

How does the PROGRASS concept work and who needs it?

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DanubEnergy is a project funded within the EU's Central Europe program out of means of the European Funds for Regional Development.



How much PROGRASS land is available?

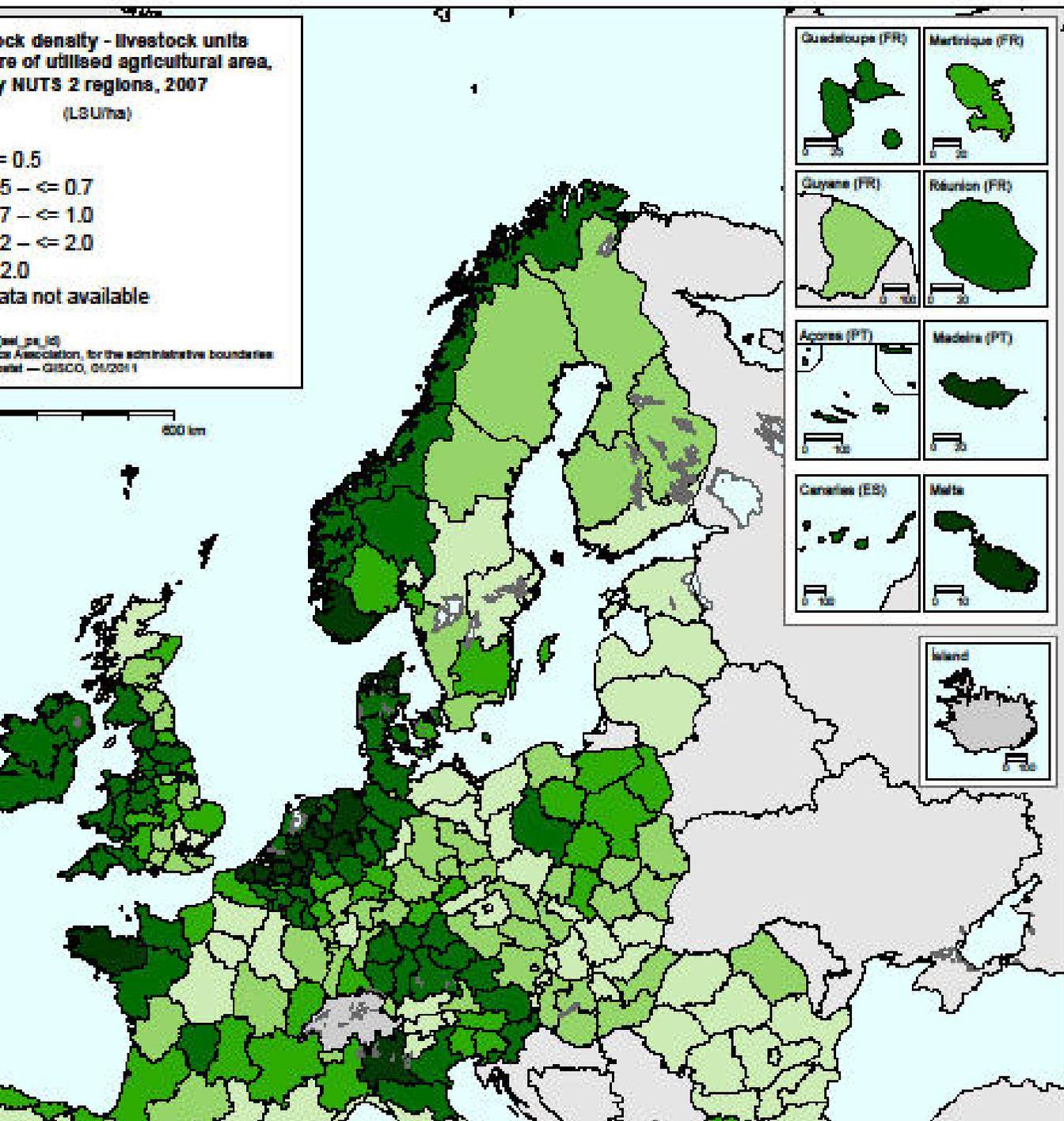
- Germany: 35,7 mio. ha of vegetation-covered land
- within this at present: 0,5 mio. ha used for biogas. 0,8 mio. ha are set-aside and some of it can be used → ~ 5% (25.000 ha) of biogas substrate can be grass-press-juice (1-2% from wetlands, 3% from greencut & leaves). 200 German biogas-plants could utilize +125 ha each.
- Austria: ~ 4.000 ha – plants attached to ~ 20 biogas plants.
- Large potentials: wetlands in Poland (Warmia i Mazury, Beskydy...), Ukraine (4 mio. ha set-aside - Poltawa, Pripjat, Danube delta...) reed-zones of steppe lakes, Northern Europe... + greencut.

