

REPORT ON

# REGULATORY FRAMEWORKS AND CHANGES TO SUPPORT TRANSITION TO A CROSS-BORDER SUSTAINABLE BIOECONOMY IN THE SBA

Agency for Renewable Resources, University of Greifswald

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<b>Authors:</b>	<i>Valerie Sartorius (editor), Jennifer Nitzschke (editor), Martin Behrens Agency for Renewable Resources (FNR), Germany; Beate Cuypers, Max Mittenzwei University of Greifswald (UG), Germany; Rasmus Nør Hansen, Tyge Kjær, Magnus Kristian Skøt, Andreas Martin Dyreborg, Roskilde University (RUC), Denmark; Johanna Lund, Research Institutes of Sweden (RISE), Sweden; Thomas Prade, Swedish University of Agricultural Sciences (SLU), Sweden; Dariusz Mikielewicz, Roksana Bochniak, Aleksandra Gołębek, Paweł Dąbrowski, Gdańsk University of Technology (GUT), Poland;</i>
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## Executive Summary

The report aims to evaluate legal and regulatory frameworks related to the bioeconomy in the SBA and to identify whether they are beneficial or hindering for a sustainable development of the bioeconomy. Project partners (PP) from Sweden, Denmark, Germany and Poland assessed their national, legal and administrative bioeconomy related frameworks using a common format. Besides frameworks, laws and regulations, regional and national authorities and their responsibility within the bioeconomy as well as cross-border activities were looked at. This assessment created the basis of interviews, carried out with decision makers, policy actors and public administrators. The purpose of the interviews was to verify findings of the assessment and furthermore to facilitate the development of recommendations for the establishment of Bioeconomy frameworks in the South Baltic Area. The report also gives a summary of EU laws and regulations influencing the bioeconomy in the specific partner countries as they are applicable in all EU Member States. This is different from framework conditions, which aim to develop and integrated a set of strategies and rules, as well as associated plans and documents.<sup>1</sup>

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<sup>1</sup> USC. Policy Framework - Governing Policy. URL: Policy Framework - Governing Policy | Policies and procedures | University of the Sunshine Coast (usc.edu.au). Last viewed: 2021-01-20

## **Abbreviations**

BSR	Baltic Sea Region
BWG	Bioeconomy Working Group
EEG	Renewable Energy Law (German: Erneuerbare-Energien-Gesetz)
FNR	Agency for Renewable Resources (GER: Fachagentur Nachwachsende Rohstoffe)
GHG	Greenhouse gas
NBP	National Bioeconomy Panel
PP	Project partner
SBBN	South Baltic Bioeconomy Network
SBR	South Baltic Region
SME	Small and medium-sized enterprises
WP 6	Work Package 6

## List of tables

Table 1: Regional/national regulatory authorities with regard to the bioeconomy in Sweden. ....	8
Table 2: Regional/national regulatory authorities with regard to the bioeconomy in Denmark. ....	10
Table 3: Regional/national regulatory authorities with regard to the bioeconomy in Germany. ....	12
Table 4: Regional/national regulatory authorities with regard to the bioeconomy in Poland. ....	13
Table 5: List of national/regional authorities with no regulatory competences in Sweden. ....	14
Table 6: List of national/regional authorities with no regulatory competences in Denmark. ....	15
Table 7: List of national/regional authorities with no regulatory competences in Germany. ....	17
Table 8: List of national/regional authorities with no regulatory competences in Poland. ....	18
Table 9: List of cross-border activities and their role in bioeconomy in Sweden. ....	22
Table 10: List of cross-border activities and their role in bioeconomy in Germany. ....	22
Table 11: List of cross-border activities and their role in bioeconomy in Poland. ....	23
Table 12: List of policy frameworks and their relevance in bioeconomy in Sweden. ....	24
Table 13: List of policy frameworks and their relevance in bioeconomy in Germany. ....	27
Table 14: List of policy frameworks and their relevance in bioeconomy in Poland. ....	31
Table 15: Swedish interview results on laws and regulations with regard to the bioeconomy. ....	38
Table 16: Danish interview results on laws and regulations with regard to the bioeconomy. ....	40
Table 17: German interview results on laws and regulations with regard to the bioeconomy. ....	41
Table 18: Polish interview results on laws and regulations with regard to the bioeconomy. ....	44
Table 19: List of national laws and regulations and their relevance to bioeconomy in Sweden. ....	58
Table 20: List of national laws and regulations and their relevance to bioeconomy in Denmark. ....	62
Table 21: List of national laws and regulations and their relevance to bioeconomy in Germany. ....	63
Table 22: List of national laws and regulations and their relevance to bioeconomy in Poland. ....	69
Table 23: List of EU laws and regulations and their role in bioeconomy. ....	71

## Content

Executive Summary .....	3
List of tables .....	5
1. Introduction.....	7
2. Bioeconomy laws and frameworks – desk study and interviews.....	7
2.1 Desk study development and outline.....	7
2.2 Results of the desk study.....	8
2.2.1 Responsible authorities .....	8
2.2.2 National/regional authorities with no regulatory competences (table) .....	14
2.2.3 National laws and regulations .....	19
2.2.4 Cross-border activities.....	22
2.2.5 Policy frameworks .....	24
2.2.6 Summary of EU legislation.....	36
2.3 Interview methodology .....	37
2.4 Interview results.....	37
2.4.1 Laws and regulations hindering or supporting bioeconomy in the region .....	37
2.4.2 Recommendations on establishing an enabling framework to facilitate bioeconomy in the SBA .....	46
3. Conclusions.....	48
Annex.....	49
I. Desk study outline .....	49
II. Survey questions .....	56
III. National Laws and Regulations .....	58
IV. Summary of EU Laws and regulations .....	71

## 1. Introduction

The assessment of legal and administrative challenges and solutions for the promotion of a sustainable bioeconomy in the South Baltic Area was one of the objectives of Work Package 6 (WP6) of the BioBIGG project. Therefore, FNR designed a desk study to assess the legal regulatory frameworks, authorities and laws within each partner country (Denmark, Germany, Poland and Sweden).

This report summarises the partners' results of the desk study on national legal frameworks in relation to the development of a circular and sustainable bioeconomy in the South Baltic Area and the related interviews. In addition, a summary and overview of EU laws and regulations influencing the bioeconomy is also given. The report concludes with recommendations on establishing an enabling framework to facilitate the development of the bioeconomy in the Baltic Sea Region.

## 2. Bioeconomy laws and frameworks – desk study and interviews

### 2.1 Desk study development and outline

The desk study was based on a questionnaire structured by FNR and implemented by each partner country according to their own judgement. Interviews were conducted by all project partners (PP) to elaborate key findings and assess the quality of their respective desk study analysis. Finally, PP results were compared by FNR to define commonalities in relation to the development of recommendations for the bioeconomy.

The questionnaire aimed to identify the following from pieces of information partner country:

- Three to five of the most relevant national/regional regulatory authorities and an outline of their role within the bioeconomy.
- Three to five of the most relevant national/regional authorities with no regulatory competencies and their role regarding the bioeconomy.
- Three of the most relevant laws supporting the bioeconomy pertaining each of the following four sections of the bioeconomy: biomass production, biomass processing and end of life /cascading and market support. Specification was given to the material or energetic use of biomass as well as to the four value-chains from WP4 considering straw, sugar, wood and food waste.
- Three good practice examples of cross-border activities initiated or supported by regulatory authorities of the respective country or region regarding the bioeconomy.
- Two to three most relevant cross-border policy measures of the respective country/region regarding the bioeconomy had to be described.
- Three to five of the most relevant national/regional policy frameworks for each of the four sections of the bioeconomy with regard of their material or energetic use as well as the value-chains for straw, sugar, wood and food waste.
- To specify whether the law/regulation/framework is helpful or hindering for the bioeconomy. Suggestions regarding the potential improvement processes relevant to each activity/law had to be outlined.

The evaluation and findings of the desk study are presented in the following chapters.



## 2.2 Results of the desk study

The national laws and policies as well as the cross-border activities identified by the respective partner countries, were evaluated in the course of the desk study at the best discretion of the partner countries. It was estimated to what extent the policies or activities support the bioeconomy in the respective country and what changes might be needed. If an evaluation was made, then it can be found under the individual law/activity, indicated by the statement “evaluation through desk study”.

### 2.2.1 Responsible authorities

The responsible authorities in the field of bioeconomy are state offices, ministries and agencies operating in the agricultural, energy, environmental, economy, food and forestry sector as well as in the sector of education, conservation and rural development. Climate and geology also play an important role when it comes to bioeconomy. The tables show the most relevant national/regional regulatory authorities regarding the bioeconomy.

#### 2.2.1.1 Sweden

In Sweden, the *Board of Agriculture* plays an important role as it transposes agricultural EU regulations into national regulations and supports collaborative projects in the field of circular bioeconomy. The *Energy Agency*, the *Environmental Protection Agency* as well as the *Food Agency* play a key role in the Swedish bioeconomy. Furthermore, the bioeconomy is benefiting from the *Agency of Economic and Regional Growth* as it works to support companies and regions with knowledge transfer, financing and networks.

Table 1: Regional/national regulatory authorities with regard to the bioeconomy in Sweden.

AUTHORITY NAME	TYPE OF AUTHORITY	SCOPE OF AUTHORITY	ROLE WITH REGARD TO BIOECONOMY
<b>SWEDISH BOARD OF AGRICULTURE</b> <sup>2</sup>	Administrative agency	Agriculture, related rural development with the task of working for sustainable development, good animal welfare, dynamic and competitive business throughout the country and a food production for the benefit of consumers.	The Swedish Board of Agriculture is the authority in Sweden that implements agricultural EU regulations into national regulations. It is responsible for implementing e.g. the CAP Greening measures including the (Ecological Focus Area), income support, farm support etc. In 2019, the Swedish Board of Agriculture published call for proposals for new collaborative projects in circular bioeconomy.
<b>SWEDISH ENERGY AGENCY</b> <sup>3</sup>	Administrative agency	The Swedish Energy Agency is leading society's transition to a sustainable energy system.	The agency funds research on new and renewable energy technologies, smart grids, as well as vehicles and transport fuels of the future. It also supports business development that allows commercialisation of energy related innovations and ensures that promising clean-tech solutions can be exported. The energy issues that Swedish Energy Agency work with are related to the utilisation of biomass from agriculture and forestry amongst others.

