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H2020: SPECIAL REPORTS

Special Report: Making a circular, bio-based economy possible

The importance of setting real big steps towards a circular economy is increasing every day. That we have to leave the devastating linear economy behind is clear, but the ways in which we change to a circular, bio-based economy are not clear at all. In this special report we will focus on our vision and strategy to accelerate the transition to a circular, bio-based economy, with the building sector as priority.

Why is bio-based the starting point for a circular economy?

The circular economy focuses on preventing the use of new non-renewable resources and the production of waste. – both of which are important to maintain a world that remains liveable. Bio-based materials fit very well in this approach, they are renewable in a short time period and produce no hazardous waste – or any waste at all. After their use phase, bio-based materials can be re-used or return to



the atmosphere without dangerous effects upon the environment. To secure these positive impacts, the production systems must be designed in a sustainable way, with closed loops for nutrients, which has already proven to be possible.

Why is the building sector important in the transition?

The building sector is responsible for large amounts of waste, use of resources and transport emissions (up to 40% for each). All topics are strongly related to climate change, mining, land reclamation, and emissions from transport and industry. By changing the existing ways of building, we can take large steps in improving the environmental impacts of the building sector, and lower the impact on the climate.

Solutions for the building industry

Agrodome is working on practical ways in which to help the building sector in the direction of the circular, bio-based economy. We have learned by trying different approaches which are the key factors for change:

- Ownership Building owners do not want experiments that can make their investments risky. This blocks innovation in the use of materials, products and concepts. Solutions can be found in new business models regarding the ownership and responsibilities of the quality of the materials and products. The delivering of services instead of materials is another interesting concept that has great impact on the economic sector (banks, investors, insurance, etc.)
- Procurement In the building sector, procurement is mainly driven by the price of a product; the performance of a product is mostly secondary and social or environmental aspects are far away in the decisions. Or, when the environmental and social aspects are part of the procurement procedure, the burden of proof is much higher than for the conventional products. This blocks the introduction of materials and products that are better for the society and environment. To solve this, decision makers should be provided with information about the products and materials. Most of the bio-based materials are already used in larger projects, and are not new at all. This knowledge gap must be part of the education programmes to be the standard knowledge of every student at every level. The producers of the materials should also give attention to work on the burden of proof. Knowledge sharing and co-operation to reduce the costs are essential to this.
- **Co-creation** Stakeholders in the building sector are used to working separately each part of the chain doing its work in a closed environment, defending its own interests. In the circular economy, however, the key is to close the loop and that is only possible if all the parts of the chain work together. This means creating building teams based upon co-creation from the start. A new way of thinking to be worked out and tested.
- Project processes It is important that the circular, bio-based economy is translated in business models, visible and practical. Stakeholders must therefore be actively involved in the new approach. To give some more space for new approaches, building projects should accept that they need more time in the beginning and need monitoring during the building process to ensure that the basic ideas are not forgotten in the daily rush. To introduce these new business models, we recommend working in stages, not change the complete way of working at once but to start with one project, and upscale it.

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• **Tenders** – Tender projects are crucial in the building sector. For a tender project with the ambition to include circular and bio-based product it is important to invite teams with experts, who can work as cocreators and know the way in the world of reuse, recycling and on bio-based building solutions. This will give a realistic, creative, sharp and more interesting offer, as well as save time in the project period by beginning with the right dedicated stakeholders.

Conclusion

Working together with all the stakeholders in an open way is the key for all the solutions. We have to overcome the traditional borders and create a new way of thinking. Co-creating is a good way to cope with the challenges that climate change brings. Working in coalitions of companies, institutes and governments that are willing to change is essential. Communication on the added value of circular, bio-based materials, products and building concepts also needs to be based upon solid research to convince the traditional building actors to shift to other business models. Backed up by providing tools for procurement, assessments of the environmental impacts of materials, products and buildings and economic models. Tools that make it possible for the SMEs to change their business models fitting the new circular reality.

Contact

Readers of this special report that feel the same urgency to change the building industry and want to work this out in a practical way are welcome to make contact with Agrodome.

Agrodome likes to be involved in projects to create a solid scientific, practical base for the transition in a circular, bio-based economy for the building sector.

Agrodome is member of the European CAPEM group

1

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