



Exploring the Role of Awareness-Raising and Communication in Promoting the Development of Sustainable Bioeconomy Value Chains

Summary briefing for the ENRD Thematic Group on the Bioeconomy

This briefing explores the role of awareness-raising and communication in promoting the development of sustainable bioeconomy value chains. It considers the basis for communicating on the bioeconomy, the tools that might aid this, the policy instruments available (including within Rural Development Programmes - RDPs) and how these might be targeted towards different stakeholder groups along the value chain.

This analysis is based on findings from previous sessions of the ENRD Thematic Group on the Bioeconomy, complemented by input from interviews conducted by the ENRD in 6 case study countries (Latvia, Spain, Sweden, France, Hungary and the Netherlands). The briefing is intended to provide a basis for discussion within the Thematic Group about the opportunities for RDP support in the context of awareness raising, the role of other complementary instruments and the supporting role the ENRD could play in developing tools to support communication and understanding. The briefing introduces:

- the need to emphasise awareness raising;
- the baselines identified for effective communication; and
- the tools identified by interviewees as providing key opportunities.

Awareness Raising

Awareness and understanding of the different actors engaged in bioeconomy value chains (from producers to consumers, project developers to local, regional and national decision makers) influences the barriers to change, the ability to change and the opportunities that emerge. As noted in outcomes of the H2020 project Pegasus (which examined awareness raising and collective approaches in the context of delivering public goods in agriculture and forestry¹) lack of awareness can inhibit: understanding of the need for action; the choices available; and the ability to collaborate with other stakeholders in the value chain. It, therefore, influences the choices made and the success of outcomes. In contrast, improved public/stakeholder awareness can act as a trigger motivating the uptake of initiatives and products and supporting collaborative action. Finally, increased awareness can be both a tool and an end-point in and of itself i.e. achieving and maintaining a good level of awareness raising

¹ For further details see <http://pegasus.ieep.eu/resources-list>



and demonstration activities in relation to farming and forestry has been identified as an environmentally and socially beneficial outcome in its own right. One of the key elements in awareness raising is the role of networks and engaging different actors in rural bioeconomy value chains to connect and develop together.

This paper introduces perceived barriers in terms of awareness that currently exist concerning opportunities in rural bioeconomy, inhibiting its full potential to promote sustainable rural development. It then goes on to examine potential tools to promote improved awareness among rural development stakeholders. Within interviews, conducted in support of the work of the Thematic Group, it was noted that ‘awareness raising should be a horizontal priority in all measures’ used to promote rural bioeconomy. It was also identified that the conception of the bioeconomy focuses on added value, innovation and sustainable development; hence drivers of demand are often knowledge based i.e. to demonstrate added value and benefits to society to access new markets including through green public procurement and financial support. Societal appreciation of certain benefits is a driver of action increasingly noted (Box 1 and Box 2). Growing trends in societal awareness and appreciation can drive the protection or enhancement of socio-cultural and/or environmental values in a rural area or in biobased products and can also be reflected in market prices.

BOX 1: PROMOTING THE NATURAL RESOURCES OF WESTERN WEINVIERTEL - AUSTRIA

This LEADER project promoted the use of the local natural heritage as a lever for sustainable local development. The overarching objective of the project was to raise awareness among the population in the area of the natural resources and biodiversity in the Western Weinviertel. Activities supported by the project included: developing a marketing plan to promote the natural resources of the area; preparing an inventory of materials and developing of a detailed educational concept for the local communities including awareness raising events; and developing materials and resources to support local tourism in the area based around the biodiversity resource.

BOX 2: ACTION PLAN FOR DEVELOPMENT OF A KNOWLEDGE-DRIVEN BIOECONOMY INNOVATION ECOSYSTEM IN VIDZEME REGION IN LATVIA.

Summary - In the Vidzeme Region of Latvia they are proactively promoting efforts towards the bioeconomy and specifically awareness raising and knowledge sharing. An Action Plan was recently elaborated which included an emphasis on the delivery of awareness raising events and promotional materials, providing consultancy and best practice study trips to entrepreneurs and different actors related to the bioeconomy. The project takes into consideration the Latvian Bioeconomy Strategy and the smart specialization areas of Vidzeme region.