<sup>2</sup> Jordbruks verket. Var rädd om din bästa vän. URL: <https://www.jordbruksverket.se>. Last view: 2020-05-14.

<sup>3</sup> Swedish Energy Agency (2020-05-08). Affordable and Clean Energy. URL: <http://www.energimyndigheten.se/en/about-us/>. Last viewed: 2020-05-14.



<b>SWEDISH ENVIRONMENTAL PROTECTION AGENCY</b> <sup>4</sup>	Public agency	Is responsible for environmental issues.	The agency carries out assignments on behalf of the Swedish Government relating to the environment in Sweden, the EU and internationally. The Agency is amongst others responsible for an investment aid called "klimatklivet" (climate step) for local and regional measures to reduce emissions of carbon dioxide and other gases that affect the climate. This can include investments in new biorefineries for example.
<b>THE SWEDISH AGENCY FOR ECONOMIC AND REGIONAL GROWTH</b> <sup>5</sup>	Government agency	Works to promote sustainable growth and competitive companies in all parts of Sweden.	The agency works to support and strengthen companies and regions. It offers knowledge, networks and financing. It is active in broad and multifaceted operation. One principal task is helping to ensure that EU funds are invested in projects that promote regional growth and employment. One of the areas that it is involved in is bioeconomy.
<b>SWEDISH FOOD AGENCY</b> <sup>6</sup>	Government agency under the Ministry of Enterprise and Innovation	The Swedish Food Agency works towards the following goals: healthy dietary habits, safe foods and fair practices in the food trade using regulations, recommendations and communication. This includes recommendations and communication support to consumers in their everyday life, for example when shopping, feeding their children and cooking.	Food legislation is essentially harmonised within the EU. The Swedish Food Agency takes an active part in the development of new legislation in co-operation with other EU member states. Food safety is the responsibility of the company that produces or sells food. The food control, which includes drinking water, is carried out by the Swedish Food Agency at national level, the County Administrations at regional level and the municipal Environment and Health Protection Committees at local level. The Swedish Food Agency is the competent authority when it comes to environmental issues in the food sector.

#### 2.2.1.2 Denmark

The bioeconomy in Denmark is regulated in an interconnected manner through several institutions on the national, regional and municipal level. However, the most relevant regulatory authorities on the national level are 1) The *Ministry of Environment*, hereunder the *Environmental Protection Agency (EPA)* and the *Nature Agency*. 2) The *Ministry of Food, Agriculture and Fisheries*, hereunder the *Danish Agricultural Agency*. 3) The *Ministry of Climate, Energy and Utilities*, hereunder the *Danish Energy Agency*.

The ministries support an appointed minister in relation to governmental law-making and interpretations/implementations of EU directives. The affiliated governmental agencies specify executive orders and instructions in accordance with national laws (in compliance with EU directives). Executive orders are often more detailed and used as central regulatory tools for the operationalisation of affiliated laws, and in this sense fundamental for the implementation of bioeconomic regulatory frameworks in regions and municipalities. Executive orders tend to be

<sup>4</sup> Swedish Environmental Protection Agency (2020-09-28). About the Swedish Environmental Protection Agency. URL: <http://www.swedishepa.se/About-us/>. Last viewed: 2020-05-14.

<sup>5</sup> Tillväxtverket (2020). Swedish Agency for Economic and Regional Growth. URL: <https://tillvaxtverket.se/english.html>. Last viewed: 2020-05-14.

<sup>6</sup> -livsmedelsverket. URL: <https://www.livsmedelsverket.se/>. Last viewed: 2020-05-14.

specified around a certain thematical and/or sectorial area, such as the executive order for the utilisation of biowaste for agricultural purposes .

There is no inter-ministerial regulatory authority dedicated directly to the over-all development of a bioeconomy in DK. However, The National Bioeconomy Panel specified under the section; as well as authorities with no regulatory competences are supported by an inter-ministerial group of representatives from the following ministries: *Ministry of Environment, Ministry of Industry, Business and Financial Affairs, Ministry of Higher Education and Science* as well as the *Ministry of Climate, Energy and Utilities*.

Table 2: *Regional/national regulatory authorities with regard to the bioeconomy in Denmark.*

AUTHORITY NAME	TYPE OF AUTHORITY	SCOPE OF AUTHORITY	ROLE WITH REGARD TO BIOECONOMY
<b>THE DANISH ENVIRONMENTAL PROTECTION AGENCY<sup>7</sup> (EPA)</b>	Government agency under the Ministry of Environment	The EPA is the authority in charge of the administration, preparation, interpretation, and simplification of national legislation within the thematical centres mentioned to the right. Furthermore, the EPA administers several EU laws, national laws and executive orders related to areas such as environmental protection, chemical substances/products, waste handling and contaminated soil. The EPA is also the supervisory and approval authority for the potentially most environmentally harmful companies in Denmark, import/export of waste, pesticides, and other fields related to the environment in Denmark.	The EPA is organised into five centres: Centre for Rich Nature, Centre for Clean Water, Centre for Safe Chemistry, Centre for Green Production and Centre for Staff. <sup>8</sup> Circular economy and waste are placed as a unit under the centre for Green Production. Bioeconomy related issues is primarily placed within the unit of circular economy, but is also represented within other units.
<b>THE DANISH AGRICULTURAL AGENCY (DAA)<sup>9</sup></b>	Government agency under the Ministry of Food, Agriculture and Fisheries	The scope of authority for DAA is agriculture, plants and horticulture in Denmark. The agency is organised into four sections; IT, Resources (financial), EU & Agriculture, and Customers & Production.	The focus on bioeconomy is primarily related to the following two sections; (1) EU & Agriculture; the direct payment to farmers (EUs Common Agricultural Policy, CAP), environment and biodiversity (in relation to agriculture), Plants, Subsidy Payments, and EU and Commerce. (2) Customers & Productions; Area Subsidies, Project Subsidies, Area Control, Land Consolidation and Agricultural Law, Nature Subsidies and Regional Area Inspections.

<sup>7</sup> Danish Environmental Protection Agency. URL: <https://eng.mst.dk/>. Last viewed: 2021-01-26.

<sup>8</sup> EPA organisational Diagram. URL: <https://eng.mst.dk/about-us/organisation/>. Last viewed: 2021-01-27.

<sup>9</sup> The Danish Agricultural Agency. URL: <https://eng.lbst.dk/>. Last viewed: 2021-01-26.

<b>DANISH ENERGY AGENCY (DEA)<sup>10</sup></b>	Government agency under the Ministry of Climate, Energy and Utilities	The DEA is responsible for tasks linked to energy production, supply and consumption, as well as Danish efforts to reduce carbon emissions (see Denmark's Climate and energy Outlook 2020 <sup>11</sup> ). This entails a wide range of responsibilities; Bioenergy, Climate negotiations, EU Emissions Trading System, Electricity, Energy and Climate politics, Energy labels for Buildings, Energy Requirements, Energy Savings, Oil and Gas, Security of Supply, Solar Energy, Waste, Water, Wave and Hydropower, Wind Power <sup>12</sup>	Responsible for Bioenergy (biogas and solid biomass), hereunder the rules and regulations regarding the support schemes and the criteria of sustainable biogas production (see Danish support schemes for electricity produced on renewable energy sources <sup>13</sup> ), Waste, Water, Security of Supply and Energy and Climate.
<b>DANISH MINISTRY OF HIGHER EDUCATION AND SCIENCE</b>	Government Ministry and hereunder the Danish Agency for Higher Education and Science.	Responsible for the areas; Science, Innovation and Higher Education, The Ministry handles tasks related to policies, administration, operation, coordination and interaction, etc. in and between these areas.	A subunit in the ministry (EuroCenter <sup>14</sup> ) facilitates stakeholder support and counselling on Horizon2020 programmes for Energy, Bioeconomy, Innovation in SMEs, and Climate. The subunit especially focuses on application procedures.

### 2.2.1.3 Germany

Many federal ministries and state offices are working together to improve and maintain a sustainable bioeconomy in Germany. Hence, the *Federal Ministry of Education and Research* published the *National Bioeconomy Strategy* together with the *Federal Ministry of Food and Agriculture*. The strategy introduces funding programmes, promotes the utilisation of biomass and puts a focus on biotechnology. On the federal state level, the *State Office for Environment, Nature Conservation and Geology* plays a leading role in bioeconomy. In the province of Mecklenburg-Vorpommern (MV) these are mainly the *State Forestry*, which prescribes the ecological use of wood, as well as the *State Office and Ministry for Agriculture and Environment*, which is responsible for the implementation of federal/state legislations and EU regulations for agriculture and environment.

<sup>10</sup> Danish Energy Agency. URL: <https://ens.dk/en>. Last viewed: 2021-01-26.

<sup>11</sup> Denmark's Climate and energy Outlook 2020. URL:

[https://ens.dk/sites/ens.dk/files/Basisfremskrivning/deco\\_2020\\_27082020.pdf](https://ens.dk/sites/ens.dk/files/Basisfremskrivning/deco_2020_27082020.pdf). Last viewed: 2021-01-26.

<sup>12</sup> Some areas are not mentioned, as they have little to no relevance for the bioeconomy in DK

<sup>13</sup> Danish Energy Agency. Memo on the Danish support scheme for electricity generation based on renewable and other environmentally benign electricity production. URL:

[https://ens.dk/sites/ens.dk/files/contents/service/file/memo\\_on\\_the\\_danish\\_support\\_scheme\\_for\\_electricity\\_generation\\_based\\_on\\_re.pdf](https://ens.dk/sites/ens.dk/files/contents/service/file/memo_on_the_danish_support_scheme_for_electricity_generation_based_on_re.pdf). Last viewed: 2021-01-26.

<sup>14</sup> EuroCenter under the Danish Ministry of Higher Education and Science. URL: <https://ufm.dk/en/research-and-innovation/funding-programmes-for-research-and-innovation/eu-and-international-funding-programmes/horizon-2020/About-eurocenter-and-eu-dk-support/counselling-about-horizon-2020>. Last viewed: 2021-01-26.

Table 3: Regional/national regulatory authorities with regard to the bioeconomy in Germany.