Tendency:

There is more and more unused grass

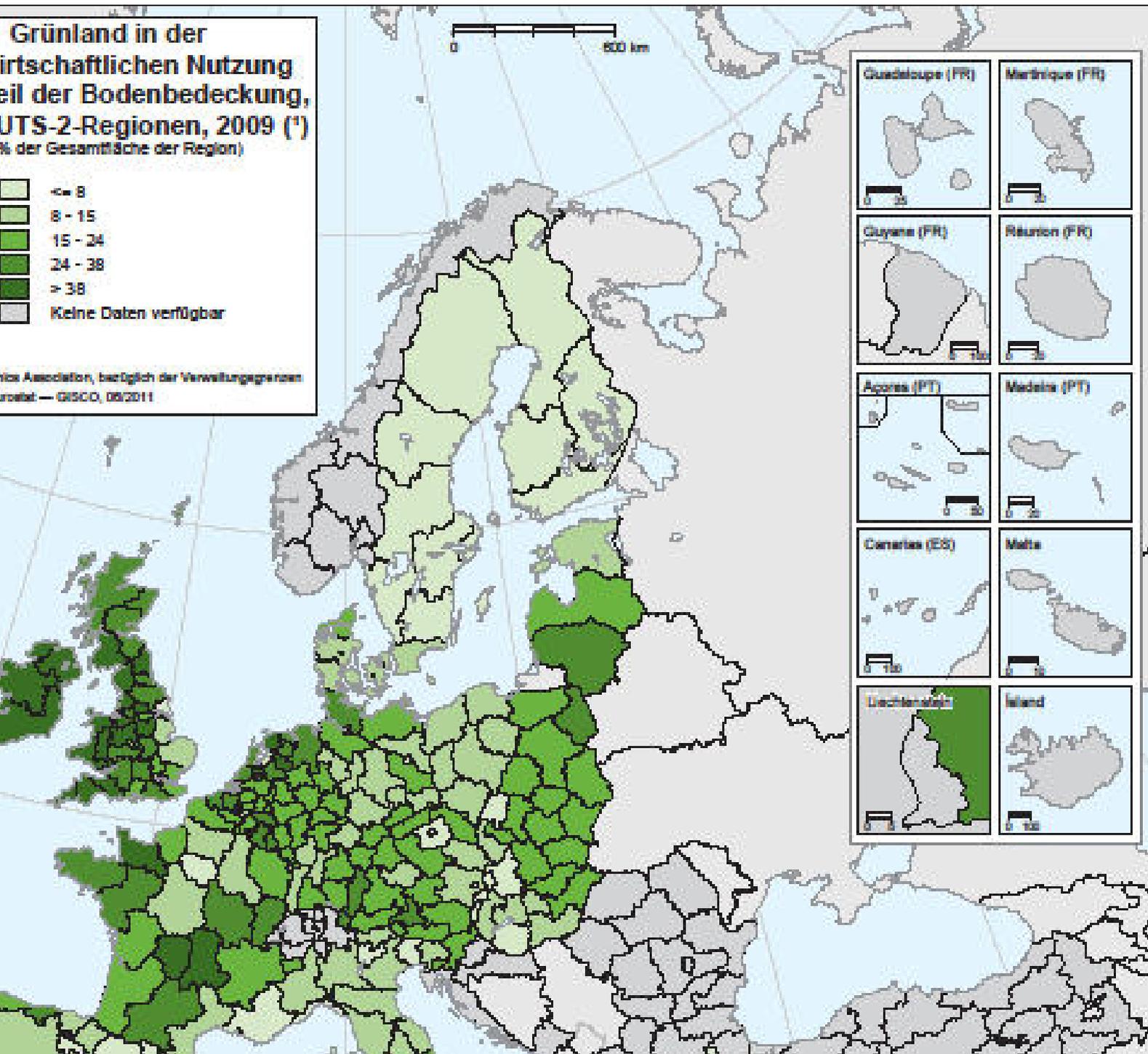
...due to

- Less (and more centralized) cattle-breeding
- More bird protection
- Depopulation of rural areas
- More bio-waste separation
- Hopefully: paradigm change in grass use: understanding that greencut from playgrounds, parks, railroad verges... is not „waste“.



livestock density

Source:
EUROSTAT - LUCAS-GISCO



% of
grassland

Source:
EUROSTAT –
LUCAS-GISCO

What can a PROGRASS region look like?

- It builds not just on a business plan but also on a regional **investigation** to find unused grass of any quality in the surroundings of a biogas plant (in short distance), eventually making use of cheap and eco-efficient ship transport on rivers.
- It needs a good **cooperation culture** between waste management, bioenergy producers, farms and public services (flood prevention, nature preservation,...)
- It needs a **steady source of grass** which will not be fed to animals, eventually reed, greencut, leaves...
- It needs a well-designed **logistical conception** for harvest, transport, ensiling, processing and sale of green material.