Collaborative and coordinated action along value chains and at the regional or territorial level is crucial for the delivery of sustainable rural bioeconomy value chains. This requires an increased emphasis on communication and networking, and a clear awareness base to facilitate joint endeavours. Bottom up coordination to support sustainable supply chains will become more important if biomass potential, for example, from current agricultural residues or wastes are to be realised. Such resources are heterogeneous in terms of material produced and its qualities; they are also spatially distributed across rural areas. There are tools, including the innovative use of Rural Development Funding, that can be used to better support and demonstrate residue management. For example, the development of a hedgerow management standard in France demonstrates one approach to deliver a consistent standard for residual products that simultaneously protects hedgerow biodiversity and valorises biomass material (Box 3).

BOX 3: UTILISING EU RURAL DEVELOPMENT FUNDING TO PROMOTE HEDGEROW MANAGEMENT AND USE OF RESIDUES – DEVELOPING A CERTIFICATION SCHEME FOR HEDGEROW BIOMASS (FRANCE)

The hedgerow certification scheme aims to address two sets of concerns: the need for the sustainable management of hedgerows; and the lack of valorisation of hedge wood for farmers. The scheme is intended to be participative and to lead to multi-actor governance. A digital cartography tool will ensure traceability of the hedge wood and assist land owners in the sustainable management of the hedgerows. The scheme is supported by private, national and European funding (EAFRD). It should lead to increased availability of sustainable biomass resources from agricultural land management for use in both the bioenergy and materials sectors

The scheme is intended to be national but was initiated in three regions: Normandy, Brittany and Pays de la Loire. It originated as a contribution to the national agroforestry development plan which was launched in December 2015 by the French Ministry of Agriculture. The project will be officially introduced to the Ministries of Ecology and Agriculture in June 2019 and the first certified wood is expected in December 2019. Four “pilot” organisations operate at regional level (one from Normandy, two from Brittany and one from Pays de la Loire). Their role is to identify and bring together interested stakeholders and farmers willing to participate in the project. They play a key role as they make the link between farmers and operators further along the value chain.

Establishing a Baseline for Communication

What is the Bioeconomy? How do I know if I'm part of it? How do I know if products I am using or producing are considered part of the 'sustainable, circular, bioeconomy'?

Within the interviews conducted in support of the ENRD Thematic Group on the bioeconomy the most common comment related to awareness raising was the need to clarify the concept of the bioeconomy. Not the high-level definition per se, but what it means in the local or regional context it is being applied to and how it can be operationalised to deliver local level, sustainable development.

The work of the ENRD Thematic Group on 'Mainstreaming the Bioeconomy' builds on the assumption that the development of bioeconomy value chains in rural areas can promote employment and economic growth, while preserving eco-systems. In this optic, the key opportunities of bioeconomy are being explored from the point of view of rural actors – farmers, rural entrepreneurs, rural service

providers and workers, other citizens in rural areas – and of rural communities. The key dimensions of possible rural bioeconomies are then those related to (new) rural employment and livelihoods, to increased income and added value generated and retained in the rural economy, and to healthy environments and ensured sustainable use of rural natural resources. Briefly, the transition to bioeconomy is understood as a shift to production and consumption patterns that are based on biological and renewable natural resources, and that simultaneously guarantee environmental sustainability and generate new economic opportunities (in rural areas).

However the interviews conducted in Member States, as well as further exchanges in and around the Thematic Group, confirm that the concept of the bioeconomy is not commonly associated with these aspects nor with the objectives of EU's and its Member States' Rural Development Policy. The concept is in general noted to be vague, poorly understood, not formally defined in national legislation in some Member States and often confused with other concepts (including organic production or waste management). This lack of clarity is supported by findings in other work (Box 4) on public awareness of bioeconomy concepts and bio-based products. The awareness raising task at hand seems to be two-fold: first of all, the concrete opportunities and multiple benefits in shifting to bioeconomy in each specific (rural) context need to be understood; secondly, the differentiation of bio-based activities and products from 'traditional' ones needs to be clarified using specific tools and approaches.