<b>AUTHORITY NAME</b>	<b>TYPE OF AUTHORITY</b>	<b>SCOPE OF AUTHORITY</b>	<b>ROLE WITH REGARD TO BIOECONOMY</b>
<b>FEDERAL MINISTRY OF EDUCATION AND RESEARCH</b> 15 16	Federal Ministry	Education, Academia, Research, International Research Affairs	Co-Publisher of National Bioeconomy Strategy. Data collection, networking and dissemination. Provider for (international) R&D projects (e.g. H2020), funding programme. Bioeconomy International: "(...) strengthening Germany in its role as a bioeconomy hub." Focus on biotechnology in the bioeconomy.
<b>FEDERAL MINISTRY OF FOOD AND AGRICULTURE</b> 17 18	Federal Ministry	Forestry, Agriculture, Food, Feed, Fishery, Regional Development, Digitisation	Co-Publisher of National Bioeconomy Strategy. Data collection, (networking) and dissemination. Funding of research projects: Founding Programme Renewable Resources, stronger emphasis on biomass utilisation, bioenergy and bio-based products.
<b>STATE FORESTRY MV</b> 19 20	State authority, institution under public law	Unified forest administration. Forest authority, forest services and forest operations are in one hand.	Climate protection, economic use of timber, Environmental education in youth forest homes and forest schools, renewable energy (use of the domestic energy source wood and the use of wind and solar energy).
<b>STATE OFFICE FOR ENVIRONMENT, NATURE CONSERVATION AND GEOLOGY MV</b> 21	State authority	Nature conservation and nature parks. Geology. Emission control and waste management. Environmental analysis and radiation protection. Advising the State Offices for Agriculture and Environment, the districts and municipalities and the federal state government.	Recording, documentation and evaluation of the environmental status, the development of basics for the planning and implementation of nationwide protection measures at provincial level (Mecklenburg-Western Pomerania).
<b>STATE OFFICE FOR AGRICULTURE AND ENVIRONMENT MV</b> 22	Regional authority	Implementation of federal and state legislation and EU regulations in the fields of agriculture and environment at regional level (Mecklenburg-Western Pomerania).	Agriculture/EU subsidy issues, integrated rural development, nature conservation, water and soil, emission and climate protection and waste and recycling management.

<sup>15</sup> BMBF. Index page: <https://www.bmbf.de/en/index.html>. Last viewed: 2020-05-08.

<sup>16</sup> BMBM (2016). Bioeconomy International. Global collaboration for bio-based economy. URL: [https://www.bmbf.de/upload\\_filestore/pub/Bioeconomy\\_International.pdf](https://www.bmbf.de/upload_filestore/pub/Bioeconomy_International.pdf). Last viewed: 2020-05-08.

<sup>17</sup> BMEL (18 May 2020). Index page: [https://www.bmel.de/DE/Home/home\\_node.html](https://www.bmel.de/DE/Home/home_node.html). Last viewed: 2020-05-08.

<sup>18</sup> BMEL. (April 2017). A brief introduction: the Federal Ministry of Food and Agriculture.

<sup>19</sup> Ministerium für Landwirtschaft und Umwelt (2019). Backhaus legt 10-Punkte-Programm zur Zukunft der Wälder vor. [Press release No.247/2019]. URL: <https://www.regierung-mv.de/Landesregierung/Im/Service/Presse/Aktuelle-ressenmitteilungen/?id=153795&processor=processor.sa.pressemitteilung>. Last viewed: 2020-05-08.

<sup>20</sup> Ministerium für Landwirtschaft und Umwelt (2019). Backhaus legt 10-Punkte-Programm zur Zukunft der Wälder vor. [Press release No.247/2019]. <https://www.regierung-mv.de/Landesregierung/Im/Service/Presse/Aktuelle-Pressenmitteilungen/?id=153795&processor=processor.sa.pressemitteilung>. Last viewed: 2020-05-08.

<sup>21</sup> LUNG (20 May 2020). Aufgaben des LUNG. URL: <https://www.lung.mv-regierung.de/insite/cms/hauptmenue/lung/aufgaben.htm>. Last viewed: 2020-05-08.

<sup>22</sup> StALU. Index page. (20 May 2020). URL: <http://www.stalu-mv.de/>. Last viewed: 2020-05-20.

<b>MINISTRY FOR AGRICULTURE AND ENVIRONMENT MV</b> <sup>23</sup>	Highest state authority	Forestry, Agriculture, Food, Feed, Fishery, Regional Development, Digitisation	Implementation of federal and state legislation in the fields of agriculture and environment at provincial level (Mecklenburg-Western Pomerania).
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#### 2.2.1.4 Poland

In Poland, the responsible authorities include the *Energy Regulatory Commission*, the *Ministry of Climate*, as it monitors and promotes sustainable development at the international level, and the *Ministry of Agriculture and Rural Development*, which aims to maintain the current level of agricultural raw materials for the production of biofuels. At the regional level, the *Marshal's Office* defines the regional development strategy and is responsible among others for environmental education and air protection.

Table 4: Regional/national regulatory authorities with regard to the bioeconomy in Poland.

AUTHORITY NAME	TYPE OF AUTHORITY	SCOPE OF AUTHORITY	ROLE WITH REGARD TO BIOECONOMY
<b>MINISTRY OF CLIMATE</b> <sup>24</sup>	National	Supervision of institutions such as Chief Inspectorate for Environmental Protection, Institute of Environmental Protection, and National Fund for Environmental Protection and Water Management, handling matters related to climate policy and sustainable development.	Undertaking sustainable development activities at the international level, implementation of tasks resulting from Poland's membership in the organisation for Economic Cooperation and Development. Raising the level of ecological awareness and shaping the ecological attitudes of society by promoting the principles of sustainable development.
<b>MINISTRY OF AGRICULTURE AND RURAL DEVELOPMENT</b> <sup>25</sup>	National	Provides services to the Minister of Agriculture and Rural Development, which manages three departments of government administration: agriculture, rural development, agricultural markets.	Activities undertaken by the Ministry of Agriculture and Rural Development in cooperation with the Ministry of Energy were aimed at maintaining the current level of use of agricultural raw materials for the production of biofuels. As part of promoting the use of agricultural biomass, educational activities are also undertaken, as well as dissemination of knowledge about possible solutions.
<b>MINISTRY OF DEVELOPMENT</b> <sup>26</sup>		Support for entrepreneurship, stimulating employers to take responsible actions for employees, increasing the efficiency of Polish business through the development of innovative solutions.	The Department of Innovation of this Ministry deals with the implementation of tasks related to the transformation of the economy towards a circular economy, including issues related to the ecological footprint and access of industry to raw materials. Preparation and implementation of projects for activities in the area of energy efficiency of buildings, development and use of renewable energy sources, transformation of the energy industry towards low-emission energy.

<sup>23</sup> Ministry for Agriculture and Environment MV. (25 August 2020) Index page. URL: <https://www.regierung-mv.de/Landesregierung/Im/>. Last viewed: 2020-08-25.

<sup>24</sup> Ministerstwo Klimatu i Środowiska. URL: <https://www.gov.pl/web/klimat>. Last viewed: 2020-05-24.

<sup>25</sup> Ministerstwo Rolnictwa i Rozwoju Wsi. Index page. URL: <https://www.gov.pl/web/rolnictwo>. Last viewed: 2020-05-24.

<sup>26</sup> Ministerstwo Rozwoju, Pracy i Technologii. URL: <https://www.gov.pl/web/rozwoj/dzialania-ministerstwa>. Last viewed: 2020-05-24.

<b>MARSHAL'S OFFICES</b> <sup>27 28 29</sup>	Regional	The main task and goal of the Marshal's Offices is to define the regional development strategy and conduct the regional development policy including those connected with bioeconomy. Marshal's Offices cooperate in this respect with local self-government units, non-governmental and voluntary organisations, universities and research institutes, other regions, as well as with organisations and regions of other countries.	Ecological education, climate policy, international aspects of sustainable development, air protection, Polish energy policy, national energy and climate plan for 2021-2030, renewable energy sources – monitoring.
<b>THE ENERGY REGULATORY OFFICE</b> <sup>30</sup>	National	Office serving the President of the Energy Regulatory Office, which is the central body of state administration, regulating the Polish energy market.	The Renewable Sources Department of this Office carries out tasks related to the production of electricity from renewable energy sources, the production of agricultural biogas, and also prepares draft decisions on granting, changing, withdrawing or revoking the promise of concessions/licenses for conducting business activity in the field of electricity production from biomass, bioliquids, biogas or agricultural biogas.

### 2.2.2 National/regional authorities with no regulatory competences (table)

Authorities without regulatory powers have an influence on the bioeconomy in the region as well. Those are mainly research centers, foundations, agencies and clusters/networks. Their tasks and links to the bioeconomy within each partner's country are explained in the following tables.

#### 2.2.2.1 Sweden

Mainly councils, foundations and agencies financing research and innovation strengthening the competitiveness in the agricultural sector and supporting sustainable growth and development.

Table 5: List of national/regional authorities with no regulatory competences in Sweden.

AUTHORITY NAME	TYPE OF AUTHORITY	SCOPE OF AUTHORITY	ROLE WITH REGARD TO BIOECONOMY
<b>FORMAS</b> <sup>31</sup>	Swedish government research council	Research for sustainable development. Finance research and innovation, develop strategies, do analyses and evaluations.	In 2011, Formas got an assignment to develop a national strategy for the development of a bio-based societal economy for sustainable development. It is one of the financiers of BioInnovation; a strategic innovation program with the goal to create the best possible conditions for increasing the pace of innovation within the bioeconomy. The objective of the programme is to complete the transition to a bio-based economy by 2050.

<sup>27</sup> Biuletyn informacji publicznej. Biuletyn Informacji Publicznej Urzędu Marszałkowskiego Województwa Pomorskiego. URL: <https://www.bip.pomorskie.eu/a,14600,urzed-marszalkowski-wojewodztwa-pomorskiego.html>. Last viewed: 2020-05-24.

<sup>28</sup> Pomorze Zachodni. URL: <http://wzp.pl/>. Last viewed: 2020-05-24.

<sup>29</sup> Biuletyn Informacji Publicznej (2020). URL: <https://bip.warmia.mazury.pl/>. Last viewed: 2020-05-24.

