

Analysis on the use of forest biomass in Centru Region and innovative solutions and good practices used for the recovery of the post-Covid-19 forestry sector



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Methodology Approach

- ▶ Statistical assessment
- ▶ Main sectors in forest-based industries:
 - ▶ Forest Management
 - ▶ Timber Industry
 - ▶ Construction with Wood
 - ▶ Furniture Industry
 - ▶ Paper and packaging industry
 - ▶ Biomass to energy sector



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Methodology Approach

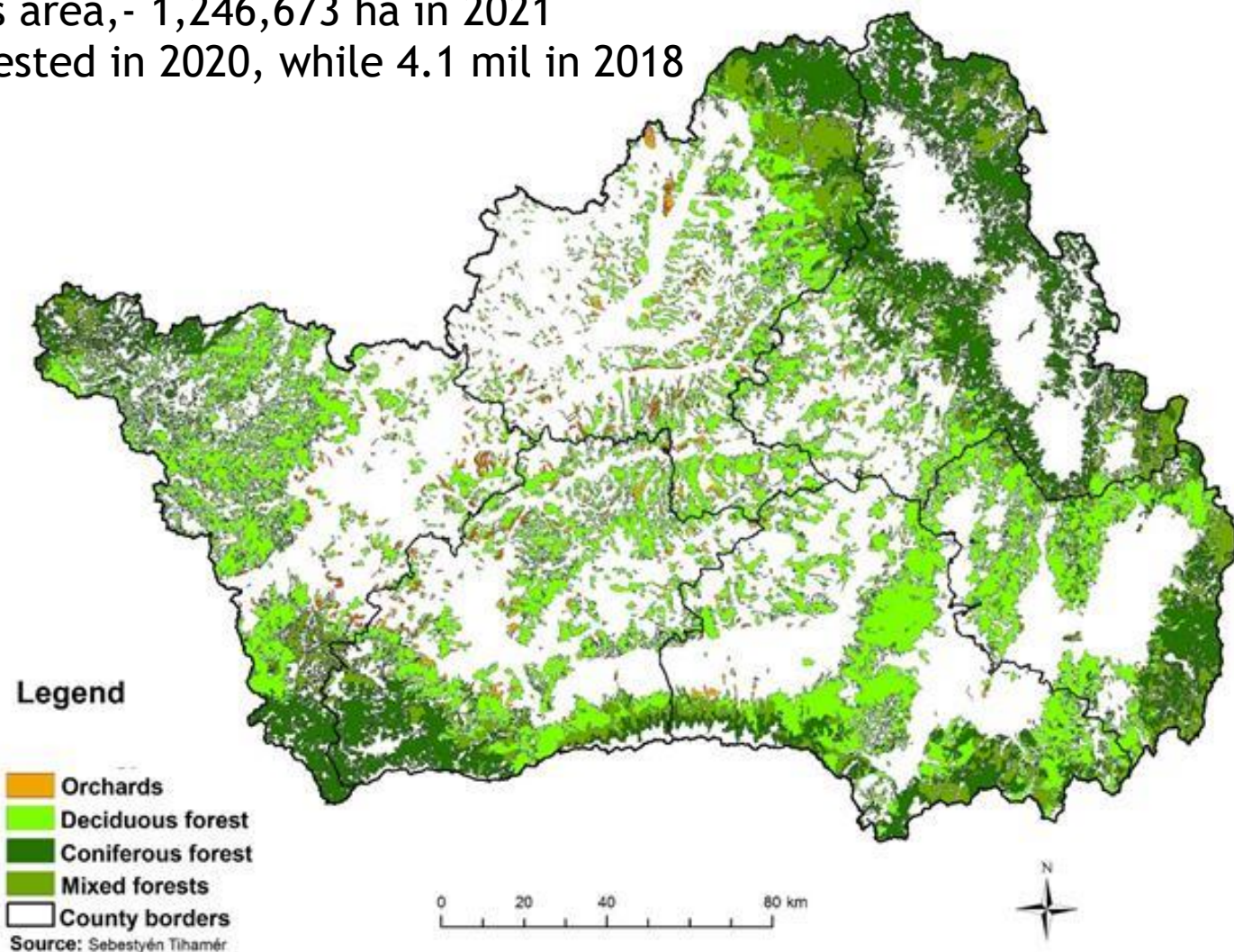
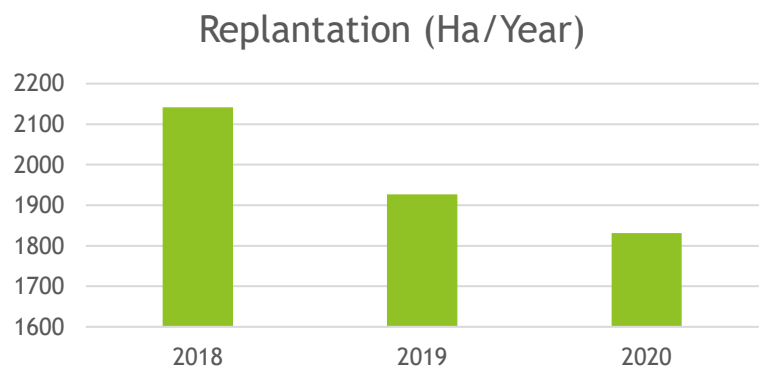
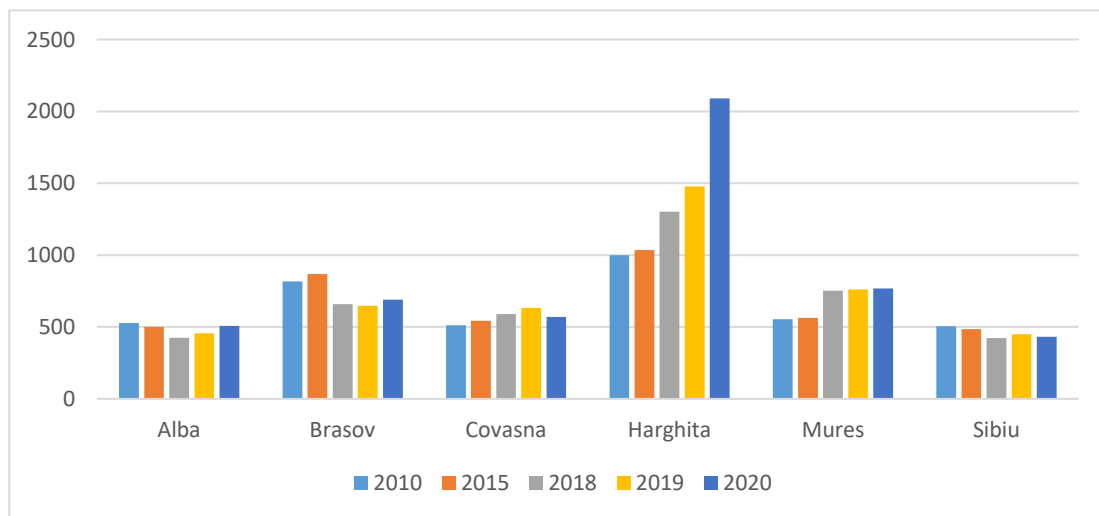
- ▶ **Availability of Input Data**
- ▶ **Regional Data**
 - ▶ Lack of data
 - ▶ Interpolation and derived data from secondary data sources (economic data of imports and exports, the number of employees)



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1. Forest Management and Harvesting

- The forest vegetation covers 36.55% of the region's area, - 1,246,673 ha in 2021
- A total of 5.055 million cubic meters of wood harvested in 2020, while 4.1 mil in 2018



2. Timber Industry

- ▶ - recorded a slight increase during the Covid Period
- ▶ - 13% of the labor force from manufacturing industry between 2019-2021
- ▶ - 7.7% of regional exports
- ▶ - At the regional level, the timber industry has a relatively higher economic importance than at the national level
- ▶ The number of employees did not decrease, on the contrary, there was an increase in wood processing by 1.5%