BOX 4: PUBLIC PERCEPTION OF BIO-BASED PRODUCTS

BIOWAYS was a H2020 project, supported by the Biobased Industries Joint Undertaking, that ran from 2016 to 2018. The project focused on raising awareness about the potential for biobased products and included an online survey around public perceptions of biobased products. In 2017, more than 450 respondents across Europe shared their opinions and perceptions about the bioeconomy and bio-based products. Based on the responses it was concluded that consumers generally have a positive impression of biobased products, but they are often confused as to exactly what being biobased means. For example 67% of respondents expressed a preference for biobased products and 60% were aware of potential environmental benefits of using biobased products. In contrast, however, 51% considered that information about the benefits of biobased products is not readily available and 60% stated that they had never been engaged in information actions relevant to biobased products and the bioeconomy. Moreover, 40% were not confident that the use of biobased products contributes to sustainable economic growth and the creation of new jobs.

For more information about the outcomes of BIOWAYS and to access the outreach material generated see <http://www.bioways.eu>

As one interviewee stated: 'if we want to reach out to circular bioeconomy we need language that is more explicit and to design criteria for that'.

Interviewees considered that understanding the bioeconomy and then communicating and educating about the bioeconomy needs to happen stepwise. Following on from the conception of a circular, sustainable bioeconomy; criteria for support can be defined and tools built to define the environmental, social and economic outcomes desired. Several projects noted that they have a permit to operate but this is not a 'bioeconomy qualification'; the creation and use of which would be important for wider communication and awareness raising. It was noted that defining the baselines and standards should provide a common basis for both those preparing projects and those making decisions in terms of project support. This would allow Member State managing authorities to integrate definitions into

programming and provide clear and efficient information for rural stakeholders. An example of a Member State setting out provisions on funding for biomass is set out in Box 5.

BOX 5: SLOVAKIA - CRITERIA FOR THE SUSTAINABLE USE OF BIOMASS IN THE REGIONS OF SLOVAKIA FOR PROGRAMS CO-FUNDED BY THE EUROPEAN STRUCTURAL AND INVESTMENT FUNDS (ESIF) IN 2014 – 2020

In 2017, Slovakia adopted pilot sustainability criteria for the use of forest and non-forest biomass resources in all projects and programs co-funded by the European Structural and Investment Funds (ESIF) over 2014 – 2020. These includes projects or programs enacted in the context of the Operational Program Quality of the Environment (OP KŽP) and the Rural Development Program of the Slovak Republic (RDP). According to the Ministry of Environment, which is charge of monitoring the fulfilment of such criteria, the sustainability framework requires fulfilment of three criteria in relation to the origin of the biomass feedstocks used; their transportation and distribution; and the efficiency of wood biomass energy conversion. Failure to meet one of the criteria is considered a reason for refusal of the project at stake, or to return financial support received in the inception phase. The criteria are currently implemented as a pilot approach over the 2014-2020 period, on the basis of which they will be confirmed or discontinued in the following programming period.

Identifying, rewarding and communicating good and best practices was noted as important to both promoting transition towards a circular, sustainable bioeconomy and raising awareness of both the opportunities and products that emerge. Having a set of benchmarks and criteria that determine good practice approaches across the bioeconomy, links closely to the point regarding a baseline ‘bioeconomy qualification’. It is also important in developing and communicating demonstration projects; and differentiating support for ‘good’ bioeconomy projects within project assessment criteria. These are two important tools repeatedly noted in the interviews through which RDPs might support the bioeconomy.

Tools to Support awareness raising and Communication

Tools exist within RDPs, and beyond including in regional development funds (Noted as important by interviewees in relevant Member States - Box 6), to support awareness raising and communication about the bioeconomy. In relation to RDP support interviews noted EIP groups, advisory services and LEADER initiatives including specifically Local Action Groups as being of particular importance in building knowledge base and transferring expertise. Interviewees noted that following on from the clear definition of the bioeconomy and associated principles for assessment of good practice and projects, awareness-raising and communication tools should be used to: promote diffusion of best practices across different aspects of the bioeconomy; promote understanding in rural communities of relevant opportunities (based on local resources); and establish consumer understanding of the benefits. It was considered that definitions and principles should be built into education at all levels. It was also noted that this should not simply focus on knowledge but on skill transfer through vocational training and improving networks, such as through clusters, inter-regional exchanges, etc.

BOX 6: ESTONIAN FOREST CAMPSITES AND STUDY TRAILS DEVELOPED BY THE ESTONIAN STATE FOREST MANAGEMENT CENTRE

The State Forest Management Centre is a profit-making state agency, mostly linked to income from timber sales. It also invests significantly in facilities to support the public function of the state forests in the form of hiking trails/study trails, camping facilities and forest huts. These investments are intended

to provide social benefits in the form of added value from tourism and increased understanding and access to the forest environment. This is intended to increase awareness of forest management and environmental benefits (such as biodiversity) but also promote health (mental and physical) benefits and social inclusion. The investments are supported in part by European Regional Development funding.

