



Biomass for energy production: implications for biodiversity and environment (the European scenario)

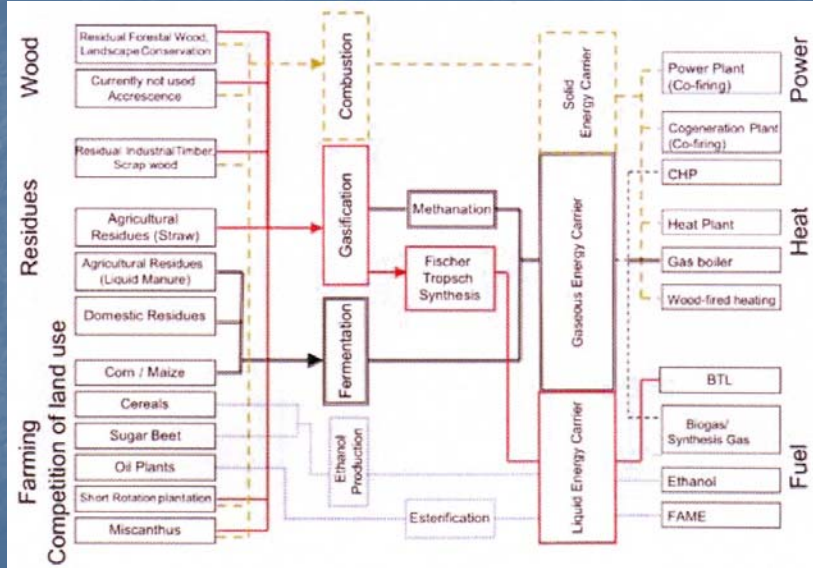
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Background

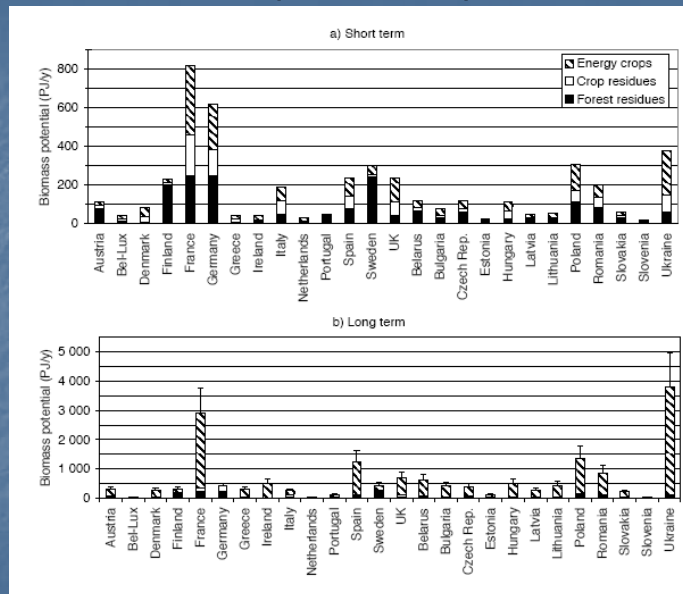
- The European Commission defined Biomass as a crucial energy source aiming at producing 150 Million Tons Oil Equivalent (MtOE) by 2010
- These aims are seen as feasible in the frame of very diversified scenarios (Ericsson and Nilsson, 2006)
- This different scenarios and predictions determine a critical question: where and how will they be produced and what will be the crossed implications for European ecological systems?

Production of Bioenergy



Wuppertal Institute, 2007)

Biomass production potential



Estimated potential biomass supply in absolute values for the short and long term (> 40 years) (Ericsson, 2006)

Towards a sound biomass development policy for Europe

A sound biomass development policy must be designed in a way that integrates the *agriculture* and *forestry* policy of the European Union, but also the *nature conservation* policy towards a *sound integrated land and resource management policy*.

