

Allegato IV: corso di formazione a Bologna (dicembre 2008)



# **BiomAlba: Analysis and study of the feasibility of a biomass chain in Albania**

With the contribution of



Direzione Generale per la  
Promozione e la Cooperazione Culturale

## **BiomAlba: Analysis and study of the feasibility of a biomass chain in Albania**

### **Technical report 3 (Tr3)**

### **Report of the Workshop - Training (study visit): 16-20 December 2008**

<b>Project fiche</b>	
<b>Project title</b>	<b>BiomAlba: Analysis and study of the feasibility of a biomass chain in Albania</b>
<b>Rationale</b>	<p>These last years Albania has gone through several energy shocks, which have negatively affected production activities. Since 1991 the noticeably increased consumption of electricity by consumers has led to the reduction of security of supply. The reduced cost of energy fixed by the state, has encouraged a large use of electric energy in all domestic activities, thus the demand and consumption has risen even if not sustained by an increase of production. As consequence the imports are increased considerably.</p> <p>In this framework energy production is not diversified and is guaranteed for the most by oil, hydroelectric energy and natural gas.</p> <p>Despite the fact that there exist just a few experiences, the renewable energies are a strategic sector also for Albania.</p>
<b>General objective</b>	<p>The overall aim of BiomAlba ("BiomAlba: analysis and feasibility study of a biomass supply chain in Albania") is to promote, in accordance with the related EU policies, sustainable development in the Adriatic-Ionian countries with particular regard to energy issues, to environmental and health protection, and to the awareness of individuals and enterprises. Two elements of particular importance for the achievement of this objective are: a) the reduction of dependency from imported fossil energies through a better use of local resources, b) the reduction of the environmental impact of combustion processes.</p>
<b>Partners of the project</b>	<p><b>University of Bologna-Department of Agricultural Economics and Engineering, Italy</b> <b>Agricultural University of Tirana, Albania</b> <b>National Agency of Natural Resources, Albania</b> <b>Association of Olive Oil Producers of Albania (External Observer)</b></p>
<b>Donors</b>	<p><b>Ministry of Foreign Affairs, Italy</b> <b>CEI – Central European Initiative</b> <b>Ministry of Economy, Albania</b></p>

## Programme of the Workshop-Training

Day	Morning	Lunch	Afternoon	Dinner
15/12 Mon	Arrival			Holiday Inn
16/12 Tue	9.00 – 9.30 <b>Opening</b> 9.30 – 10.15 <b>Visit to Cadriano Station</b> 10.15 – 12.30 <b>Biomass Analysis: an Introduction</b>	Cadriano	14.00 – 17.30 <b>Biomass Analysis: Laboratory</b>	Holiday Inn
17/12 Wed	10.00- 12.30 <b>Institutional Experiences: The Case of Emilia Romagna</b>	Holiday Inn	14.30 - 17.30 <b>Field Visit: Biogas Plant in Castenaso</b>	Matusel
18/12 Thr	7.30 <b>Field Visit: LArge Scale Plant in Bando di Argenta</b>	Lunch box	14.30 <b>Field Visit: Small Scale Plant in Cesena</b>	Holiday Inn
19/12 Fri	9.30 - 12.30 <b>Workshop</b>	Holiday Inn	14.30 - 17.30 <b>Workshop</b>	Bottega dei Facchini
20/12 Sat	9.30 - 12.30 <b>Workshop</b>	Holiday Inn	Departure	

## Participants

**Adriano Guarnieri**, *University of Bologna*

**Aida Bani** – *Agricultural University of Tirana*

**Augusto Bianchini** – *University of Bologna*

**Genci Hoxhaj** – *Ministry of Environment, Forestry and Water Management*

**Fatmir Guri** – *Agricultural University of Tirana*

**Endrit Kullaj** – *Agricultural University of Tirana*

**Piro Mitrush** – *National Agency of Natural Resources of Albania*

**Giovanni Molari** – *University of Bologna*

**Velesin Peculi** – *Agricultural University of Tirana*

**Valentina Postoli** – *Albanian Association of Olive Oil Production*

**Rovena Preka** – *University of Bologna*

**Francesca Regoli** – *University of Bologna*

**Andrea Segrè** – *University of Bologna*

**Sulejman Sulçe** – *Agricultural University of Tirana*

**Luigi Vannini** – *University of Bologna*

**Matteo Vittuari** – *University of Bologna*

## **DAY 1 (December 16<sup>th</sup>)**

### ***9.30 – First meeting with the Albanian team at Cadriano station.***

A guided visit has been made to all the structures of Cadriano experimental station to have a look both to the different laboratories and didactic facilities and to the museum of tractors.

After the visits, Prof. L. Vannini and Prof. A. Guarnieri have presented to the group the research and didactic activities carried out at the Faculty of Agriculture and in particular at the Dept. of Agricultural Economic and Engineering.

Eng. Augusto Bianchini has discussed some of the main issues related to biomass energetic conversion introducing biomass analysis and experimental work.

He has focused on the presentation of the boiler located in Cadriano and on the byproducts that has been used till today, such as corn, teazle, soya seeds, sunflowers seeds. He has described the results concerning the percentage of humidity, the density and the calorific power for each byproduct.

### ***13.00 – Lunch at Cadriano station***

### ***14.30 – Laboratory on Biomass***

The afternoon of the first day of the workshop training course has been engaged to the combustion of the olive marc that the Albanian team had brought. The olive marc is the type of the biomass used in this project, thus the experiments had to be done on this specific biomass. The laboratory work has continued for several hours with the aim to analyze the calorific power of the olive marc, the time of combustion, the volume of effluents etc.