Wood panel production in 2021

| County | No. Companies | Turnover (Mil. RON/y) | No. Employees |
|---------------|---------------|-----------------------|---------------|
| Alba | 6 | 1700 | 751 |
| Braşov | 14 | 270 | 279 |
| Covasna | 2 | 1650 | 540 |
| Harghita | 4 | 1,6 | 26 |
| Mureş | 5 | 5 | 60 |
| Sibiu | 1 | 15 | 30 |
| Centru Region | 32 | 3641,6 | 1,686 |

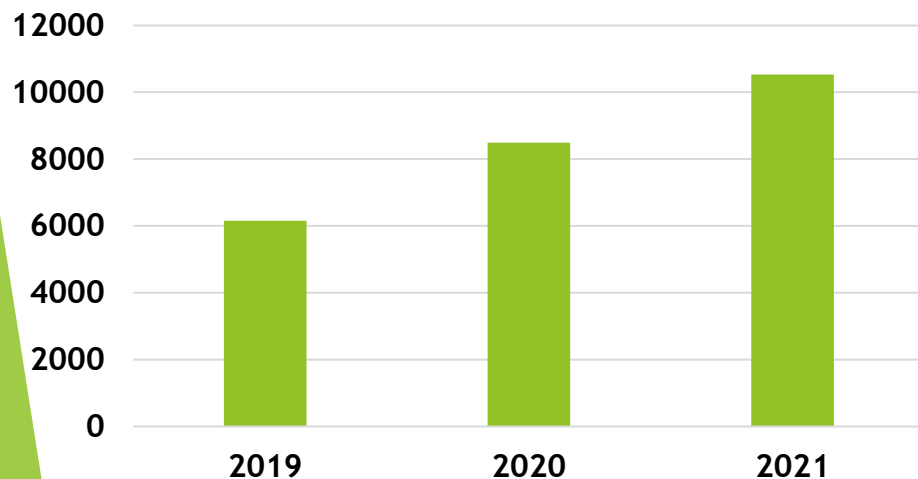
Timber production in 2021

| County | No. Companies | Turnover (Mil. RON/y) | No. Employees |
|---------------|---------------|-----------------------|---------------|
| Alba | 144 | 124.4 | 657 |
| Braşov | 71 | 141 | 767 |
| Covasna | 67 | 121 | 752 |
| Harghita | 252 | 237 | 1262 |
| Mureş | 116 | 787 | 1485 |
| Sibiu | 61 | 97.9 | 327 |
| Centru Region | 711 | 1508 | 5250 |

3. Construction with Wood

- ▶ Traditional construction material in Centru Region
- ▶ Increase after the lockdown in 2020, over the 2019 level,
- ▶ Residential construction/refurbish 40% of total construction, carpenter companies
- ▶ Over 25% of the construction materials used in Centru Region:
 - ▶ - wooden beams, rafters, roof supports
 - ▶ - doors, windows, shutters and their frames,
 - ▶ - stairs, railings, shingles
 - ▶ - manufacture of prefabricated wooden constructions

No. Of Residential Construction



| County | No. Companies | Turnover (Mil. RON/y) | No. Employees |
|-----------------|---------------|-----------------------|---------------|
| Alba | 47 | 21 | 170 |
| Braşov | 46 | 20 | 99 |
| Covasna | 26 | 14 | 101 |
| Harghita | 123 | 130 | 923 |
| Mureş | 49 | 130 | 517 |
| Sibiu | 25 | 11 | 88 |
| Regiunea Centru | 316 | 326 | 1898 |

4. Furniture Industry

- ▶ Wooden furniture exports is decreasing in the last 3 years, amounted to over 1 billion EUR
- ▶ Increase of the domestic market demand
- ▶ Furniture manufacturers faced in the period 2021-2022, with major problems with rising raw material prices (200-250%)
- ▶ The number of employees increased by 7.8% between 2020 and 2022.

