Pelleting and co-combustion of reed, sedge and Cladium biomass in Poland

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Biomass use for Aquatic Warblers project

Project objectives

- Area of suitable habitat for the Aquatic Warbler in Eastern Poland increased and its quality improved.
- Innovative systems for the use of biomass from Aquatic Warbler sites set-up, improved and tested.
- Regular ongoing management of major parts of the project sites secured through income from the use of biomass with additional support from agri-environmental schemes.
- Plans in place to guide pure conservation and business-minded conservation efforts to achieve maximum benefit for both aspects.
- Awareness is raised amongst stakeholders, using the example of biomass business for Aquatic Warblers.

Aquatic Warbler conservation

- Main problem in Poland: succession. Need of use of AW habitats (fen mires).
- Solution, fen mires mowing secured by:
  - Technical solutions - appropiate machines (piste bashers) available
  - Land available (state owned land leased)
  - Finance secured, support of Agro-Environmental Schemes, AW payments
- Remaining issues:
  - Management and utilization of large amounts of biomass
  - Sustainable funding after AES

No biomass solution option

- Huge amount of waste
- Temptation to not collect hay (lower payments by 20% but no additional costs)
- No incentives for higher uptake of AES payments
- Higer cost of fen mires use
- Potential conflicts with local communities

How to utilize biomass?


Instytut Paliw i Energii Odnawialnej

Possibilities of biomass use

Fuel production (briquettes/pellets)