At first the olive marc has been introduced into the boiler from above with the same technical system used for the wheat straw, considering that this boiler was constructed to burn that kind of by-product. In fact with olive marc the combustion has been very slow, to confirm what Eng. Bianchini explained during the morning: each boiler should work and should have particular dimensions according to the product that will be burned in it, in order to have the best return. Therefore it has been decided to introduce the olive marc from the bottom with another technical system and immediately the combustion process has started to work much better. All the values coming from the combustion have been registered in a specific program of the computer, directly connected to the technical system of the boiler, to understand the performance.

## **DAY 2 (December 17<sup>th</sup>)**

### ***10:00 – Contribution of Daniela Sani – ASTER***

Dr. Daniela Sani has explained that Aster is a consortium among Emilia-Romagna Region, University, Research Institutions and firms for the developing of regional common services and project in order to promote the industrial research, the technological transfer and the innovation of the working realities of the Emilia-Romagna Region. After that she has presented the energetic plan of the Emilia Romagna region (REP 141/07), the regional policy tools in the energetic field, the energy framework law.

The Albanian team has demonstrated a strong interest in the overall organization of the consortium.

### ***13.00 – Lunch at Holiday Inn***

### ***14.30 – Visit to Mengoli Biogas Station in Cadriano (Bo)***

The visit to this station has been quite important due to the production of biogas from animal byproducts through the bacterial fermentation of the animal effluents. The cycle is a closed one and represents a perfect example of good energy practices. The plant has a power of 350 kw and they sell around the 90% of the produced energy to the ENEL (National Body for the Electric Energy).

### **Day 3 (December 18<sup>th</sup>)**

#### **10:00 – Visit to Bioenergie San Marco s.p.a – Bando di Argenta (Fe)**

The plant of Bioenergie San Marco s.p.a. works with biomass of vegetal origin from dedicated crops, agro-industrial byproducts and wood maintenance. The plant has a power of 20 MW, it is the biggest one for the Italian northern and central regions and it has a net electric productivity, which overpasses the 25%. The electric productivity of 160.000 MWh per year satisfies the needs of 27.000 inhabitants.

After the general presentation of the plant, the technical manager has taken the group to visit the structure of the plant.

#### **13.00 – Lunch at Cadriano Station**

#### **15:00 – Visit to AMGA Energia in Cesena**

This plant, composed of 2 boilers, works with pellets realized by the byproducts of the parks pruning and it has been warming since 2000 the buildings of the Cesena Fair Complex. Each boiler has a power of 640 kW; at the building of the Fair it has been distributed 459.370 kWh, with a seasonal average performance of 73%.

### **Day 4 (December 19<sup>th</sup>)**

#### **9.30: Workshop at the Faculty of Agriculture – Revision of the working papers and brainstorming**

The workshop has begun with a series of reflections and a collection of inputs concerning the visits organized during the previous days: the opportunity to visit several biomass plants has been very important and useful for the Albanian partners.

The workshop continued with a preliminary assessment of the current situation of the project and of the activities that has been carried out. Each partner has presented the working packages that were under its responsibility.

Each working package has been evaluated and reviewed with the aim to identify the further steps that have had to be taken in order to reach the main goals of the project.

The discussion has been strongly focused on the identification of the most appropriate methodological tools.

First of all it has been decided to support the macro analysis with a micro level analysis. The macro analysis would have been based on the general data available at the district level both for the overall production and for the total number of olive trees. As far as the micro level analysis is regarded on the one hand it has been decided to have a second round of the survey that has been submitted to the olive oil producers, and on the other hand it has been decided to identify several scenarios (In a wide sense the **scenario analysis** is a process of analyzing possible future events by considering alternative possible outcomes - scenarios -. The analysis is designed to allow improved decision-making by allowing consideration of outcomes and their implications.)

Three possible scenarios has been identified as far as the location of the power plant is regarded; moreover for each one of these scenarios three sub-scenarios related to the level of production of olives have been identified.

Regarding the location of the power plant the following scenario will be analyzed:

- a feasibility study of the olive marc chain for biomass purpose is to be done taking as point of reference the **University of Agriculture of Tirana**. This location satisfies several aspects of the research such as the diffusion of good practices since the students of this university will have the possibility to look at a concrete solution of the question of renewable energy;
- another scenario will be the **Sanatorium**, a hospital in Tirana, that is located quite close to some olive trees plantations and represents an important option in term of final usage;
- the third scenario will be the Centre for Agricultural Technology Transfer (CATT) located in Vlora, one of the regions with more olive production and consequently with more olive mills. The CATT is connected with the University of Vlora.

Regarding the production of olives, considering its fluctuation, three sub-scenarios has been identified:

- high production;
- medium production;
- low production.

### **Day 5 (December 20th )**

#### ***9.30: Workshop at the Faculty of Agriculture – Follow up of activities***

The second day of the workshop it has been focused on different issues:

- the research group drafted a new version of the questionnaire that has to be submitted to the olive oil producers during the second round of the survey. The second round of the survey will be terminated by the second half of January and will allow to have a wider data set;
- discussion and identification of the deliverables;
- discussion of the main issues related to the organization of the final conference in Tirana;
- identification of the main strategies aimed to the promotion of the scientific results of the project;
- discussion and identification of possible synergies with other projects;
- identification of additional funding opportunities in order to continue the collaboration between the partners and so the research related to the use of biomass as a primary source of energy;
- further collaborations and follow up of the project;
- the opportunity to present a joint Tempus proposal aimed to promote PhD schools in the Western Balkan Countries.

#### ***13.00: Departure***