| County | No. Companies | Turnover RON/y) | (Mil. | No. Employees |
|-----------------|---------------|--------------------|-------|------------------|
| Alba | 104 | 290 | | 1226 |
| Braşov | 157 | 72 | | 412 |
| Covasna | 43 | 35 | | 320 |
| Harghita | 74 | 280 | | 2450 |
| Mureş | 148 | 550 | | 3435 |
| Sibiu | 75 | 55 | | 470 |
| Regiunea Centru | 601 | 1282 | | 8313 |



5. Paper and wooden packaging industry

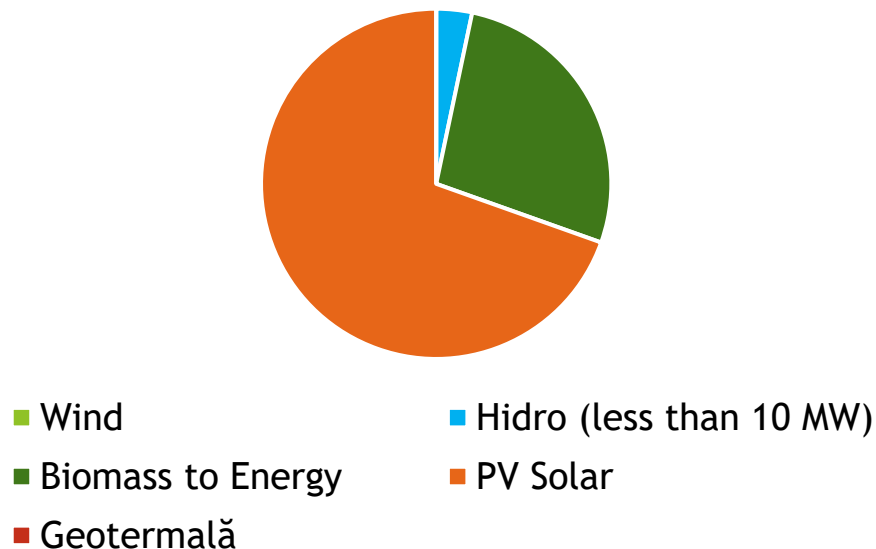
- ▶ Located at the intersection of several areas, the production of packaging goods in the Central Region has a remarkable potential, which can be developed also with the policy support of Green Deal
- ▶ incorporates more and more innovation, use of modern technologies and new organic materials
- ▶ On regional level 56 companies with almost 40 M. RON turnover in 2021, while 33 M RON in 2020.

| County | No. Companies | Turnover (Mil. RON/y) | No. Employees |
|-----------------|---------------|-----------------------|---------------|
| Alba | 12 | 3 | 43 |
| Braşov | 9 | 32 | 75 |
| Covasna | 3 | 65 | 171 |
| Harghita | 8 | 11 | 30 |
| Mureş | 18 | 20 | 56 |
| Sibiu | 6 | 5 | 11 |
| Regiunea Centru | 56 | 136 | 386 |

6. Biomass to Energy Sector

- 8 operators of central heating systems, out of them is based on biomass
- Rata utilizării lemnului de foc pentru încălzire 40.8% (19% in Mures, while 71% in Covasna)
- Costs of heating increased, more firewood is consumed (2021-2022)
- Biofuel production - not recognized - legal issues with SUMA 2.0

