

## **Final Progress Report**

Sustainability Science Program

October 1, 2008 – August 31, 2009

**Name:** Matteo Vittuari

**Date:** August 25, 2009

**Field(s):** agricultural policy; rural development policy; bioenergy.

### **Faculty host(s):**

Bill Clark, Harvey Brooks Professor of International Science, Public Policy and Human Development, Belfer Center for Science and International Affairs

Center for International Development

Henry Lee, Jassim M. Jaidah Family Director Environment and Natural Resources Program, Harvard Kennedy School

### **SSP-related research activity:**

Title: Sustainable rural systems: the case of biomass production in Albania.

#### Abstract (one paragraph)

The research aims to explore and analyze the main elements of local environmental governance and agricultural and rural development policy in Albania on the potential of local biomass production. Can biomass production represent a driving force to provide opportunities to improve livelihoods and so to foster a sustainable rural development process?

Key question asked about the problem: how biomass production can represent a driving force to provide opportunities to improve livelihoods and to foster a sustainable rural development process?

The methods by which you answered that question (1 sentence to a paragraph): The overall methodological approach is based on the theoretical framework on case studies built by R. Yin. Within the case study additional methodological tools will be used: agrarian system analysis; swot analysis; system approach.

Principle literature upon which the research drew (methodological and substantive, e.g., innovation, incentive-based environmental management, science and technology studies): Case study methodology, bioenergy production, sustainability science, energy policy, rural policy, agricultural and food policy, European policy, regional policy, social assessment, business scheme.

Empirical data acquisition description (1 sentence to a paragraph): questionnaires and additional interviews with relevant stakeholders.

Geographical region studied (if appropriate): Albania with a specific focus on the regions of Tirana and Vlore.

A description of the final product(s) you have/are aiming to produce (e.g., article in X journal): article in a specialized journal: Journal of Agrarian Change; Biomass and Bioenergy; European Journal of Agricultural Economics.

**Other connected activities over the past academic year:**

**a) Conferences** (where it has been presented a paper or given an oral presentation)

- 1) BiomAlba: analysis and study of the feasibility of a biomass chain in Albania, Project Final Conference, Tirana – Albania, April 27-28, 2009
- 2) 111th EAAE-IAAE Seminar Small farms: Decline or Persistence? Canterbury, 26<sup>th</sup>-27<sup>th</sup> June 2009
- 3) 17th European *Biomass* Conference and Exhibition 2009 - From Research to Industry and Markets, Hamburg – Germany, July 2009

**b) Publications**

- 1) M. Vittuari, A. Segrè, *Institutional Reforms and Small Farms in Republika Srpska*, (*under review at the European Review of Agricultural Economics “special issue on small farms”*)

Abstract

In describing the evolution of the Balkans Micheal Pailaret used the expression “*evolution without development*” and concluded that policy makers had spoiled rather than valued the natural and human resources of the region. Within this framework agricultural and rural areas have been often neglected to the periphery not only physically, but also economically and politically. This is particularly evident in Bosnia and Herzegovina due to the extremely complex administrative organization created with the Dayton Peace Agreement in 1995. This complexity has led to an extremely controversial policy environment that has been strongly characterized by the lack of a long-term perspective and by a non-harmonized regulatory framework in which single municipalities have promoted individual development strategies.

The development of clear policy objectives and endorsement of a long-term, coherent and mutual agricultural and rural development policy have also been affected by structural problems: a lack of reliable information on population and other relevant issues, the absence of an adequate land registry system and cadastre. Moreover BiH agricultural sector is characterized by many factors that have typically affected transition countries such as land fragmentation, lack of agricultural mechanization and outdated production technologies, and rural aging, high unemployment and out-migration. Small farms still dominate rural areas so their viability and their inclusion in long term agricultural and rural development strategies still represent a major issue in the academic and political debate.

The research aims to explore and analyze the main elements of agricultural and rural development policy in Bosnia and Herzegovina with a particular focus on Republika Srpska. A particular attention has been given to the integration of the multiple character of rural development (agricultural, economical, environmental, etc.) and to the institutional capacity to identify adequate instruments and mechanisms.

The paper is based on the use of different methodological tools including the agrarian system analysis; the investigation of existing literature, official documents and reports; a field survey; a number of interviews with policy makers and key informants.

- 2) M. Vittuari, E. Kullaj, G. Molari, A. Segrè, S. Sulce, F. Regoli, *Technical-economical feasibility of a small scale plant for olive by-products direct combustion*, Proceeding of the 17th European **Biomass** Conference and Exhibition 2009 - From Research to Industry and Markets, Hamburg – Germany, July 2009.

#### Abstract

All agricultural activity and related land use lead directly to other non-agricultural functions ranging over social, environmental, economic and cultural goods and services. Following a positive approach to the "multifunctional character" of agriculture one of the emerging and central elements is the production of energy. In the last decade there has been a renewed interest toward the use of biomass for energy production, both at the political and user level, in developed as well as in developing and transition countries.