Biogas production

Composting

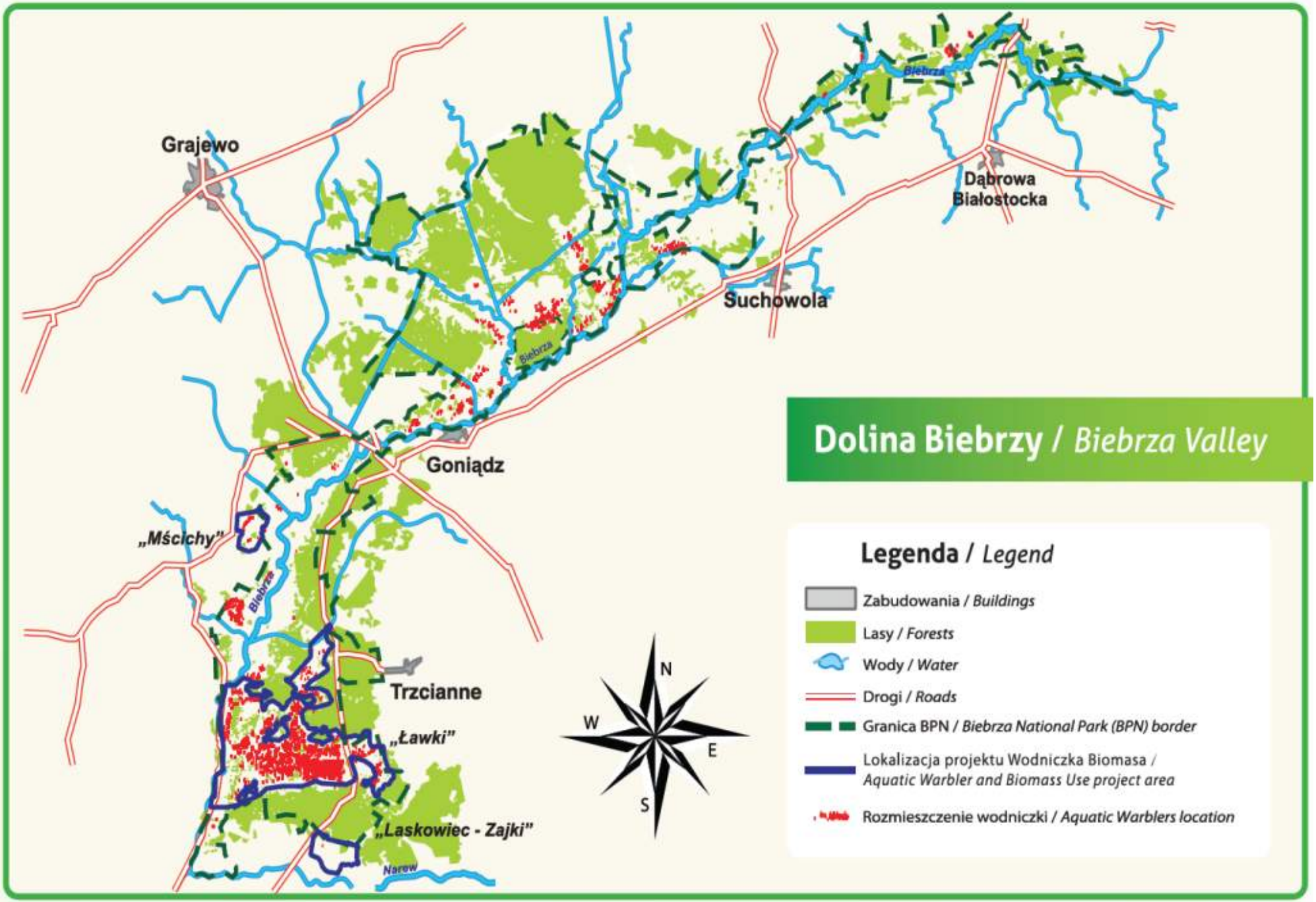
Biebrza Valley case

Biebrza Valley case

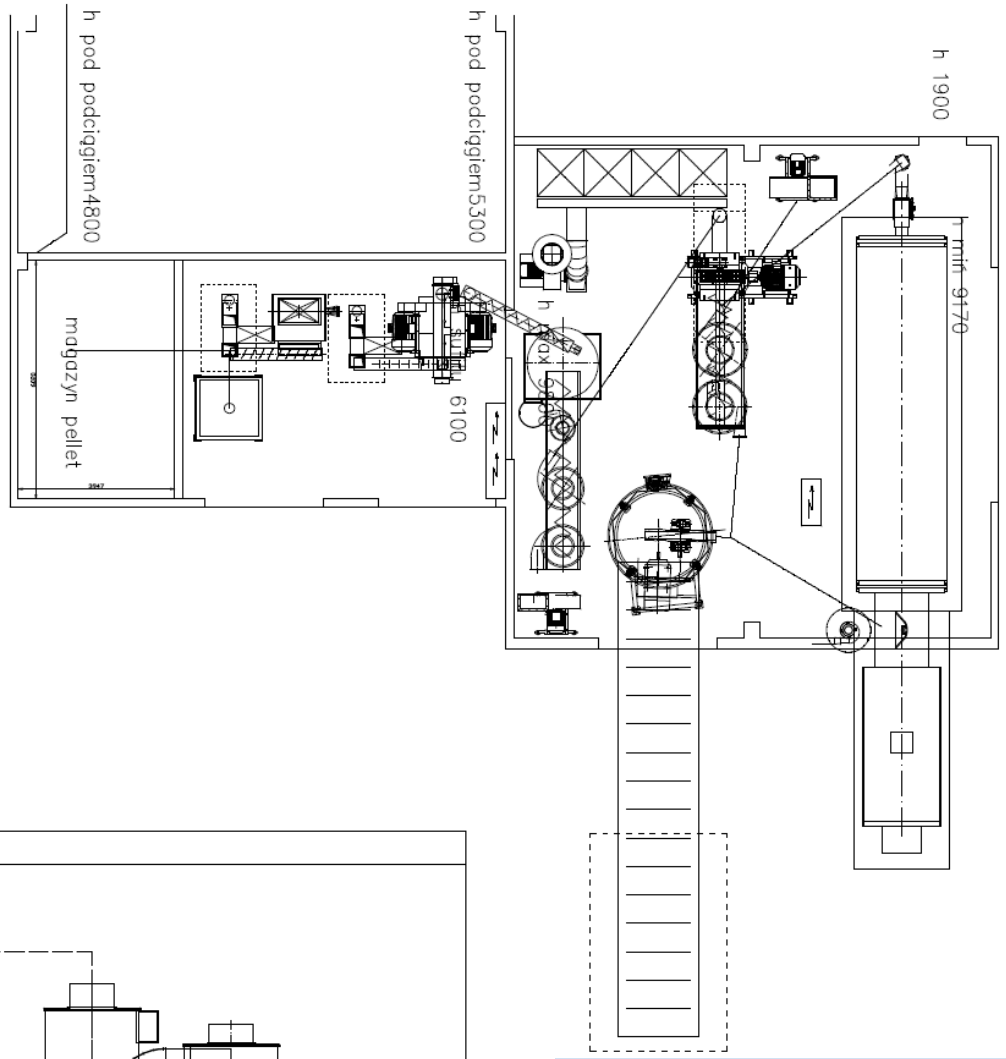
- State own land leased by Biebrza National Park 13 099 ha (2012), mowing on 3007 ha (plans for the season 2012/2013)
- Land in BNP covered by AES payments: 17.240ha (2012)
- OTOP is mowing 344 ha by itself every year