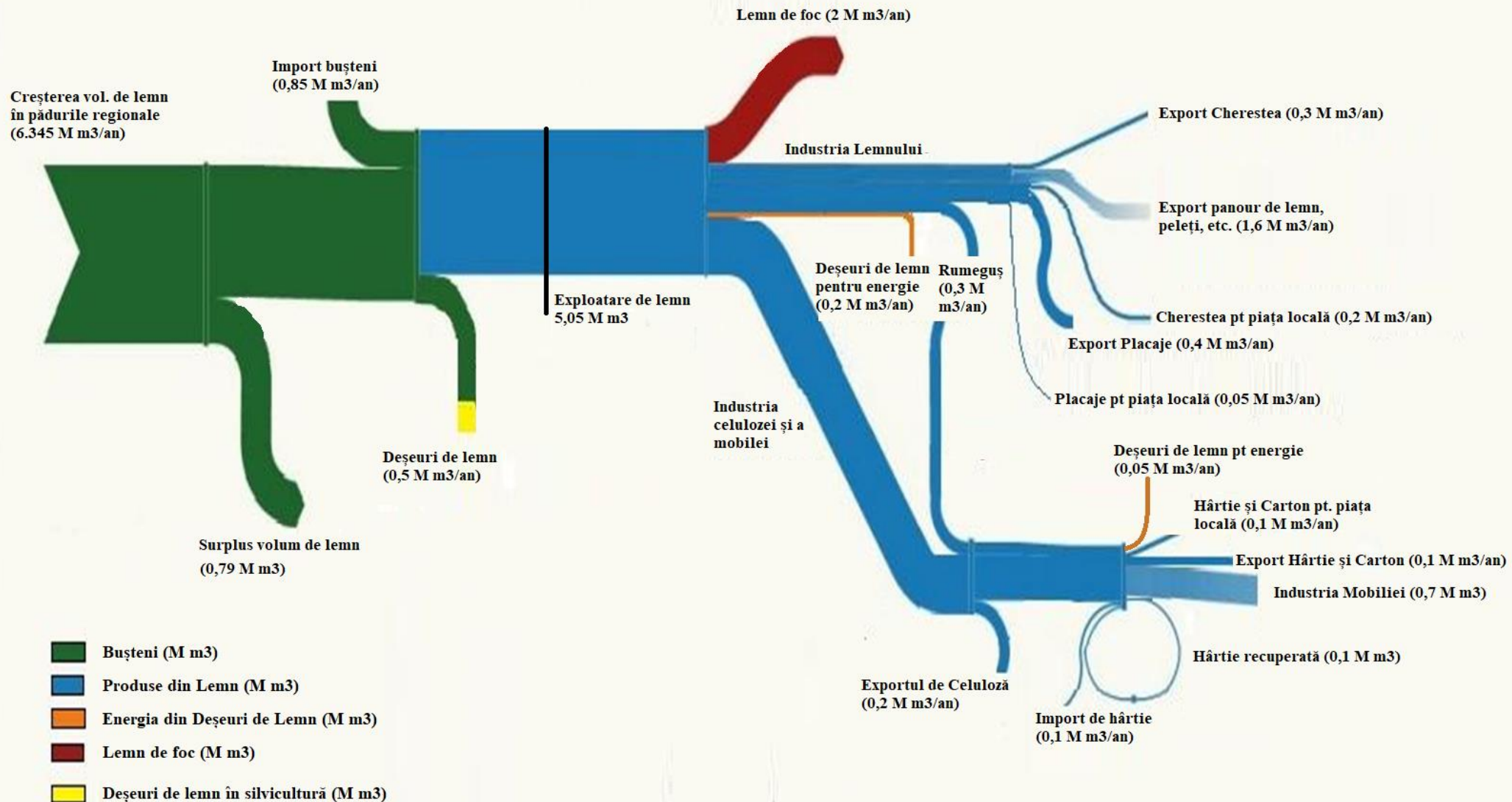
Installed Capacities (MWe)



| Nr. crt. | Company Name | Location | Type of Technology | Installed Capacities (MWe) |
|----------|-----------------------------------|-----------------------------|--------------------|----------------------------|
| 1 | Bio Electrica Transilvania S.R.L. | Reci, Covasna | CHP | 15 |
| 2 | Explocom GK S.R.L. | Cristuru Secuiesc, Harghita | Pyrolysis | 0,826 |
| 3 | Terfin Srl | Brădești, Harghita | Pyrolysis | 0,60 |
| 3 | Hs Timber Productions S.R.L. | Sebeș, Alba | CHP | 8,752 |
| 4 | General Energetic S.R.L. | Sebeș, Alba | CHP | 2,5 |
| Total | | | | 27.138 |

