Sustainable regional supply chains for woody bioenergy
Experiences from Bulgaria, Serbia and Croatia

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German federal enterprise owned by the Federal Republic of Germany

Supports the German Government, public and private sector clients in achieving their objectives in international cooperation

Operations in Germany and over 130 countries around the world

Over 16000 employees worldwide

Business volume of over EUR 2.03 billion in 2014

Main commissioning party: the German Federal Ministry for Economic Cooperation and Development (BMZ), whose share of the total income from public-benefit business exceeded EUR 1.6 billion in 2014

Commissioned by well over 300 public and private-sector bodies in Germany and abroad
Context - Key Facts of the EU-BioRES Project

Overall Objective: Market uptake of domestic woody bioenergy supply chains by introducing the innovative concept of **Biomass Logistic and Trade Centres (BLTCs)** as regional hubs based on cooperation with European partners

- more resource efficient use of wood energy products for households, heat and power utilities, public buildings, SMEs/industry

Implementation: Setting up new BLTCs in Serbia, Croatia, Bulgaria in areas with high woody biomass potential;

Project Duration: January 2015 - June 2017 (30 months)

Project Budget: 1,86 Mio. EUR funded by European Union’s Horizon 2020 research and innovation programme

Consortium: 9 Partners from 8 European countries
Context – specific objectives of the EU-Project BioRES

1. **At least 6 - 8 new Biomass Logistic and Trade Centres (BLTCs)** distributed over at least 2 of the 3 countries

2. Sales agreements with energy consumers in rural areas for a **total of at least 8,000 tons per year** (in average 1,000-1,500 tons per year per BLTC) of woody bioenergy products, backed by at least the same volume of delivery agreements with producers

3. A total of **at least 12 trainers** (representatives of commercial associations of bioenergy producers or of regional energy agencies) and **at least 400 potential actors along the supply chain are trained and their capacities developed** on how to implement and manage regional supply chains for quality woody bioenergy products from sustainable forestry
EU biomass supply for electricity, heating and cooling (Mtoe, 2012-2020)

Source: EU Commission Staff Working Document, 2014: State of play on the sustainability of solid and gaseous biomass used for electricity, heating and cooling in the EU; Data from National renewable energy action plans (NREAPs)

- Forestry will remain the main supply sector
Context in Serbia, Bulgaria and Croatia

- High dependency on fossil fuel imports for energy – mainly coal, oil and gas (subsidized)
- Early stage development of market structures for renewable energy sources and forest sector – woody energy products from Bulgaria, Serbia & Croatia are mainly exported
- Energy utilities and forest resources are mainly state owned
- Most of the power and heat generation facilities are old, inefficient and highly pollutant
- Low level of cooperation/organisation among private forest owners (many very small plots < 1 Ha)
- High biomass potential from forests and wood residues
- Sustainability: state forests are mainly FSC- FM certified: in Croatia 80% of the total forest area, in Bulgaria 25%, in Serbia around 45% of the total forest coverage; low CoC certification in all 3 countries
Key issues & Challenges in Serbia, Bulgaria and Croatia

- **Mobilization** of reliable supply from private and state-owned forests and wood residues
- **Developing local demand** -> requires **finance models** for substituting old heating boilers and for switch from fossil fuel to biomass
- **Quality assurance** of standardised woody energy products
- Dominance of state enterprises
- Developing **trust** among key actors along the local value chains
- **Capacities** on entrepreneurial skills, logistics, norms and standards, sales and marketing for developing the bioenergy market
- **Cross-sectoral collaboration** and understanding of needs between Forestry and Energy is necessary (B2B, in politics)
- You need **pioneers**
What’s a Biomass Logistic and Trade Centre (BLTC)?

- BLTCs are local or regional centres with optimized logistics and trading organization, where different woody bioenergy products (or heat) are marketed at standardised quality focusing on the domestic market uptake.
- At the initial investment stage, a BLTC can be a marketing and sales platform.
- Can develop into a BLTC with its own production, storage and logistic facilities when the local market reaches critical volumes allowing the amortisation of investments.
- It’s an innovative business model competitively operating as an intermediator to organise local woody bioenergy value chains between local biomass suppliers and customers of different scales from private households up to deliveries to heat and power plants.
- In Slovenia, Austria, Germany and Finland BLTCs of different shapes are competitively operating.
BioRES has received funding from the European Union’s Horizon2020 research and innovation programme under grant agreement No 645994.

**BioRES approach** - Biomass Logistic and Trade Centres: [www.bioresproject.eu](http://www.bioresproject.eu)

- Forest owners
- Saw mills
- Wood processing
- Entrepreneurs

30-40 Km supply and market radius

BLTC = regional Hub

- Logistics & marketing
- Processing & storage
- Quality management
- Matching supply and demand

Public buildings

Energy utilities

Industry/SMEs

Households

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Local value chains of woody bioenergy products
BioRES approach - Biomass Logistic and Trade Centres

- 15 priority locations for new BLTCs based on a set of criteria are identified
- Assessment of regional market potentials for the production and use of woody bioenergy products
- Initiating the establishment of investor groups/organisational structure of new BLTCs
- International knowledge sharing and technology exchange of best practice operations
- Stakeholder dialogue, local consumer information and awareness building
- Conducting site-specific feasibility studies
- Advisory services for BLTC business plans as well as for sale agreements on supply and demand side
- Enhancing local capacities at all stages along the regional supply chains for quality-controlled woody bioenergy products from verified sustainable forestry
- Developing training material, brochures and a practitioner’s guidebook

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Best practice example from Austria

verified quality control

security of supply

Location, Biomass-potential:

- catchment area:
  - ~138,500 inhabitants
  - 72.3% forest
  - ~70% farmers, private
  - ~30% municipality, church

- 5 big heating plants
  - several small heating plants

action circle: 30km Radius for suppliers and customers

www.biomassehof-stmk.at
BioRES - Expected impacts

• The share of woody bioenergy on the domestic market is increased
• Development of the bioenergy sector by implementing woody bioenergy as a reliable and standardized fuel
• Ensuring sustainability by mobilising woody biomass from verified sustainable forest management
• Transaction costs & lead time required for the development of a new BLTC until the start of operation have been reduced
• Better local policy and commercial frameworks for BLTCs
• New Jobs for rural actors/SMEs along the local value chain development
• Fossil energy demand for heating/electricity is reduced due to fuel switch to woody bioenergy products → measurable significant CO2 emission reduction on regional level
• Improvement of energy efficiency occurs from the localization of woody bioenergy trading → reducing transport distances and carbon footprint