<sup>30</sup> Urząd Regulacji Energetyki (2020). URL: <https://www.ure.gov.pl/pl>. Last viewed: 2020-05-24.

<sup>31</sup> FORMAS. URL: [www.formas.se](http://www.formas.se). Last viewed: 2020-05-19.



<b>SWEDISH FARMERS' FOUNDATION FOR AGRICULTURAL RESEARCH</b> <sup>32</sup>	Foundation	Growing knowledge by funding research and development; purpose: strengthen the Swedish agricultural sector's competitiveness.	Increased efficiency, improved product quality, scientific expertise, and knowledge transfer are crucial to Swedish agriculture's competitiveness internationally. The SLF research covers four main areas: entrepreneurship, climate & environment, energy & biomass and food.
<b>MISTRA</b> <sup>33</sup>	Foundation	Environmental Strategic Research.	The purpose of Mistra's research is to promote the development of strong environmental research environments with the aim of creating a good living environment for all. The investments Mistra makes are also intended to assist in enabling companies, public stakeholders and users to develop new products, services and working methods with a view to meeting society's environmental challenges. Another, simultaneous aim is for the initiatives to strengthen Swedish competitiveness.
<b>VINNOVA</b> <sup>34</sup>	Sweden's innovation agency	Strengthen Sweden's innovation capacity and contribute to sustainable growth	VINNOVA is one of the financiers of the BioInnovation the strategic innovation program mentioned above. VINNOVA are financing many projects within the bioeconomy field, examples of two calls from the last two years are Increased resource efficiency through circular economy and Circular and bio-based economics - from theory to practice.

#### 2.2.2.2 Denmark

One of the primary national Danish stakeholder with no direct regulatory competences is the *National Bioeconomy Panel (NBP)*. The Panel is supported by an inter-ministerial group of representatives from several ministries. This organisational position enables the NBP to support main regulatory institutions (ministries) through recommendations, especially on R&D, biobased technologies and funding procedures. Other important stakeholders on the national level are (1) the Danish Agriculture & Food Council. (2) SEGES, research and innovation centre for the agriculture and food industry in Denmark. (3) the Sustainable Biorefinery Partnership under the association of Danish Environmental technologies (Dansk Miljøteknologi).

The politically governed administrative unit for *Region Zealand* (Region Sjælland) is also an important authority for the overall development of a bioeconomy within the project area. Regional development initiatives are implemented in close collaboration with the relevant municipalities embedded in the region.

Table 6: List of national/regional authorities with no regulatory competences in Denmark.

AUTHORITY NAME	TYPE OF AUTHORITY	SCOPE OF AUTHORITY	ROLE WITH REGARD TO BIOECONOMY
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<sup>32</sup> Stiftelsen Lantbruksforskning. URL: <https://www.lantbruksforskning.se>. Last viewed: 2020-05-21.

<sup>33</sup> MISTRA. URL: [www.mistra.org](http://www.mistra.org). Last viewed: 2020-05-21.

<sup>34</sup> VINNOVA. Website: <https://www.vinnova.se/>. Last viewed: 2020-05-22.



<b>NATIONAL BIOECONOMY PANEL</b> <sup>35</sup>	Stakeholder panel supported by the EPA	Recommendations on bioeconomy initiatives primarily for ministries, but also regional institutions and municipalities	The panel was established in 2013 in relation to the European commission's strategy for 'A Bioeconomy for Europe' <sup>36</sup> and then re-launched in 2017 with an increased focus on in-depth development of new value-chains for bio-based building blocks (such as textiles and proteins <sup>37</sup> ).
<b>DANISH AGRICULTURE &amp; FOOD COUNCIL</b> <sup>38</sup>	Business organisation	The council represent a wide range of members from the farming and food industries of Denmark, including companies, trade and farmers' associations. The council also collaborates closely with the Danish Straw association.	The council promotes political influence of the agricultural sector and food sector. Implements R&D programmes for environment and energy and administrates the professional interests of its members in relation to overall industrial policy and regulatory frameworks, Research and Innovation policy, Environment and energy policy, trade and market policy (including the CAP).
<b>SEGES</b> <sup>39</sup>	A partially independent unit under the Danish Agriculture & Food Council	SEGES focuses on Research and innovation for the agriculture and food industry in Denmark.	One of the primary objectives of SEGES is to identify and develop commercial possibilities of agriculture for farmers. Focus areas of the unit are as follows; Climate (agricultural solutions for GHG reduction initiatives), Data-Driven Management and Software (Agro-digitalisation), Crops and Environment (on-field operations), Dairy and Beef research, Pig Research, and organic farming. A 'Future Farming' <sup>40</sup> initiative developed by The Danish Agriculture & Food Council is also placed under SEGES.

<sup>35</sup> National Bioeconomy Panel. URL: <https://mst.dk/erhverv/groen-virksomhed/bioekonomi/>. Last viewed: 2021-01-27.

<sup>36</sup> EU Commissions Strategy for A Bioeconomy for Europe. URL: [https://ec.europa.eu/research/bioeconomy/pdf/official-strategy\\_en.pdf](https://ec.europa.eu/research/bioeconomy/pdf/official-strategy_en.pdf). Last viewed: 2021-01-27.

<sup>37</sup> NBP Recommendations on protein Value Chains. URL:

[https://mfvm.dk/fileadmin/user\\_upload/MFVM/Miljoe/Bioekonomi/Recommendations\\_from\\_the\\_National\\_Bioeconomy\\_Panel\\_Proteins\\_for\\_the\\_future\\_\\_PDF\\_.pdf](https://mfvm.dk/fileadmin/user_upload/MFVM/Miljoe/Bioekonomi/Recommendations_from_the_National_Bioeconomy_Panel_Proteins_for_the_future__PDF_.pdf). Last viewed: 2021-01-27.

<sup>38</sup> Danish Agriculture & Food Council. URL: <https://agricultureandfood.dk/>. Last viewed: 2021-01-27.

<sup>39</sup> SEGES. URL: <https://en.seges.dk/Our-Competencies>. Last viewed: 2021-01-27.

<sup>40</sup> SEGES, Future Farming Initiative URL: <https://www.seges.dk/da-dk/innovation-og-udvikling/futurefarming>. Last viewed: 2021-01-27.

### 2.2.2.3 Germany

The *Agency for Renewable Resources* (FNR) coordinates projects for research, development and demonstration of renewable resources in Germany, whereas the *Research Centre Jülich* is looking for wide-ranging solutions promoting a sustainable bioeconomy.

Table 7: List of national/regional authorities with no regulatory competences in Germany.

AUTHORITY NAME	TYPE OF AUTHORITY	SCOPE OF AUTHORITY	ROLE WITH REGARD TO BIOECONOMY
<b>FNR / AGENCY FOR RENEWABLE RESOURCES</b> <sup>41</sup>	R&D Funding Agency connected to the Federal Ministry of Food and Agriculture	Technical and administrative support for research projects on the use of renewable raw materials.	FNR is the central coordinating institution for research, development and demonstration projects in the field of renewable resources. It coordinates activities on renewable resources throughout Germany according to the guidelines of the R&D Funding programme for Renewable Resources.
<b>PT-JÜLICH</b> <sup>42</sup>	R&D Funding Agency mainly under the Federal Ministry of Research	Technical and administrative support for research projects on the use of renewable raw materials	PT-Jülich supports the Federal Ministry of Research on all bioeconomy related issues.
<b>RESEARCH CENTRE JÜLICH</b> <sup>43</sup>	Research centre	Conducts research to provide comprehensive solutions in the fields of energy and environment, information and brain research.	This research field is concerned with contributing to a bio-based value chain permitting a sustainable economy. Research into a sustainable bioeconomy comprises work in biotechnology, plant research, and soil research (agrosphere). This work aims to support the transition from an oil-based to a bio-based economy and to contribute to the efforts to feed a growing global population.
<b>BIOECONOMY COUNCIL</b> <sup>44</sup>	Independent advisory body of the Federal Government	Germany; material and energetic use	The Bioeconomy Council advises the Federal Government on the implementation of the “National Research Strategy Bioeconomy 2030” and the “National Policy Strategy on Bioeconomy” with the aim of creating optimum economic and political framework conditions for a bio-based economy.

<sup>41</sup> FNR. Index page (25 June 2020). <https://www.fnr.de>. Last viewed: 2020-05-18.

<sup>42</sup> PT-Jülich. <https://www.ptj.de/en/project-funding/bioeconomy-> Last viewed 1 Feb 2021

<sup>43</sup> Forschungszentrum Jülich GmbH. Bioeconomy (20 August 2020). [https://www.fz-juelich.de/portal/EN/Research/bioeconomy/\\_node.html](https://www.fz-juelich.de/portal/EN/Research/bioeconomy/_node.html). Last viewed: 2020-05-18.

<sup>44</sup> Bioeconomy council. (25 May 2020). What is the Bioeconomy Council? <https://bioekonomierat.de/en/bioeconomy-council/index.html>. Last viewed: 2020-05-18.

#### 2.2.2.4 Poland

Mainly clusters, agencies and foundations active and present in field of energy use/supply, developing renewable sources and distributing EU funds for institutions supporting the development of entrepreneurship in Poland and the development of activities to use renewable resources can be found among the list of national and regional authorities with no regulatory competence in Poland.

Table 8: List of national/regional authorities with no regulatory competences in Poland.

AUTHORITY NAME	TYPE OF AUTHORITY	SCOPE OF AUTHORITY	ROLE WITH REGARD TO BIOECONOMY
<b>BALTIC ECOENERGY CLUSTER (BKEE)</b> <sup>45</sup>	Regional	BKEE is a joint initiative of the Institute of Fluid-Flow Machinery of the Polish Academy of Sciences, the University of Warmia and Mazury, the Gdańsk University of Technology and the Koszalin University of Technology as well as Marshals and Local Governments of the Pomeranian and Warmia and Mazury Voivodeship, as well as business entities and associations based in these provinces. It covers the area of northern Poland from Koszalin through the Pomeranian Voivodeship to the eastern ends of the Warmia and Mazury Voivodeship.	Cluster activities are aimed at: reducing the share of fossil fuels as primary energy sources, stimulating the development of new technologies in the area of green energy and training specialists, supporting the production of equipment for bioenergetics, promoting and supporting energy-saving technologies, development of ecological awareness and professional activation of the population from rural areas.
<b>POMERANIAN DEVELOPMENT AGENCY</b> <sup>46</sup>	Regional	Acts as an intermediary in the distribution of EU funds for companies and institutions supporting the development of entrepreneurship.	The agency allows Pomeranian companies to benefit from EU subsidies, financing the implementation of innovative projects and new investments, including those related to bioeconomy.
<b>ENERGY CONSERVATION FOUNDATION</b> <sup>47</sup>	Regional	Was established to conduct and support all kinds of activities aimed at rationalising the use of energy and developing its renewable sources.	The purpose of the Energy Conservation Foundation in Gdańsk is to promote progress in the field of energy efficiency and use of renewable energy sources; initiate social activities and practical implementation of projects and technologies in this field; maximum use of local energy resources; improvement of the living conditions in the region as a result of respect for energy and commitment to the use of its renewable sources.

