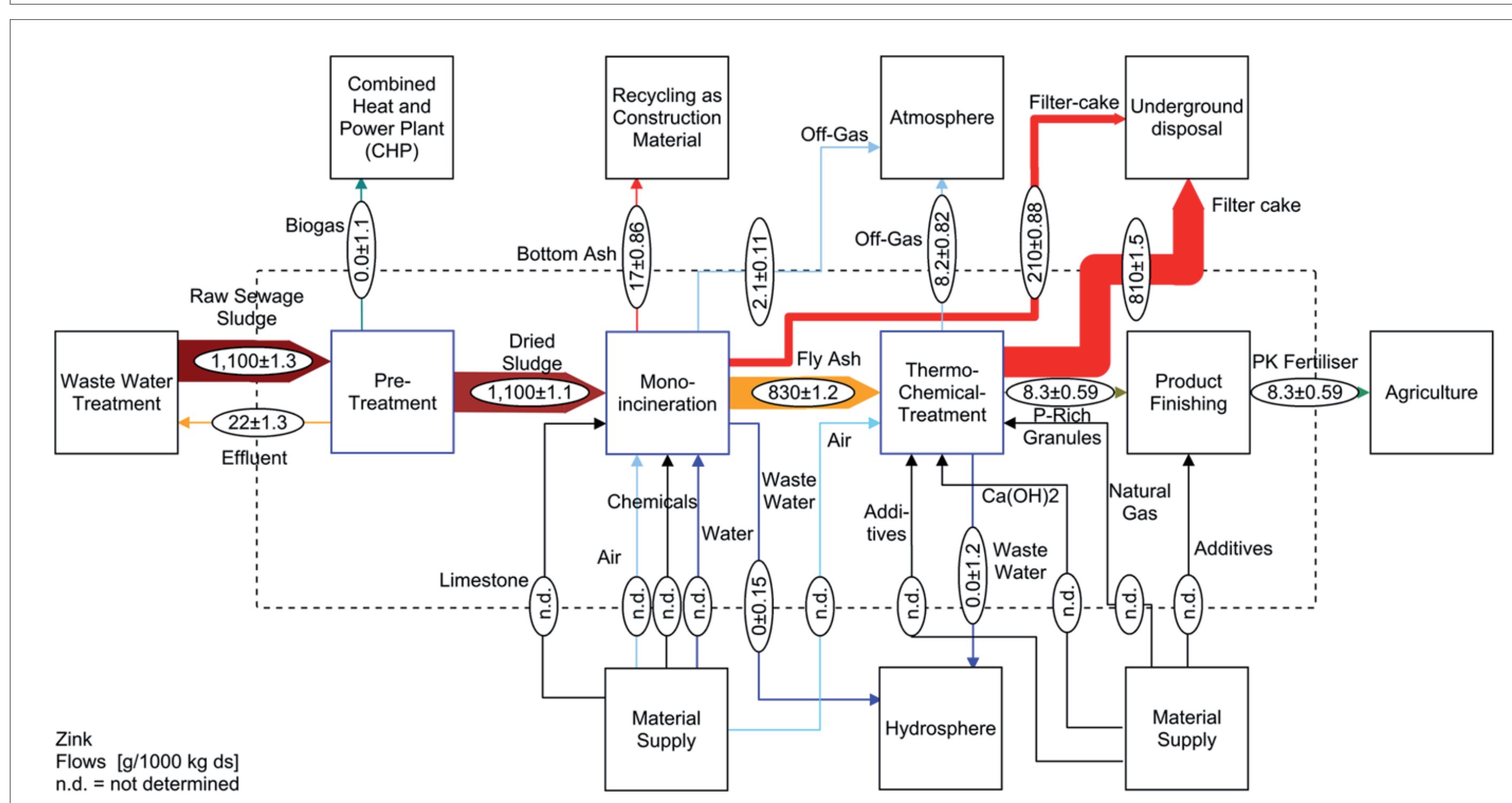


Figure 3

## Outlook

Figure 3 shows the Statistical Entropy Analysis (SEA) for the SUSAN technology and zinc.

Note that the contributions to Zn concentrating for the process steps pre-treatment, mono-incineration, and SUSAN core technology are very similar. All together (including waste water treatment) entropy is reduced by some 85% which is considerably compared to other known options (e.g., direct soil application).

