

## Valorisation of food waste to biogas

### Small-scale biogas upgrading for vehicle use



#### Gas scrubbing

- A new low energy gas scrubbing system is being investigated
- This is based on using water at lower pressures than is commonly used for systems designed for upgrading biogas for injection into the gas grid
- The upgrading systems are being designed to be robust and simple to maintain so that they can be used in remote locations, such as farms, where biogas can be produced from a range of organic wastes



#### Compression and bottling

- Gas for vehicles is commonly compressed to a pressure of 200 bar
- The research is looking at low pressure compression and storage options for vehicle fuel usage in rural parts of India where vehicle range may not be as important as in Europe
- Case studies are being carried out on vehicle fuel utilisation in the EU and India, particularly from small scale upgrading plant



#### Vehicle use

- Many different vehicle types can run on biogas or a mixture of biogas and compressed natural gas (CNG)
- One VALORGAS partner is collecting municipal waste from Westminster in London using a biogas powered vehicle
- There is an expanding network of public and fleet vehicle filling stations for both biogas and CNG and biogas could make a substantial contribution to meeting the demand vehicle fuel in the future



#### Dissemination and awareness

- In 2011 VALORGAS supported a summer school at Jyväskylä University in Finland on the topic of bioenergy from organic resources by anaerobic digestion
- More than 30 students on the course visited the Metener biogas upgrading facility and fuel station at the Kalmari farm in Laukaa
- VALORGAS is working with IEA Task 37, and the Kalmari farm digestion and biogas upgrading facility is being included as one of the case studies of success in biogas.