<sup>45</sup> Bałtycki Klaster Ekoenergetyczny. Zielona Alternatywa dla Makroregionu Polski Północnej. URL: <https://www.imp.gda.pl/bkee/>. Last viewed: 2020-05-25.

<sup>46</sup> Agencja Rowoju Pomorza S.A. URL: <https://www.arp.gda.pl/>. Last viewed: 2020-05-25.

<sup>47</sup> FPE. Fundacja Poszanowania Energii. URL: <https://fpe.org.pl/>. Last viewed: 2020-05-25.

### 2.2.3 National laws and regulations

The main objective of the desk study was the evaluation of the laws and regulations addressing the bioeconomy in each country. Each partner country listed the most important laws at its discretion. Thereby it was of great importance whether they are hindering or benefitting the development of bioeconomy in the region/country. This was done in regard to the four sections of the bioeconomy starting with the biomass production, followed by the biomass processing, the end of life and market support. The examination of the laws shows to what extent the bioeconomy is taken into account in the respective countries and whether they are effective in their implementation/application. It not only allows a comparison within countries, but it also shows in which direction the bioeconomy is developing. This evaluation furthermore reveals obstacles and gaps that need to be addressed in the future. Some of the laws identified in this section were discussed in more detail in subsequent interviews. The laws assessed in the desk study, as well as the corresponding comments and notes from the interviews, are listed in Annex III.

#### 2.2.3.1 Sweden

Three laws were selected for the section 'Biomass production', addressing the management of agricultural land, forest management, the promotion of sustainable development as well as the production and use of biofuels and liquid biofuels for the reduction of GHG emissions. For the biomass processing/biorefinery the *REACH Directive (EC 1907/2006)*, describing registrations and restrictions on substances and chemical products for manufacturer and importers of goods and chemical products in the EU, and the *Food Law (2006:804)* were assessed. The latter applies to the food production, processing and distribution chain and aims to ensure a high level of human health protection. The law is related to the bioeconomy as it addresses all kind of foods produced in the biorefinery process. The *Law (2010:598) on sustainability criteria for biofuels and liquid biofuels* sets sustainability criteria for biofuels and liquid biofuels. Social aspects and wider environmental impacts as well as ecosystem services in future sustainability criteria are included. Three laws/regulations were selected for 'End of life/cascading' addressing waste management, protection of animal and human health when it comes to feed and animal by-products and regulating the import and export of chemical products and contaminated materials. The transition to a sustainable bioeconomy is supported by the following laws: the *Directive (2015: 517) on support for local climate investments (the Climate Step Directive)* provides grants for local and regional measures reducing GHG emissions and other gases affecting the climate, whereas the *Law on energy taxes* regulates among others energy and carbon taxes on renewable fuels. The *Regulation on governmental support for the production of biogas used as vehicle fuel* supports biogas production but is limited to remove the difference between production costs and market prices.

#### 2.2.3.2 Denmark

Several national laws, executive orders, rules, and guidelines address different thematically or sectorial aspects of the bioeconomy in Denmark. To single out the most important regulations for the development of a bioeconomy would thereby be a very difficult process. In order to delimit the regulatory analysis, the focus has therefore been placed on the regulatory frameworks on waste for agricultural purposes.

The over-all regulatory framework for waste management in EU is the Directive 2008/98/EC on waste. One of the main aspects of the directive is the waste management hierarchy. The hierarchy specifies a priority order of how to manage waste in member states (prevention, preparing for re-use, recycling, recovery and disposal). Danish law complies with the waste directive. The general regulatory framework for waste management in Denmark is found under the *Danish Environmental Protection Act (LBK nr 1218 af 25/11/2019)* and specified under the *Executive order on waste (BEK nr 2159 af*

09/12/2020)<sup>48</sup>. The subsequent utilisation of waste for agricultural purposes is regulated under the executive order '*Bekendtgørelse om anvendelse af affald til jordbrugsformål (BEK nr 1001 af 27/06/2018)*'. The purpose of the regulation can be divided into three sections; (1) To specify and define biological resources as waste eligible for treatment in accordance with the regulation (specified under appendix 1). (2) Set and monitor limit values for environmentally harmful substances in biowaste and regulate the utilisation possibilities in accordance with measured values. Limit values are set and monitored for heavy metals, pollutants and physical impurities. (3) To define sanitisation procedures for biowaste and utilisation possibilities in accordance with the procedures.

#### 2.2.3.3 Germany

Biomass production is addressed by the *Law on Nature Conservation and Landscape Management*, the *Law on permanent greenland conservation* preserving permanent grassland for the purpose of climate, nature, soil and water protection. The *National Forest Act* was created to promote forestry, the sustainable use of forest resources and to highlight the importance of forest ecosystems for the whole society. It establishes the necessary framework conditions to ensure sustainable forest management which secures long-term availability of woody biomass. The *Guideline for the cutting of reed in reed beds* is mainly applied in the north of Germany, e.g. Mecklenburg-Western Pomerania. Which biomass is allowed and what technical requirements are permitted for the energy production from biomass are described by the *Ordinance on the Generation of Electricity from Biomass*. With the elimination of the EEG<sup>49</sup>-regulated bonuses (and thus the abolition of a differentiated remuneration according to the type and origin of the biomass) from the amendment EEG 2012 onwards, the Biomass Ordinance has become less important for a new commissioning of EEG biomass plants. Biomass processing is also shaped by the *Fertiliser legislation*, informing about the right application of fertilisers and soil additive and regulates the nitrogen and phosphorus content in the soil. With regulating the use of fertilisers new markets for by-products of bioenergy processes such as anaerobic digestion can be created but on the other hand it can limit markets if the substrate is not approved. The *Regulation on requirements for recovery and disposal of waste wood* and *Circular Economy Act* promoting the avoidance of waste and reuse of materials regulate the 'End of life/cascading' in German's bioeconomy.

#### 2.2.3.4 Poland

*The Waste Act* specifies what biowaste is and what kind of waste is included and stipulates the segregation of biowaste for further use. The act is of importance for the biomass production as well as for the cascading process but it is lacking a specification of a detailed division of waste between residues and leftovers which is of importance for the selection of future waste management methods. The *Act on renewable energy sources* is also of importance for the biomass production as well as the end of life process as it defines different types of biomass, its place of production and possible ways of its utilisation. The section 'Biomass Processing' is addressed by the *Act on biocomponents and liquid biofuels*, setting out rules for conducting activities in the field of producing biocomponents. Market support is given by the *Green Public Procurement*. It is a process by which public institutions seek to obtain goods, services and works whose environmental impact during their life cycle is smaller compared to goods, services and works of identical purpose that would be ordered otherwise. This is of great support as it expands contractor's knowledge of environmental problems that can be addressed in public procurement. Additionally, it provides technologies and services that support the integration of environmental considerations into their proceedings. The *Energy efficiency certificates (White Certificates)* allows receiving additional funds for modernisation to improve energy efficiency

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<sup>48</sup> Executive order '*Bekendtgørelse om anvendelse af affald til jordbrugsformål (BEK nr 1001 af 27/06/2018)*'. URL: <https://www.retsinformation.dk/eli/lt/2018/1001>. Last viewed: 2021-01-27.

<sup>49</sup> EEG (German: Renewable Energy Sources Act)

resulting in energy saving. These certificates are dedicated to the energy use of biomass. One criterion is that the real deadlines for obtaining the certificate is much longer than the statutory deadline.

#### 2.2.3.5 Conclusion

Several of the national regulations mentioned by the partners are based on EU directives transposed to national law. EU-law, especially directives, play a significant role in the development of a national regulatory frameworks related to the bioeconomy. In relation to the implementation of directives, it should be noted that directives can be defined as having minimum or maximum harmonisation requirements. This indicates the maneuverability of the relevant directives transposed to national/regional law. For example, the *Directive 2008/98/EC* on waste sets minimum recycling targets for selected waste fractions, and thereby, from a harmonisation perspective, the right for member states to implement higher recycling rates into national law when transposing the directive.

The following listed EU-laws and strategies are of great importance in relation to the further development of the *European Union Strategy for the Baltic Sea Region* (EUSBSR). The EUSBSR supports the integrated territorial development towards a better accessible and sustainable BSR. The *European Green Deal* aims towards a carbon neutral EU by 2050 and economic growth decoupled from resources use with the overall goal to make the entire economy of the European Union sustainable. As well as the associated *Farm to Fork Strategy* aiming for a fairer, healthier and environmentally-friendly food system. Forest management and protection is regulated by the *Forest Strategy (COM(2013)659)* and illegal logging is restricted by the *Forest Law Enforcement, Governance and Trade*. The European Commission implemented an overall policy for the production and promotion of energy from renewable sources, the *Renewable Energy directive (2009/28/EC) and (revised(EU) 2018/2001)*, which obliges the EU to generate at least 32% of its total energy from renewable resources by 2030. It furthermore sets out a biofuels sustainability criteria covering biofuels, bioliquids and biomass, produced or consumed in the EU to ensure their sustainably and environmentally friendly production. The *2030 Climate and Energy Framework (22 January 2014)* addresses not only the reduction of GHG emissions and the sustainable use of land and forest but also the ILUC impacts due to the use of biomass for different bio-based industries.

In the following chapters, the frameworks cross-border activities and some of the just mentioned will be explained in more detail. The EU directives and laws are summarised in annex IV -Summary of EU Laws and regulations.

