

Chances for biomass

Connecting Food and Non-Food – A roadmap for integrated valorisation



FOOD & BIOBASED RESEARCH
WAGENINGEN UR



Vision and examples

The 'Chances for biomass: integrated valorisation of biomass resources' project was initiated by the Dutch Ministry of Economic Affairs (EZ) in 2011/12 to gain a better insight into the interactions between the various biomass application domains. Current applications mainly seem to be focused on the Food and Non-Food domains without taking into account the integrated valorisation and the value pyramid for the sustainable application of biomass raw materials. The project therefore outlines a vision on integrated valorisation of biomass resources in accordance with the value pyramid Food – Animal feed – Functional materials – Fuel in large-scale and specialised applications.

The results of and recommendations from the project, including a clear vision on the integrated valorisation of biomass raw materials, insights from the industry with regard to biomass innovation trajectories, promising sample cases and a clear roadmap, will be of interest to various target groups.

Implementation in practice

Businesses: To inspire and bring together links within chains and between application domains in partnerships and develop new, innovative processes for integrated valorisation

Governments: Developing policy tools and stimulating PPP constructions and the so-called 'Top Sector' policy while taking into account integrated valorisation aspects.

Knowledge institutes: Acquiring knowledge and backgrounds related to the acceptance of new innovations within the application domains and creating insight into starting points from social debates related to Food and Non-Food issues.

Knowledge & expertise

Wageningen UR is the knowledge institute, renowned for using its excellent know-how and expertise in the field of food and biobased materials to lead the way in developing technological and concept-oriented innovation processes and contribute to increased sustainability in chains and a better quality of life.

Food & Biobased Research: Your partner in innovative applications for the transition to the integrated valorisation of biomass.

Interested? More information?

The scientific report and summaries with the project results are available online.



Information

Hilke Bos-Brouwers
T + 31 (0)317 48 01 37
Hilke.Bos-Brouwers@wur.nl

Bornse Weilanden 9
6708 WG Wageningen
www.wageningenUR.nl/fbr

Integrated valorisation of biomass

Biomass is expected to become an increasingly important factor in meeting our need for functional materials, fuel, food and animal feed over the coming decades. These demands will rise due to a growing world population, changing consumption patterns, increasing prosperity and the unsustainable use of fossil fuels. This study contains a roadmap for achieving a more productive and efficient use of resources, while simultaneously limiting the consequences for the environment. The concept of attaining '2 times more with 2 times less' serves as the underlying vision for the roadmap. And a crucial component of this vision is integrated valorisation: Biomass used across all relevant domains, whether food, feed, functional materials or fuels.

Value pyramid: A rule of thumb to achieve the best possible application

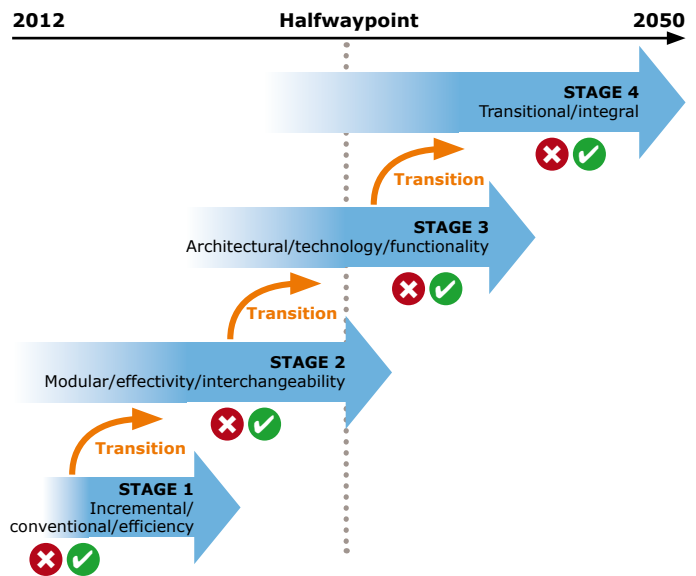
The first reference point on the road to integrated valorisation is the hierarchy of values for biomass applications.

- 1 *Food* for human consumption;
- 2 *Feed* for animals;
- 3 *Functional materials* and products (e.g. paper, biodegradable packaging, building materials and basic chemicals);
- 4 *Fuels* and their applications.

The second key reference point on the way to integrated valorisation is a parallel focus on short and long-term developments. The required steps are indicated in a roadmap for the integrated valorisation of biomass. It consists of four stages that need to be covered in order to valorise biomass resources for the four application domains in an integrated way. The road map can be used to link policies and tools and thereby convey a consistent message to interested parties, while simultaneously appealing to businesses and knowledge institutes to take the necessary steps.

The greatest opportunities are at the intersection of several domains

Cross-sector and cross-domain – these are key factors in the integrated valorisation of biomass raw materials. By looking beyond what we know and stepping outside our comfort zone, taking on an active stance and being open to change all parties involved can contribute to the process.



Stages of transition to integrated valorisation of biomass resources.

Recommendations specific to governments and policies

- Encourage discussion about differences and contradictions among the parties involved.
- Develop and evaluate government instruments based on the value pyramid.
- Align regulation more to the desired goals and ambitions (goal oriented) and less on how they are to be achieved (mean oriented).
- Consult with industry and other interested stakeholders during the development phase of governmental instruments.
- Strengthen the sense of urgency among businesses and consumers to valorise biomass in an integrated way, and to strive for green growth.
- Develop targets for the reuse of non-renewable resources and re-focus these goals regularly.
- Encourage and support research agendas and innovation programmes for integrated valorisation and create opportunities for these activities to be coordinated at different levels.
- Take part in public-private partnerships to stimulate technological developments and their management.
- Improve decision-making and evaluation processes by improving the quality, level of detail and scope of the available data on material flows of biomass.