This condition derives from the fact that the multifunctional character of any landscape determines the need for integrated management approaches where not only the direct productive functions are considered (be it consumer goods or services) but also the manifold non commodity outputs (externalities) and their adequate remuneration

These externalities can be so diverse like:

- Watershed management (runoff control, infiltration, groundwater recharge),
- soil management (erosion and landslide prevention),
- water quality management,
- nutrient regulation, biological control, disturbance prevention (flood prevention, wildfire prevention),
- habitat and biodiversity preservation and promotion,
- landscape management and
- Preservation and improvement of landscapes (landscape stewardship)

To ensure a sound and feasible biomass development policy for Europe, we need therefore to:

- ensure the maximisation of the production ability of biomass products susceptible of adequate energetic valorisation (without compromising the balanced production of food and fodder)
- ensure that this maximisation is attained not only by preserving the present environmental values, functions and processes, but also by contributing to their improvement and to the increase of their resilience in view of the stresses derived from global change processes.

To achieve these targets one must act at the level of the farmer and the land manager in order to bring together two normally contradictory decision domains:

- Individual motivations to manage a given parcel of land
- Securing the sustainable multifunctionality of the social, economical and ecological systems at the landscape level

This can not be done with more or less generally conceived sector-based subsidy-policies (agriculture or rural development, tourism, nature conservation, etc.), because they are not able to build interacting logics and balances like the ones existing in established use landscapes.

To improve the motivations of the individual farmers (or land owners) to invest or to allow particular activities in their properties according to integrated dynamic regionally-adapted management systems, different support and policy approaches must be envisaged :

- “Decoupling” the traditional land use systems from their main agricultural aim and creating, at the level of each target region, a set of management objectives involving the different aimed functions, where the remuneration of those functions would be assumed by all the stakeholders (regional, national or even European).
- Compensate farmers for the aimed not remunerated externalities and simultaneously ensure that they are willing to associate themselves to ensure those outputs at a coherent regional scale.

The aims of this integrated land management policies must, therefore be:

- Ensure that further land systematisation processes guarantee:
 - the preservation of the environmental structure and functionality of the site (including drainage, patchiness, microhabitats, corridors, etc)
 - that over-simplified and disturbed agricultural landscapes are recovered in terms of those variables and functions (always in a site-specific ways and not according to a random catalogue
 - that particular habitats (natural, near to natural or low-intensity use derived) are handled in such a way that ensures their viability and the viability of the associated communities.
- Ensure that land cover (either natural, agricultural and forestall) is managed in integrated way in order to:
 - prevent and minimize erosion and maximize water retention and infiltration
 - manage nutrients are managed (either through introduction as through tillage, ploughing etc.) in order to minimize leaching losses and transformation processes leading to GHG production.
- Generalise low intensity management systems (including not only agricultural and forestry techniques) but also water and soil engineering systems together with the preservation of traditional management systems and knowledge, ensuring that landscapes evolve to new forms or “working” landscapes, where their multifunctionality is soundly managed and valued.

Nevertheless we must not forget that:

- whatever the scenario it will be only possible to produce around 20 to 25 % of the demand by 2050 (Doornbosch and Steenblik, 2007). One must, therefore be aware that we are not facing a solution to the fuel problem, but only a possible complement with eventual lesser costs in terms of GHG emissions.
- we face global markets where the world potential for production of bioenergetic crops is concentrated in the tropics, where also the larger part of the world biodiversity survives, biodiversity that will be directly threatened and certainly strongly destroyed by the uncontrolled expansion of many of these cultures.

Therefore, the implications of this political options must clearly take these factors into account and ensure that the set of precautions and positive measures pointed to Europe is generalised to the entire planet.

The challenge is, therefore, almost overwhelming, but it is also in the core of the construction of a better and sustainable Europe where economical, social and environmental accountability will be a driving decision factor because it forms the only way to ensure a responsible relation to land and society.

Thank you for your attention