#### 2.2.4 Cross-border activities

This includes especially networks, clusters, projects and other corporations with neighbouring regions and countries. The activities aim to strengthen and expand the bioeconomy addressing several topics related to a bio-based economy such as material and energetic use, strengthening of digital solutions and political cross-border partnerships, nature and culture preservation and protection.

##### 2.2.4.1 Sweden

The collaboration with neighbouring countries is important to create a consensus on how to fulfil common goals and agreements, e.g. regarding the cross border infrastructure for renewable fuels. There are very few available examples of trans-border cooperation regarding legislative work. Companies mainly organise themselves in network organisations.

Table 9: List of cross-border activities and their role in bioeconomy in Sweden.

ACTIVITY	RESPONSIBLE AUTHORITY	SCOPE OF ACTIVITY	DESCRIPTION
<b>STRING NETWORK</b> <sup>50</sup>		The strategy developed within this cluster is aimed at developing business models within five themes: 1) Green mobility, 2) Sustainable cities, 3) Energy efficiency in buildings, 4) Renewable energy and 5) Resource efficiency and waste management. Several of these themes are interlinked with the bio-based economy.	A political cross-border partnership between Skåne, Sjaelland, Copenhagen and the capital region as well as Schleswig Holstein and Hamburg.
<b>IN 2018 SWEDEN AND FINLAND AGREED TO JOINTLY DEVELOP THE BIOECONOMY</b> <sup>51</sup>	Swedish RISE and Finnish VTT	A collaboration to strengthen and expand in the areas of biorefining, including bio-based materials and thermochemistry, circular bioeconomy and digital solutions. A joint story about the circular forest bioeconomy of the future should also be developed.	A collaboration between Sweden and Finland to strengthen and to expand the bioeconomy and related digital solutions.

##### 2.2.4.2 Germany

The following cross-border activity accelerating research and actions on material and energetic use of biomass in whole Germany and the Baltic Sea Region.

Table 10: List of cross-border activities and their role in bioeconomy in Germany.

ACTIVITY	RESPONSIBLE AUTHORITY	SCOPE OF ACTIVITY	DESCRIPTION
<b>INTERREG PROJECTS E.G. BIOBIGG, BALTICBIOMASS4VALUE, COASTAL BIOGAS</b> <sup>52</sup>	Interreg South Baltic, Interreg Baltic Sea Region	Bioeconomy in the (South) Baltic, material and energetic use.	Unlocking South Baltic's potential for blue and green growth through cross-border cooperation between local and regional actors from several States surrounding the Baltic Sea.

<sup>50</sup> String network (July 2020). Index page (July 2020) <https://stringnetwork.org/>. Last viewed: 2020-07-08.

<sup>51</sup> Government Offices of Sweden (July 2020). Sverige och Finland enade för en utvecklad bioekonomi (July 2020). URL: <https://www.regeringen.se/pressmeddelanden/2018/04/sverige-och-finland-enade-for-en-utvecklad-bioekonomi/>. Last viewed: 2020-07-03.

<sup>52</sup> Interreg index page: <https://interreg.eu/>. Last viewed: 2020-07-25.



### 2.2.4.3 Poland

One of the two Polish cross-border activities is a cooperation between Poland and Germany prioritising “Nature and Culture, Preservation and protection of the environment, and promotion (support) of resource efficiency”.

Table 11: List of cross-border activities and their role in bioeconomy in Poland.

ACTIVITY	RESPONSIBLE AUTHORITY	SCOPE OF ACTIVITY	DESCRIPTION
<b>INTERREG V A COOPERATION PROGRAM MV/ BRANDENBURG / POLAND UNDER THE "EUROPEAN TERRITORIAL COOPERATION" GOAL OF THE EUROPEAN REGIONAL DEVELOPMENT FUND (ERDF) 2014-2020V</b> <sup>53</sup>	Ministry of Investment and Development	The program in which funding for a joint Polish-German project assigned to one of the four priority axes can be obtained: Nature and Culture, Transport and Mobility, Education, Cross-border Cooperation. At least one partner from Poland and Germany is required, including at least one of the support areas (West Pomeranian Voivodeship, Mecklenburg, Brandenburg).	One of the priority axes of the program: "Nature and Culture, Preservation and protection of the environment, and promotion (support) of resource efficiency" has a specific objective related to the maintenance and development of biodiversity and is closely related to the EU Strategy for the Baltic Sea region and activities such as sustainable development and bioeconomy.
<b>URBACT III 2014–2020</b> <sup>54</sup>	Ministry of Funds and Regional Policy	URBACT is the European Territorial Cooperation Program for Sustainable Urban Development. The program helps cities to develop practical, innovative, and sustainable methods that combine economic, social, and environmental dimensions. It enables them to share good practices and lessons learned with all professionals involved in urban policy in Europe.	URBACT is a program aimed at building ability through the exchange of experiences between European cities that need mainly integrated strategies and actions for sustainable development; support in the implementation of integrated urban strategies and activities; ensuring access to knowledge for practitioners and decision-makers at urban, national, regional and EU levels, and the ability to share knowledge to support sustainable urban development.

<sup>53</sup> Interreg V A (May 2020). Index page: <https://interreg5a.info/pl/>. Last viewed: 2020-05-25.

<sup>54</sup> Ministry of Funds and Regional Policy (May 2020). URBACT III Programme. URL: <https://www.ewt.gov.pl/strony/o-programach/przeczytaj-o-programach/programy-europejskiej-wspolpracy-terytorialnej/urbact-iii/>. Last viewed: 2020-05-25.

### 2.2.5 Policy frameworks

Policy frameworks are very important tools as they support negotiations and decision-making processes of more thorough policies of an organisation by providing procedures and goals. Depending on the nature of the subject, framework conditions can be public or internal documents and should be kept up to date, either by annual review or by updating policies and procedures.<sup>55</sup>

#### 2.2.5.1 Sweden

Table 12: List of policy frameworks and their relevance in bioeconomy in Sweden.

SECTOR	NAME OF THE FRAMEWORK	RESPONSIBLE AUTHORITY	SCOPE OF THE FRAMEWORK	DESCRIPTION
<b>BIOMASS PRODUCTION</b>	National Forest Program for Sweden <sup>56</sup>	Swedish Forest Agency	Vision: "The forest, the green gold, will contribute to jobs and sustainable growth throughout the country and to the development of a growing bioeconomy".	A long-term forest program is needed to promote sustainable, competitive and bio-based industries based on forest production. Sweden should lead the way and be an example internationally in sustainable use and conservation of forests and in the transition to a growing bioeconomy, away from fossil dependence. Good access to national biomass from the Swedish forest must be ensured through sustainable forest growth within the framework of achieving the national environmental goals.
<b>BIOMASS PRODUCTION</b>	Regional Forestry Strategies <sup>57</sup>	Each county's administrative board or region	All Sweden's counties assigned the task of developing regional strategies for the forest.	The regional forest strategies/forest programs shall contribute to the implementation and vision of the national forest program. They will encourage innovation and strengthen the development towards a bio-based society. The strategies should be based on regional conditions, interests and needs. Some counties are ready with their strategies and have begun to work according to them, while others are in an initial phase.
<b>BIOMASS PRODUCTION</b>	Action Plan for a Bioeconomy in Skåne 2030 <sup>58</sup>	Region Skåne	Aims to contribute to reduced greenhouse gas emissions, stronger industry and labor market and increased innovation power in Skåne.	In 2016 an action plan for the bioeconomy in Skåne by 2030 was presented. Based on the unique conditions in Skåne and the areas of strength, several focus areas were formulated that will strengthen the development in the bioeconomy.

<sup>55</sup> USC. Policy Framework - Governing Policy. URL: Policy Framework - Governing Policy | Policies and procedures | University of the Sunshine Coast (usc.edu.au). Last viewed: 2021-01-20.

<sup>56</sup> Regeringskansliet. Ett nationellt skogsprogram för Sverige. URL: <https://www.regeringen.se/regeringens-politik/ett-nationellt-skogsprogram-for-sverige/>. Last viewed: 2020-05-25.

<sup>57</sup> SKOGSSTYRELSEN. Regionala skogsstrategier. URL: <https://www.skogsstyrelsen.se/regionalaskogsstrategier>. Last viewed: 2020-05-25.

<sup>58</sup> JTI- Swedish Institute of Agricultural and Environment Engineering and Regione Skane. Handlingsplan för en Skånsk bioekonomi 2030. URL: <https://www.skane.se/Public/Protokoll/Regionala%20utvecklingsnämnden/2016-08-26/Handlingsplan%20för%20en%20bioekonomi%20i%20Skåne/Handlingsplan%20för%20en%20Skånsk%20bioekonomi%202030.pdf>. Last viewed: 2020-05-25.

<b>BIOMASS PROCESSING / BIOREFINERY</b>	Research and Innovation Strategy for a Bio-based Societal Economy <sup>59</sup>	Formas	Strategy for research development and innovation for a bio- based social economy.	In 2011 the Government instructed Formas to submit, in consultation with VINNOVA and the Swedish Energy Agency, a proposal for a national strategy for the development of a bio-based social economy and to propose a Swedish definition of this concept. According to the assignment, the strategy should include research and development needs, need for innovation-promoting efforts, coordination needs between research financiers, research providers and business and domestic potential.
<b>BIOMASS PROCESSING / BIOREFINERY</b>	Strategy for Bioeconomy in Sweden <sup>60</sup>	Ministry of Enterprise and Innovation	In 2019, the parliament commissioned the government to develop a bioeconomic strategy for Sweden.	A national strategy for the development of the bioeconomy including goals, means and measures that contribute to reduced climate change and increased resource efficiency while stimulating employment, investment, sustainable growth throughout the country and the development of Swedish exports.
<b>BIOMASS PROCESSING / BIOREFINERY</b>  <b>EVALUATION THROUGH DESK STUDY:</b>	Position Paper for an Innovation Policy for Future Biorefineries <sup>61</sup>  - Innovation policies should focus on stimulating building of industrial capacity, e.g. for full-scale biorefineries. - Policy instruments should be adjusted to specifically support biorefinery approaches. - Swedish innovation policies should be supported by the EU regulations and policy instruments, but not be unilateral controlled by those. <sup>62</sup>	Branch Network	Knowledge base for the development of policy measures for climate-smart innovations within the area of renewable fuels and chemicals.	The position paper touches on technologies and their upscaling.