The use of demonstration project examples, that fulfil good practice criteria, was repeatedly noted as critical in promoting uptake of novel approaches or solutions in rural areas. However, interviewees noted specific success factors influencing whether such demonstration projects are helpful and provide usable advice. Any demonstration project or good practice example should: explain any cultural, environmental or climatic preconditions for success; identify transferable elements of the work; demonstrate how practices could be adapted to differing local conditions; recognise the added value environmental, social and economic associated with successful delivery; place outcomes within the context of wider society goals e.g. improved waste management. It was also noted that examples should be tiered to be relevant to different types of farmers reflecting differences in size, expertise and extent of existing adoption of practices. It was felt that having a common, Europe wide network of good practices might facilitate this i.e. that helps those organising demonstrations to tailor the sites visited to farmers needs and local opportunities.

In addition to defining best practice case examples, it was also noted that there should be common understanding of best practice tools for assessment. A number of interviewees noted that there are established tools including Life Cycle Assessment (LCA), forest-based sustainability tools, emerging Artificial Intelligence (AI) based assessments and environmental impact assessment approaches required by legislation. It was however noted that information is often lacking on the best tools available, when they should be used, best practices to implementation and the most appropriate data sources. This can lead to misunderstanding, and a perception that such assessments are overly complex and challenging. Such tools are key to decision support, assessment and ultimately communication of decisions and impacts; hence commonality of understanding is important.

Many interviewees pointed to the potential tools for communication and awareness raising i.e. leaflets, social media, guidance, workshops and lectures. However, in so doing they noted that you have to understand what you are communicating, why and to whom – which at present is problematic in terms of the bioeconomy. Information should be locally relevant and appeal to consumers, decision makers and rural actors. It should make links between technology, the sustainable resource base and the market to demonstrate opportunity along the value chain (Box 7).

BOX 7: CASE EXAMPLE - FACILITATING MULTI-STAKEHOLDER DIALOGUE TO MANAGE NATURAL RESOURCES FOR BIOMASS CULTIVATION - WENDLAND-ELBETAL BIOENERGY REGION

The Wendland-Elbetal pilot bioenergy region facilitated interests among different stakeholders along the value chain through soft policy tools such as mapping of species and habitats of conservation interest, advice and communication with farmers and joint selection of objectives (bees, grassland birds). Farmers and biogas operators played a proactive role in implementing measures to promote wild plants for biogas use by setting aside land and received positive publicity from awareness raising activities. Outcomes were realised by improving the cooperation of the various interest and network groups in the region. Interventions included, for example, wild plant seed mixtures being provided to seed 6 areas of 1- 1.5

hectares as an alternative to maize and other crops suitable for biogas generation.² The seeds were developed specifically for the project by the state agency for horticulture and vineyards and was funded by the project. The flower strips find enthusiastic supporters, both among biogas plant operators and farmers, as well as citizens.

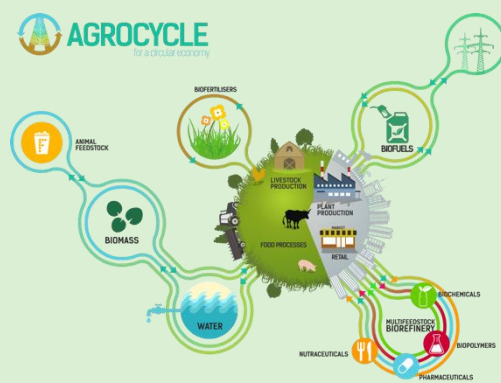
Networking to connect actors and share knowledge

Beyond approaches that look to build specific knowledge and understanding around the bioeconomy or bioeconomy value chains, there is a demonstrated need to increase the role of networks, such as producer associations and federations, networks of specialized regions and innovation actors, or through bioeconomy clusters or the connection of different actors that could play a role in supply chains. These can take a variety of forms and can benefit from different supporting tools at the EU level. For example, Horizon 2020 research and innovation funding has been used to support a range of different networking initiatives that aim to develop new bioeconomy value chains. One example is 'Agrocycle' which looks to valorize waste from the agri-food sector (Box 8).