Flow Chart of Forest Biomass in Centru Region

Fluxul Biomasei Forestiere in Regiunea de Dezvoltare Centru (2020)



Best Practice Cases from Centru Region on Forest Biomass to Energy



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TEGA SA - Sfântu Gheorghe

Municipal waste management Company



- Established in 1996
- 38 LAUs in Covasna County
- Legal Entity behind the TEGA Company is ECO-SEPSI Association
- Promotor: Sfântu Gheorghe (98%)
- Services:
 - Street Cleaning,
 - Collection and transportation of the municipal waste from 38 LAUs to Regional Municipal Waste Management Center
 - Landscape Cleaning
 - Public Area Maintenance



Selective Waste Collection

- Up to 60%
 - Paper
 - Glass
 - Plastic and Metal
 - Organic Waste to Energy



Photo: TEGA SA, Sfântu Gheorghe

Solid Biomass to Energy

Green Waste

- Cristmass Trees
- Pruning and Cleaning of Public Parks, Streets
- 60 m3/week

Biofuel

- Woodchipping + Transport
- Woodchips 20 m3/week
- Woodchips deposit 350 m3
- Annual biomass need 680 m3
- Selling on local market

Thermal Energy

Office - 600 m2
Workshop - 550 m2

Biomass Boilers - 120 kW
- 200 kW

Annual energy production
for 1150 m2 building 640
MWh



Cost & Benefits

Green Waste

- Clean public areas
- Parks and Landscape
- Green Waste is not waste

Biofuel

- Investments
- Woodchipper 25.000 EUR
- Transport 20.000 EUR
- Biomass Depozit: 1000 m2 - 100.000 EUR - if needed
- New jobs: 2

Thermal Energy

Office and workshops 1150 m2
Biomass Boilers
- 120 kW - 25.000 EUR
- 200 kW - 35.000 EUR
Thermal Energy costs for 640 MWh
7,750 EUR/yr from biomass
47,838 EUR from natural gaz (370RON/MWH) in 2022



Pruning of Public Areas, Parks



Photo: TEGA SA, Sfântu Gheorghe



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Cristmass Trees to Biofuel



Photo: TEGA SA, Sfântu Gheorghe



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Space Heating for Workshops and Offices



Photo: TEGA SA, Sfântu Gheorghe





BioVill

Increasing the Market Uptake of Sustainable Bioenergy



Ghelinta - 1st BioEnergy Village in RO

Bine ati venit!

Üdvözljük!

Welcome!



www.gelence.info



Biovill - Bioenergy Village



- ▶ Horizon 2020 project between 03.2016-02.2019
- ▶ Project Partner : Green Energy Innovative Biomass Cluster
- ▶ Target Village: Ghelintă Commune
- ▶ Project Activities:
 - ▶ - Evaluation of technology readiness, public awareness in target village
 - ▶ - Involvement of local key stakeholders
 - ▶ - Local biomass value chain development
 - ▶ - Increase of institutional capacities on local level
 - ▶ - Business model development for companies
 - ▶ - Identification of financial sources & Lobby - Leader LAG



Results

- Energy Self-Sufficient Community
- Over 10 new biomass to energy units with 2 MWth installed capacity
- Over 10 Organized Events, awareness raising
- Energy Efficiency from 50% to 90%
- Local biomass value chain
- New jobs: over 10
- New companies: 2



Future Plan

- ▶ Up to 100% biomass based space heating at local public institutes by 2023
- ▶ Over 2500 m³/yr biomass production
- ▶ 5000 MWh/yr energy production
- ▶ Biomass based residential space heating up to 25% by 2025
- ▶ Biomass based energy use at local SMEs up to 50 % by 2025

Thank you!



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