



### **TITOLO PROGETTO**

<b>VALORGAS - Valorisation of food waste to biogas</b>
<b>Linea finanziamento: VII FP - Cooperation</b>
<b>Area Scientifico Disciplinare: 03_ Scienze chimiche</b>

**STRUTTURA (Dipartimento/Centro) :Dipartimento di Scienze Ambientali**

**DOCENTE RESPONSABILE SCIENTIFICO :PAVAN Paolo**

### **DATI FINANZIARI**

<b>Costo Complessivo del Progetto</b>	<b>Finanziamento Complessivo Assegnato</b>	<b>Costo totale delle attività a Ca' Foscari</b>	<b>Assegnazione Complessiva a Ca' Foscari</b>
<b>4.729.687</b>	<b>3.485.469</b>	<b>248.108</b>	<b>189.592</b>

**INIZIO ATTIVITA' (previsione)  
2009**

**FINE ATTIVITA' (previsione)  
2013**

### **ABSTRACT PROGETTO**

Food waste constitutes around 20% of the domestic waste stream in the EU, with approximately equal quantities arising from food manufacture and catering outlets: if food wastes from agro- and food industries are included an estimated total of 200 Mtonnes/year is available, at around 30% organic dry matter (ODM). Because of the high water content of this material, energy can only effectively be gained through biochemical conversion. The approach best suited to this is anaerobic digestion where yields of 400-450 m<sup>3</sup> methane per kg ODM can be achieved. The research explores the ways in which this energy potential can be realised through effective collection, preprocessing and optimisation of the fuel conversion technology, and considers how integration of these aspects with improving conversion efficiencies can maximise the net energy gains. It expands our rapidly-developing fundamental knowledge of syntrophic anaerobic microbial interactions, and applies this to the manipulation of reactor conditions in order to achieve stable operating conditions at high loading rates and volumetric efficiencies. It considers methods of upgrading the gaseous fuel product to extend the range of end user applications and the scales at which this technology can be exploited. It takes into account issues of biosecurity when using this material, and quantifies the environmental benefits associated with nutrient recycling which contribute significantly to indirect energy gains. The research combines techniques of waste audit, feasibility study, laboratory scientific investigation, technical-scale trials, plant.