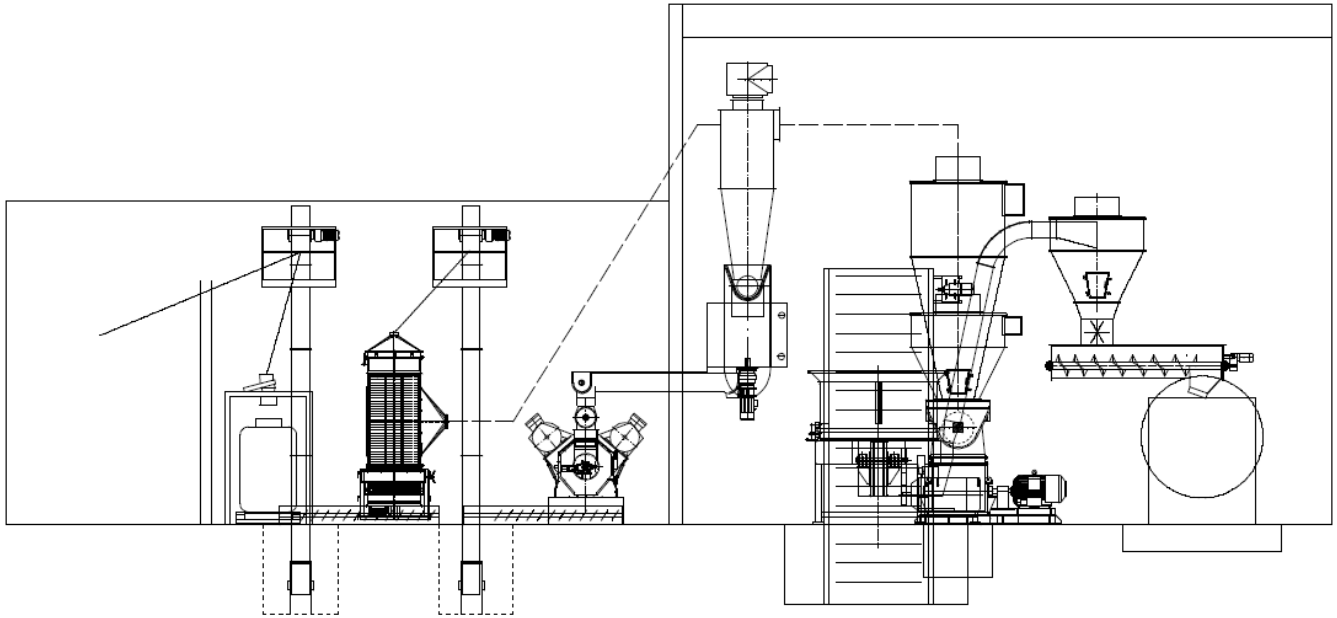
Biebrza Valley case

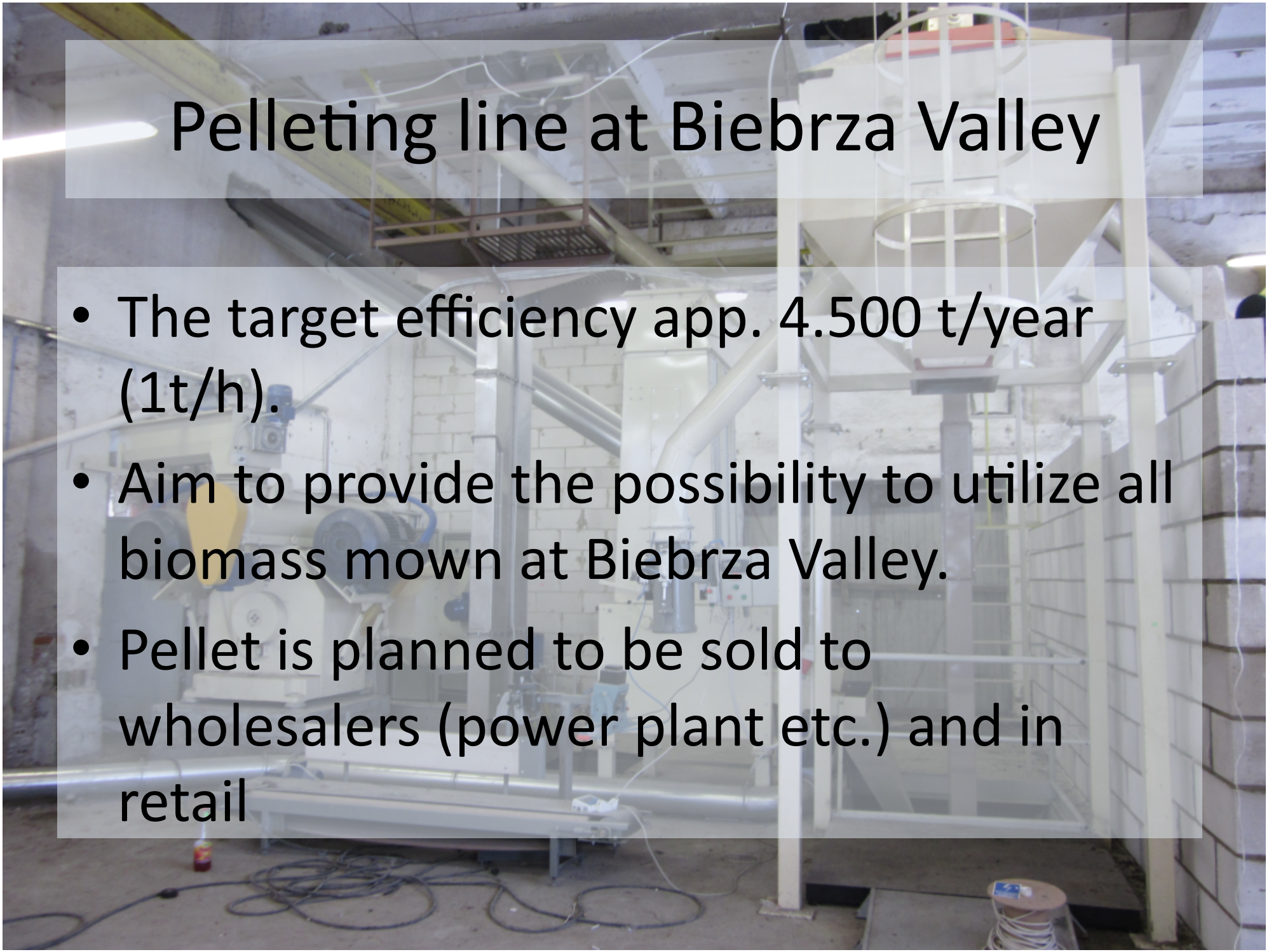
- The assumed productivity of fen mire (biomass collected): 1,5-2t/ha of biomass (1-1,5t/ha of dry biomass).
- The need to utilize biomass from app. 3.000ha.
- Required efficiency to process: minimum 4.500 t of dry biomass.


Grajewo
Dąbrowa Białostocka
Suchowola
Biebrza
Goniądz
„Mścichy"
Trzcianne
„Ławki"
„Laskowiec - Zajki"
Narew
Dolina Biebrzy / Biebrza Valley
Legenda / Legend
Zabudowania / Buildings
Lasy / Forests
Wody / Water
Drogi / Roads
Granica BPN / Biebrza National Park (BPN) border
Lokalizacja projektu Wodniczka Biomasa / Aquatic Warbler and Biomass Use project area
Rozmieszczenie wodniczki / Aquatic Warblers location
N
W
E
S

Pelleting line







Pelleting line at Biebrza Valley

- The target efficiency app. 4.500 t/year (1t/h).
- Aim to provide the possibility to utilize all biomass mown at Biebrza Valley.
- Pellet is planned to be sold to wholesalers (power plant etc.) and in retail

Lublin region case

Two areas in the vicinity of Chełm city:

- Chełm Marshes
- Bug River Valley

Chełm Marshes

Chełm Marshes

- State own land leased by Regional Directorate for the Environmental Protection, app. 520 ha
- Private land under AES payments: app. 650 ha
- At all app. 1200 ha under AES (60% of area)
- App. 350 ha mown every year
- The assumed productivity of Chełm Marshes (biomass collected): 1-2t/ha of biomass (0,7-1,4 t/ha of dry biomass).

Bug River Valley

- In the project only small part of the Bug River Valley (200 ha)
- Good quality meadows, biomass may be used in farming
- Mainly private property, most of land used
- High productivity of biomass, up to 7 t/ha of hay

Biomass processing in Lublin region

- The solutions of biomass processing exists:
  - Two pelleting facilities
  - Cemet plant - cement mill accepting biomass for co-combustion in cement kiln
- The Cladium biomass tested in the pelleting facility and in cement plant oven.
  - For pelleting may be used biomass with higher moisture (up to 40%), may be dry or mixed with the dry biomass (straw)
  - For cement plant kiln only dry biomass (up to 20% moisture) may be used


CEMENTOWNIA -CHEŁM-

Where we are now?

- Solutions for biomass processing from Aquatic Warbler habitats exists in two regions
  - Old facilities: mixing with dry biomass.
  - New one: the scale matters.
- Remaining issues:
  - Develop retail market for pellets
  - Feasibilty study for power plant fuelled by pellets/raw biomass

Thank you!

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