The present work investigates the potential economic and technical impact of a biomass supply chain in Albania, a country that in the past decade suffered of energy shocks that have negatively affected production activities and increased the dependency on foreign energy sources. In this framework Albanian energy production is not diversified and it is guaranteed for the most by oil, hydroelectric energy and natural gas. Despite the fact that in the country just a few experiences exist related to renewable energies, they represent a strategic sector. More in particular this paper represents the first phase of a work aimed to analyse the economic and technical feasibility of the realization of a small scale pilot plant for the direct combustion of biomass made up by agricultural by-products such as olive marc (olives and olive oil are traditional Albanian productions). Besides this approach also intends to offer a contribution in developing a sustainable, adaptable (referring to the regional peculiarities) and hence, replicable model.

The expected final results of this work include the analysis and characterization of olive by-products; the estimation of the quantity and the potential of biomass as an energy resource, both in their economic and energetic aspects; and the evaluation of the socio-economic impact of the creation of a biomass supply chain on local communities. The present paper aims to illustrate the preliminary results of the research.

Keywords: biomass, olive by-product, transition economies, small scale plants, renewable energy.

- 3) A. Segrè, M. Vittuari, *Selected issues in agricultural and rural development in Central Eastern Europe and the Balkans*, Est-Ovest Interdisciplinary Review on European Integration Studies n.1/2009, Trieste, Italy.

#### Abstract

The agricultural sector in Central Eastern Europe and the Balkans has been characterized by tremendous changes in the last decade. This transformation has been driven by local, regional, and international political and economic issues (i.e. the transition from the plan to the market; the European integration process), social issues (i.e. rural – urban migration, increasing importance of rural development policies), environmental issues (i.e. climate change), energy issues (i.e. bioenergy). The work of Andrea Segrè and Matteo Vittuari is aimed to offer an assessment of some of the main issues in agricultural and rural development in the region and at the same time to identify some of the most relevant areas for further analysis.

#### **c) Project and project ideas**

### 1) Executive training “Sustainability Science in the Western Balkans”

The programme seeks to train a number of experts in designing, implementing and evaluating effective interventions to promote sustainable development. Moreover it aims to strengthen their knowledge and understanding of human-environment systems; to improve linkages between relevant research and innovation communities on the one hand, and relevant policy and management communities on the other; and, more broadly, to build capacity for linking knowledge with action to promote sustainability.

Programme aims:

- a) To increase the skills of the participants to improve their capacity in designing, implementing and evaluating appropriate policies in the area of sustainable development;
- b) To assist local institutions/organizations for complying with climate change international rules, including for the creation of the Designated National Authority for the Clean Development Mechanism and Joint Implementation projects;
- c) To strengthen and broaden the regional network created by the Italian Minister for the Environment, Land, and Sea;
- d) To realize a concluding document with the final results of the programme.

### 2) “Project *BiomAlba Plant: energy from olive oil by-products*”

Realization of a biomass pilot plant based on the use of olive oil by-products at the Agricultural University of Tirana. The project idea is based on the preliminary outcomes of the research led at the Center for International Development at Harvard University during the academic year 2008-2009. A project proposal will be presented within the IPA (European Instruments for Pre-Accession Assistance<sup>1</sup>) funds (through a consortium composed by:

- the Center for Central Eastern Europe and the Balkans at the University of Bologna,
- Aster ([www.aster.it](http://www.aster.it))
- Regione Emilia Romagna (<http://www.regione.emilia-romagna.it/energia/>)
- Agricultural University of Tirana, Albania (<http://www.ubt.edu.al/>)
- Albanian National Agency for Natural Resources, Albania (<http://www.akbn.gov.al/>)
- Vinca Institute, Serbia (<http://www.vin.bg.ac.yu/>)
- University of Banja Luka, Bosnia Herzegovina

### **Principal collaborators outside Harvard**

W.H. Meyers (FAPRI – University of Missouri, USA)

E. Kullaj (Agricultural University of Tirana, Albania)

S. Sulce (Agricultural University of Tirana, Albania)

N. Bogdanov (University of Belgrade, Serbia)

B. Grubor (Vinca Institute, Serbia)

Z. Vasko (University of Banjaluka, Bosnia Herzegovina)

G. Rokvic (University of Banjaluka, Bosnia Herzegovina)

A. Segre’ (University of Bologna, Italy)

M. Canali (University of Bologna, Italy)

G. Molari (University of Bologna, Italy)

### **Fellowship experience**

---

<sup>1</sup> [http://europa.eu/legislation\\_summaries/agriculture/enlargement/e50020\\_en.htm](http://europa.eu/legislation_summaries/agriculture/enlargement/e50020_en.htm)

The multicultural and multidisciplinary context is extremely challenging and exciting. There are an incredible number of inputs, ideas, resources and different perspectives and approaches. To share knowledge and to get the opportunity to discuss with researchers with different approaches and backgrounds is also unique.

Overall I had a great experience. I believe I will be able to understand the real benefits and achievements only in the next months and years.

I would find useful to have at the beginning of the fellowship a 2-3 days workshop in an isolated place in order to facilitate and speed up the interactions and the connection among the fellows.