<sup>59</sup> Rapport utarbetad på uppdrag av regeringen av Formas i samråd med VINNOVA och Energimyndigheten (2012). Forsknings- och innovationsstrategi för en biobaserad samhällsekonomi. URL: [https://www.formas.se/download/18.462d60ec167c69393b917a33/1549956102739/Strategi\\_Biobaserad\\_samhallsekonomi.pdf](https://www.formas.se/download/18.462d60ec167c69393b917a33/1549956102739/Strategi_Biobaserad_samhallsekonomi.pdf). Last viewed: 2020-05-25.

<sup>60</sup> Skogs Industrierna. UR: [https://www.skogsindustrierna.se/vara-asikter/aktuella\\_fragor/vi-behover-en-nationell-strategi-for-bioekonomi/](https://www.skogsindustrierna.se/vara-asikter/aktuella_fragor/vi-behover-en-nationell-strategi-for-bioekonomi/). Last viewed: 2020-05-25.

<sup>61</sup> Hans Hellsmark och Patrik Söderholm, SP Sveriges Tekniska Forskningsinstitut och Luleå tekniska universitet. Med kommentarer från Magnus Matison och Staffan Jacobsson. Version: 2015-11-23 URL: <https://www.energimyndigheten.se/globalassets/klimat--miljo/transporter/oppet-forum/biofuel-region/2015-11-23-styrmedel-och-innovationspolitik-for-framtidens-bioraffinaderier.pdf>. Last viewed: 2020-05-25.

<sup>62</sup> Hellsmark, H. and Söderholm, P. (2015).

<b>END OF LIFE / CASCADING</b>	The Circular Economy Delegation <sup>63</sup>	Swedish Agency for Economic and Regional Growth	Strengthens society's transition to a resource-efficient, circular and bio-based economy.	The circular economy delegation is an advisory body to the government that is placed with the Swedish Agency for Economic and Regional Growth. The purpose of the delegation is to strengthen society's transition to a resource-efficient, circular and bio-based economy, both nationally and regionally.
<b>END OF LIFE / CASCADING</b>	The National Waste Plan and the Waste Prevention Program <sup>64</sup>	Swedish Environmental Protection Agency	The plan and program focus on describing the direction that is politically determined through objectives, instruments and actions as well as on-going work and analysis of the current situation.	It provides an overview of the targets, instruments and measures introduced in Sweden to prevent waste and to achieve a more resource-efficient and non-toxic waste management in accordance with the waste hierarchy.
<b>MARKET SUPPORT</b>	Climate Step <sup>65</sup>	Swedish Environmental Protection Agency	Investment aid to lower climate impact.	Climate step is an investment aid for local and regional measures that reduce emissions of carbon dioxide and other gases that affect the climate. The investment is part of the state budget decided by the Parliament. Supported measures are climate initiatives in, for example, transport, industry, housing, premises, city building and energy.
<b>MARKET SUPPORT</b>	Regional Action Plan to Integrate and Strengthen Climate and Environmental Perspectives in the Work on regional Growth <sup>66</sup>	Region Skåne	Environmental strategy work.	Competence supply for integration of environmental work in the strategic development of a sustainable regional growth.

<sup>63</sup> Tillväxtverket (2020-06-29). Delegationen för cirkulär ekonomi. URL:

<https://tillvaxtverket.se/amnesomraden/affarsutveckling/delegationen-for-cirkular-ekonomi.html>. Last viewed: 2020-07-08.

<sup>64</sup> Natur Vårds Verket (2018). Att göra mer med mindre. Nationell avfallsplan och avfallsförebyggande program 2018-2023. Rapport 6857. URL: <https://www.naturvardsverket.se/Documents/publikationer6400/978-91-620-6857-8.pdf?pid=23951>. Last viewed: 2020-07-08.

<sup>65</sup> Natur Vårds Verket. Om Klimatklivet. URL: <https://www.naturvardsverket.se/Miljoarbete-i-samhallet/Miljoarbete-i-Sverige/Uppdelat-efter-omrade/Klimat/Om-Klimatklivet/>. Last viewed: 2020-07-08.

<sup>66</sup> Helena Tsiparis (2017). Regional handlingsplan för att integrera och stärka klimat- och miljöperspektiven i det regionala tillväxtarbetet. VERSION 1.1 EXKL. ILAGOR. URL: [https://www.skane.se/Public/Protokoll/Regionala%20utvecklingsn%C3%A4mnden/2017-09-22/Handlingsplan%20f%C3%B6r%20integration%20av%20klimat-%20och%20milj%C3%B6perspektivet%20i%20tillv%C3%A4xtarbetet/Handlingplan\\_utkast25aug.pdf](https://www.skane.se/Public/Protokoll/Regionala%20utvecklingsn%C3%A4mnden/2017-09-22/Handlingsplan%20f%C3%B6r%20integration%20av%20klimat-%20och%20milj%C3%B6perspektivet%20i%20tillv%C3%A4xtarbetet/Handlingplan_utkast25aug.pdf). Last viewed: 2020-07-08.

<b>MARKET SUPPORT</b>	A Climate Neutral and Fossil-free Skåne – Climate and Energy Strategy Skåne <sup>67</sup>	County Administration Skåne, Region Skåne, Association of Municipalities Skåne	Climate goals and prioritised areas for Skåne	This document presents regional climate goals on the general and consumption-related emissions of greenhouse gases, use of energy and renewable energy and goals for a sustainable transport sector. Renewable energy production, effective and fossil-free transports, climate smart physical planning, effective and fossil-free housing, research innovation and entrepreneurial development, climate smart agriculture and forestry, climate smart consumption and public role model have been identified and decided as prioritised areas for action.
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#### 2.2.5.2 Denmark

Denmark does not have a national bioeconomy strategy structuring the overall development of a bioeconomy. This issue has been addressed by key stakeholders, such as the revised National Bioeconomy Panel and the newly formed Sustainable Biorefine Partnership. In the end of 2020 the NBP published recommendations on how to develop a sustainable bioeconomy in relation to biopolymers, textiles and packaging materials<sup>68</sup> under the Ministry of Food, Agriculture and Fisheries. The recommendations can be viewed as part of a developmental process towards a national policy framework for the bioeconomy in Denmark.

#### 2.2.5.3 Germany

Table 13: List of policy frameworks and their relevance in bioeconomy in Germany.

	NAME OF THE FRAMEWORK	RESPONSIBLE AUTHORITY	SCOPE OF THE FRAMEWORK	DESCRIPTION
<b>GENERAL</b>	National Bioeconomy Strategy <sup>69</sup>	Federal Ministry of Education and Research (BMBF), Federal Ministry of Food and Agriculture (BMEL)	Germany; Federal Government lays down guidelines and objectives for its policy on the bioeconomy and lists measures for their implementation; material and energetic use.	Builds on the National Research Strategy BioEconomy 2030 and the National Policy Strategy on bioeconomy to pool the various political strands together into a coherent framework. Strengthen Germany's role as a bioeconomy leader and to create technology and jobs for tomorrow.

<sup>67</sup> Tommy Persson (2018). Ett klimatneutralt och fossilbränslefritt Skåne. Klimat- och energistrategi för Skåne. 2018:17. URL: <https://www.lansstyrelsen.se/download/18.2e0f9f621636c84402734c0d/1582108728580/Klimat-%20och%20energistrategi%20f%C3%B6r%20Sk%C3%A5ne.pdf>. Last viewed: 2020-07-08.

<sup>68</sup> Recommendations from the National Bioeconomy Panel. URL: Anbefalinger fra Det Nationale Bioøkonomipanel - Ministeriet for Fødevarer, Landbrug og Fiskeri (fvm.dk). Last viewed: 2021-01-28. See also recommendations from NBP on protein value chains from 2018. URL: [https://mfvm.dk/fileadmin/user\\_upload/MFVM/Miljoe/Cirkulaer\\_oekonomi/Anbefalinger\\_om\\_proteiner\\_fra\\_Det\\_Nationale\\_Biooekonomipanel.pdf](https://mfvm.dk/fileadmin/user_upload/MFVM/Miljoe/Cirkulaer_oekonomi/Anbefalinger_om_proteiner_fra_Det_Nationale_Biooekonomipanel.pdf). Last viewed: 2021-01-28.

<sup>69</sup> Nationale Bioeconomy Strategy (2020). Summary. URL: [https://www.bmbf.de/files/bioeconomy\\_strategy.pdf](https://www.bmbf.de/files/bioeconomy_strategy.pdf). Last viewed: 2020-05-21.

<b>GENERAL</b>	National Research Strategy BioEconomy 2030 <sup>70</sup>	Federal Ministry for Education and Research (BMBF)	Research shall support the Federal Government's vision of a more sustainable and bio-based German economy following a natural material cycle; material and energetic use.	The research strategy sets five priority areas for action: global food security, sustainable agriculture production, healthy and safe food, industrial use of renewable raw materials and energy sources based on biomass. The fields of action are defined and restricted by guidelines and measures.
<b>GENERAL</b>	Regional Innovation Strategy 2020 for MV <sup>71</sup>	Ministry of Economy, Labour and Health MV	Defines priorities for the promotion of research, development & innovation, which are based on the specific characteristics of the century (e.g. energy and climate, sustainable production techniques and new materials, food industry, etc.); 2014-2020; material and energetic use.	It was developed to support the reorientation of structural fund investment in the upcoming support period from 2014-2020 and aims to provide a better basis for establishing MV as a location for technology and a better focus on public investments. Mobilising regional actors and resources for the idea of smart, sustainable and inclusive growth. Six fields of action were identified: Health/Life Sciences, Energy and Climate, Information and Communication, Food, Mobility. Sustainable production techniques and new materials, especially in the field of machine construction. At the moment the cross-sectional topic "bioeconomy" of the Regional Innovation Strategy for MV 2021-2027 is drafted by the Strategic Council Economy and Science.

<sup>70</sup> BMBF (2010). Referat Bioökonomie. Nationale Forschungsstrategie BioÖkonomie 2030. Bonn, Berlin. URL: [https://www.bmbf.de/upload\\_filestore/pub/Nationale\\_Forschungsstrategie\\_Biooekonomie\\_2030.pdf](https://www.bmbf.de/upload_filestore/pub/Nationale_Forschungsstrategie_Biooekonomie_2030.pdf). Last viewed: 2020-07-08.