Investor-driven, local or regional approach?

Some technologies can arise wherever there is an investor, others need to be embedded into local or regional structures to be feasible.

- Example of investor-driven approach (can happen wherever somebody wants to go for it): bio-farming, zero-energy building
- Example of approach of local conception: small hydropower
- Examples for need of regional conceptions: wind energy, PROGRASS.

To work out well in economic and ecological terms, PROGRASS needs a biogas-plant, a good density of grass production in the catchment area and concentrated biomass processing (heat-plant, pellet or firelog production)

Assessment against the EU's 12 sustainability indicators

GDP growth per capita	+	
Sustainable consumption and production	+	
Resource productivity	+++	
Social inclusion/People at risk of poverty or social exclusion	o	
Demographic changes/employment rate of older workers	o	
Public health/Life expectancy at birth	o	
Climate change and energy: Greenhouse gas emissions	+++	
Share of renewables in final/primary energy consumption	+++	
Transport: Energy consumption of transport relative to GDP		o
Natural resources: Common bird index	++	
Nat. res.: Fish catches from stocks outside safe biological limits	+	
Global partnership Official development assistance	o	

Who benefits?

The energy sector benefits from PROGRASS

- Bioenergy is crucial for renewable energy-economies because it can be stored (sun and wind cannot).
- When bioenergy demand grows and production cannot be increased, biomass production gets into **competition with food&feedstock** production → rise of prices, large-distance import. Growing demand for biobased industrial resources aggravates this trend.
- Late-cut grass, greencut and leaves shall not remain **unused**.
- Biogas plants under maize-based **cost pressure** need a perspective. Grass can partially replace maize in biogas plants. Grass travel less far than the resources it replaces. PROGRASS has a higher overall resource efficiency than classical combustion and biogas production.
- The bioenergy sector needs to **reinvent** itself after plate-tank- and VOC-discussion, presenting themselves as the only storable part of a renewables' portfolio. Whilst first biogas plants were „solitaires“, they now develop to be a „wheel in the right machine“.

Climate benefits from PROGRASS

- From a climatological viewpoint, cityscapes are „urban deserts“, field-dominated landscapes are „agricultural steppe“. Latent heat transformed into vegetation does not turn into sensible heat, **keeps landscape from heating up** and thus abates climate change.
- Wetland and small-scale mix of wood-, farm-, grass- and wetland can locally „repair“ micro-climate and enhance the **small water cycle**.
- Wetland harvest and paludiculture **reduce GHG** (methane) **emission** from vegetation
- GHG-relevant **fossil** fuels and long-distance biomass import are being **substituted**.

Nature benefits from PROGRASS

- All across Europe's moderate climate zone, there are subsidy programs for farmers funding regular grass harvest in wetlands, but also in dry meadow zones. They prevent cultural landscapes from becoming too heavily **forest-dominated**, they **maintain the heritage of meadows rich in herbal species**, which have been managed since the Middle Ages.
- **Bird protection** requires the preservation of open (often: wet) grassland which birds use for breeding and/or hunting. Breeding areas may not be cut until mid-summer, but then the grass is dry and cannot be fed to ruminants.

Farming benefits from PROGRASS

- When late harvest is required (because of bird protection or wet weather) and after flooding, grass is **over-mature**. Such grass needs to achieve a market value.
- Local biomass-heat plants in villages can admix grass-presscake and thus become **locally self-sufficient**
- After „**greening**“, future land-management subsidies might not be granted for mere harvest but only when there is reasonable use of harvested grass.
- Wetlands can be combined with **aquacultural** zones (ponds – habitat of many endangered species). Freshwater fish replace seafish and thus helps to maintain marine ecosystems.

Finally, flood prevention will benefit

- Flood disasters appear more frequently all across Central Europe and threaten all major valleys (Danube, Tisza, Rhine, Oder, Elbe, Wisla, Sava, Mura, Vltava, Po,...)
- **Retention space** between settlements will have to be enlarged.
- For biodiversity reasons, it should not be solely covered by forest – **small-structured landscape patterns** should be reintroduced.
- Most grass from retention zones cannot be fed to ruminants: it is covered by a thin layer of mud and/or is **over-mature**; PROGRASS can utilize this grass.
- Regularly cut grassland can resorb water; set-aside wetland can hardly **retain** any water.

Upcoming steps

- Setting up of further large-scale plants in suitable regions – **investment preparation**
- Participation in **European calls for funding** – turn to us if interested
- Identification of **model regions** all across Europe
- **Governance-related** work –efforts to adapt waste legislation to improved state of the art in grass processing. Grass from a park or a playground should not have to justify that it is not **waste**.
- Establishment of **PROGRASS©** as a brand and as a growing network

Thank you for listening

I look forward to discuss your project idea with you!

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