

## Questionnaire

NEWAPP (<http://www.newapp-project.eu/>) is a research project founded by the European Commission under FP7 program, aiming to develop a new valorisation pathway for biomass waste streams through Hydro Thermal Carbonization (HTC) technology. The HTC process converts wet biomass waste streams into carbon. Instead of releasing carbon dioxide into the atmosphere, the carbon biomass is transformed into a peat-like material, which can be used as a product.



The questionnaire seeks to uncover the quantities of biomass generated in households and how this is treated. This will provide an indication on need for improvements in organic waste treatment and to what extent enough organic waste is generated for the HTC solution to be feasible. To do this we would like you to answer 12 questions, which will be used for assessing the potential for HTC and organic waste treatment. The answers will be used assessing if there is a market for the HTC process and how to optimize HTC to organic waste. The questionnaire will not be used for comparisons of waste management between municipalities and regions.

### **General data**

- 1) Name of municipality/ region
- 2) Country
- 3) Population of municipality/region:
  - a. Number of persons living in single family houses:
  - b. Number of persons living in flats:

### **Waste quantities, composition, and collection**

For the questions we would like information on the specific quantities of waste generated and the waste composition. Furthermore information on the collection of organic waste is needed.

- 4) Is there source separation of organic waste at households?
- 5) What is the **collected** amount of source separated organic household waste?
  - a. Total (ton/year)
  - b. Kitchen waste (ton/year)
  - c. Garden waste (ton/year)
- 6) What is the total **generated** amount of source separated organic household waste?
  - a. Total (ton/year)
  - b. Kitchen waste (ton/year)
  - c. Garden waste (ton/year)

- 7) Is there known information about composition of other content (e.g. paper, cardboard etc.) in the source separated organic waste? If yes, then please describe in more detail below
- 8) Can seasonal variations in either quantity or composition of the waste be observed during the year? If yes, then please describe in more detail and what information this is based on below

### Waste characteristics

In this part we would like information on the chemical and physical characteristics of the organic waste

- 9) What is the moisture content of the collected organic waste (in %)
- 10) Other characteristics of the organic waste
- a. Elementary composition (%)

Carbon	
Oxygen	
Hydrogen	
Nitrogen	
Sulphur	
Metals	

- b. Other important information

pH value (range)	
Higher heating value (kcal/kg)	
Bulk density (kg/m <sup>3</sup> )	
Biomass density (kg/m <sup>3</sup> )	

- c. If you have additional informations available (i.e. from chemical analysis/sampling) then please add this here.

### **Waste treatment, costs, and household characteristics**

In these questions we seek information on the present treatment of the organic household waste, and the total cost for treating the waste.

**11)** What is the present treatment of the collected organic waste (Please fill in Table 2)?

**Table 1 Treatment of organic household waste**

<b>Treatment</b>	<b>Specify the contribution of each treatment type in %</b>	<b>Cost of treatment (€/ton)</b>
Composting		
Anaerobic digestion (biogas)		
Incineration		
Landfilling		
Other		

**Other additional comments/information you would like to add?**

**Thank you for completing this questionnaire, your contribution will be most helpful for the project.**