The possible role of National Rural Networks in building bridges between national authorities and higher-level bioeconomy strategies and action plans, on the one hand, and local needs, opportunities and initiatives, on the other, to ensure that they are aware of and supportive of each other, is also apparent.

BOX 8: CASE EXAMPLE – AGRO-CYCLE – A H2020 INITIATIVE VALORISING WASTE FROM THE AGRI-FOOD SECTOR.

AgroCycle is a ca. €8 million (ca. €7 million from the European Commission, ca. €1 million from the Government of The People's Republic of China) Horizon 2020 research and innovation project addressing the recycling and valorisation of waste from the agri-food sector. The resultant AgroCycle Protocol will deliver sustainable waste valorisation pathways addressing the European policy target of reducing food waste by 50% by 2030, as well contributing to the wave of change that is occurring in China in relation to sustainability.



Led by the School of Biosystems and Food Engineering at University College Dublin, the consortium of 26 partners comprises partners from 8 EU countries, two partners from mainland China, and one from Hong Kong. The project takes a holistic approach to understanding and addressing how to make best use of the

full range of waste streams associated with the agri-food industry. It will deliver the AgroCycle Protocol, a blueprint for achieving sustainable agri-food waste valorisation.

² Interview Bioenergy Region Wendland-Elbetal

Cross border networking to up-scale and connect bioeconomy initiatives across the EU (and globally) is also important, particularly to address the challenges of dispersed resource availabilities and markets that will enable the bioeconomy to develop sustainably. For example, 3BI (Brokering Bio-Based Innovation) is a strategic European partnership that builds on the complementary strengths of four regional innovation clusters: Biobased Delta, BioEconomy, BioVale and Industries & Agro Resources (IAR) (Box 9). Other clusters and networks have been operationalised through EIP AGRI initiatives, national and regional funds, through ERDF and Interreg support, as well as private initiatives. Capitalising on these synergies between funds will be important to ensure the long-term economic sustainability of bioeconomy value chains, enabling greater networking and bringing together of actors who may otherwise not normally meet.

Whereas several EU-funded platforms and networks develop and coordinate awareness raising approaches towards different bioeconomy stakeholders, including those in rural areas, the ENRD Thematic Group seems to be currently the only initiative actively highlighting the synergy between of the Rural Development Policy and its instruments, and the transition to the bioeconomy. This perspective is timely as EU Member States design their Strategic Plans for the Common Agricultural Policy for the post-2020 programming period. The networks involved in and informed of ENRD's thematic work are in key position to disseminate the strategic opportunity of using CAP tools to promote bioeconomy value chains that benefit the development of rural areas.

BOX 9: EXAMPLE OF BIO-BASED CLUSTERING ACROSS EU MEMBER STATES

All four clusters use biorefining to convert biological resources into materials, chemicals, fuels, food and feed. They intend to work together in the research, development and deployment of novel high-tech approaches to the conversion of biomass and waste streams into value-added products and applications.

- Biobased Delta is an open innovation cluster based on a successful cross-over between the agro and chemistry sector with a focus on green feedstock, agro & food waste streams, green building blocks, such as bio-aromatics and functional molecules, and sustainable process technology. www.biobaseddelta.nl
- The BioEconomy Cluster is an open innovation cluster that focuses on the material use of renewable, lignocellulosic feedstock for innovative products and timber constructions, basic chemicals, plastics, biobased composites, automotive lightweight parts, packaging components and bioenergy. www.bioeconomy.de
- BioVale is an open innovation cluster that draws together Yorkshire and the Humber's strengths of world-class research, industry and agriculture to facilitate innovation with a particular focus on valorisation of biowastes, high value chemicals from plant and microbes, lignocellulosic fuels and chemicals and agri-tech innovation. www.biovale.org
- IAR is an innovative cluster, bringing together stakeholders from the entire value chain (agriculture, agro, chemistry and materials industries) and developing cooperative R&I projects with industrial applications (€ 1.4 bn invested in the last 10 years), focusing mostly on four strategic areas: advanced biofuels, bio-chemicals, bio-materials and ingredients (food, feed). IAR is a major development player in the European bioeconomy, with a leading role in the European Bio-Based Industries PPP (BBI). www.iar-pole.com