<sup>71</sup> Investorenportal MBWK (2020-07-30). Regionale Innovationsstrategie 2020 für das Land MV. URL: [https://www.bmbf.de/upload\\_filestore/pub/Nationale\\_Forschungsstrategie\\_Biooekonomie\\_2030.pdf](https://www.bmbf.de/upload_filestore/pub/Nationale_Forschungsstrategie_Biooekonomie_2030.pdf). Last viewed: 2020-07-08.

<b>BIOMASS PRODUCTION</b>	Regulation regarding the Joint Task on Agricultural Structures and Coastal Protection <sup>72</sup>		Federal Ministry of Food and Agriculture (BMEL)	Defines objectives and procedures for the agri-structural and infrastructural funds which has a similar scope as the European Agricultural Fund for Rural Development; material and energetic use.	In Germany, the Joint Task for the Improvement of Agricultural Structures and Coastal Protection (GAK) is an essential element of the National Strategy for the Development of Rural Areas and constitutes the thematic and financial core of many state programmes. Financial support within the framework of the Joint Task is aimed at making the agricultural and forestry sectors efficient, competitive and oriented towards future challenges, while safeguarding the vitality of rural areas and improving coastal protection. It is the most important national support instrument for agriculture, coastal protection and rural areas. It contains a wide range of agricultural structural and infrastructure measures and thus covers to a large extent the scope of the European Agricultural Fund for Rural Development (EAFRD).
	<b>INTERVIEW RESPONSE:</b>		<p>The eligibility of paludicultures for agricultural support must be ensured by adding "production of paludicultures" to the definitions of "agricultural activity" and "paludiculture areas" to "agricultural land" in the new direct payment regulation. The explicit mention of paludicultures as eligible crops is necessary. In addition, there are false incentives: farmers receive area premiums for drained peatlands, but because of the high CO<sub>2</sub> emissions, these should be phased out as soon as possible. [MLU].</p> <p>More attention needs to be paid to the maximum use of land by agricultural activities [Stalu].</p>		
<b>BIOMASS PRODUCTION</b>	Forest Share <sup>73</sup>	Ministry of Agriculture and Environment, the Tourism Association and the State Forest of MV	Improving the CO <sub>2</sub> balance + financing instrument for the preservation of ecosystem services; material use.	With the purchase of 2 forest shares at a value of 10 € each, trees can be cultivated on an area of ten square meters.	
<b>BIOMASS PRODUCTION</b>	Concept for the Protection and Use of Peatlands <sup>74</sup>	Ministry of Agriculture, Environment and Consumer Protection	Sustainable conservation and use of peatlands; material and energetic use.	Restoration of wetlands and peatlands, peatland protection study.	

<sup>72</sup> BMEL (2020-05-25). Gemeinschaftsaufgabe Agrarstruktur und Küstenschutz. URL: [https://www.bmel.de/DE/themen/laendliche-regionen/foerderung-des-laendlichen-raumes/gemeinschaftsaufgabe-agrarstruktur-kuestenschutz/gemeinschaftsaufgabe-agrarstr-kuestenschutz\\_node.html](https://www.bmel.de/DE/themen/laendliche-regionen/foerderung-des-laendlichen-raumes/gemeinschaftsaufgabe-agrarstruktur-kuestenschutz/gemeinschaftsaufgabe-agrarstr-kuestenschutz_node.html). Last viewed: 2020-05-21.

<sup>73</sup> Auf-nach-mv. Waldaktie. URL: [www.waldaktie.de](http://www.waldaktie.de). Last viewed: 2020-05-25.

<sup>74</sup> LUNG. Moorschutz. URL: [https://www.lung.mv-regierung.de/insite/cms/umwelt/natur/lebensraumschutz\\_portal/moorschutz.htm](https://www.lung.mv-regierung.de/insite/cms/umwelt/natur/lebensraumschutz_portal/moorschutz.htm). Last viewed: 2020-08-20.



<b>BIOMASS PRODUCTION</b>	Colourful Biomass - Resources for Species Conservation and Agriculture <sup>75</sup>	Veolia Stiftung, Deutscher Jagdverband, Deutsche Wildtier Stiftung	Germany; energetic use.	Maize shall be replaced by high yielding, multiannual wild plant mixtures for biomass production. Cultivation of plant biomass as a substrate for biogas plants to be linked more closely to nature and species protection.
<b>MARKET SUPPORT</b>	Promotion of forestry measures within the GAK; Directive of 23 July 2019, Official Journal M-V p. 788 <sup>76</sup>	MV; State forest office	Sustainable forestry; MV; material and energetic use.	Promotion of: Near-natural forest management; Forestry infrastructure; Forestry associations; First afforestation; Coping with extreme weather events
<b>MARKET SUPPORT</b>	Funding program for heating with renewable energies from 2020 <sup>77</sup>	Federal Office of Economics and Export Control	Germany; financial support for all citizens to acquire a new heating system with renewable energies; energetic use.	Financial support programme to strengthen the development in the heat sector to use renewable resources instead of fossil resources.
<b>MARKET SUPPORT</b>	Central Innovation Program for the middle class ZIM <sup>78</sup>	Federal Ministry of Economics and Energy	Project funding for small and medium-sized companies; material and energetic use.	Supports companies with the implementation of innovative ideas.
<b>MARKET SUPPORT</b>	SME-innovative: Biotechnology /Bioeconomy <sup>79</sup>	Federal Ministry of Education and Research (BMBF)	High-Tech Strategy of the Federal Government and the 10-point programme of the BMBF for more innovation in SMEs; material and energetic use.	Strengthen the innovation potential of small and medium-sized enterprises (SMEs) in the field of excellence research, make research funding within the framework of the National Bioeconomy Strategy more attractive, especially for companies submitting their first application.

<sup>75</sup> Netzwerk Lebensraum Feldflur. Bunte Biomasse – Ressource für Artenschutz und Landwirtschaft. URL: <https://lebensraum-brache.de/projekte/bunte-biomasse-ressource-fuer-artenschutz-und-landwirtschaft/>. Last viewed: 2020-07-20.

<sup>76</sup> Ministerium für Energie, Infrastruktur und Digitalisierung Mecklenburg-Vorpommern. Richtlinie vom 23. Juli 2019, AmtsBl. M-V S. 788. Förderung forstwirtschaftlicher Maßnahmen im Rahmen der GAK. URL: [https://www.service.m-v.de/foerderfibel/?sa.fofioerderung.foerderung\\_id=96&sa.fofi.kategorie\\_id=1](https://www.service.m-v.de/foerderfibel/?sa.fofioerderung.foerderung_id=96&sa.fofi.kategorie_id=1). Last viewed: 2020-05-25.

<sup>77</sup> BAFA: Heizen mit erneuerbaren Energien. URL: [https://www.bafa.de/DE/Energie/Heizen\\_mit\\_Erneuerbaren\\_Energien/heizen\\_mit\\_erneuerbaren\\_energien\\_node.html](https://www.bafa.de/DE/Energie/Heizen_mit_Erneuerbaren_Energien/heizen_mit_erneuerbaren_energien_node.html). Last viewed: 2020-08-07.

<sup>78</sup> BMWI/ZIM. Index page: <https://www.zim.de/ZIM/Navigation/DE/Home/home.html>. Last viewed: 2020-05-25.

<sup>79</sup> BMBF. Bekanntmachung. Richtlinie zur Förderung von Zuwendungen für „KMU-innovativ: Bioökonomie“, Bundesanzeiger vom 08.05.2020 <https://www.bmbf.de/foerderungen/bekanntmachung-2990.html>. Last viewed: 2020-05-08.

#### 2.2.5.4 Poland

Table 14: List of policy frameworks and their relevance in bioeconomy in Poland.

	NAME OF THE FRAMEWORK	RESPONSIBLE AUTHORITY	SCOPE OF THE FRAMEWORK	DESCRIPTION
<b>BIOMASS PRODUCTION</b>	A strategy for the sustainable development of rural areas, agriculture and fisheries until 2030 <sup>80</sup>	Ministry of Agriculture and Rural Development	Strategic document of agricultural policy and rural development	This strategy is a key document for the Polish bioeconomy. Its main plan is to implement the second goal of the 2030 Agenda: eliminate hunger, achieve food security and better nutrition, and promote sustainable agriculture. Stresses the importance of creating national systems for sustainable food production and ensuring plant and animal biodiversity.
<b>EVALUATION THROUGH DESK STUDY:</b>	The document is of a strategic nature, therefore it does not assign individual activities to selected geographical areas.			
<b>BIOMASS PRODUCTION</b>	Natura 2000 <sup>81</sup>	Ministry of the Environment	The program is based and operates based on the Act on nature protection, the regulation of the Minister of the Environment on special protection areas for birds, the regulation on the preparation of the draft protection plan for the Natura 2000 area and the regulation on the detailed ways and forms of submitting information on environmental compensation.	The main purpose is to preserve certain types of natural habitats and plant and animal species, which are considered valuable and threatened with extinction throughout Poland. This goal is to be achieved by designating and protecting areas where these species and habitats occur. Actions to protect natural habitats and wild flora and fauna are intended to preserve or restore Poland's biodiversity. Biomass production is limited in protected areas.
<b>BIOMASS PRODUCTION</b>	The ecological policy of the state until 2030 <sup>82</sup>	Ministry of the Environment	Developing the environmental part of the strategy for responsible development	The specific objectives of the document relate, inter alia, to interventions in areas such as waste management towards a circular economy, management of natural and cultural heritage resources, including the protection and improvement of biodiversity and the landscape, supporting multifunctional and permanently sustainable forest management.

<sup>80</sup> Ministerstwo Rolnictwa i Rybnictwa Wsi. Strategia zrównoważonego rozwoju wsi rolnictwa i rybactwa 2030. URL: <https://www.gov.pl/web/rolnictwo/strategia-zrownowazonego-rozwoju-wsi-rolnictwa-i-rybactwa-2030>. Last viewed: 2020-05-25.

<sup>81</sup> Obszary Natura 2000. Index page: <https://natura2000.gdos.gov.pl/>. Last viewed: 2020-05-25.

<sup>82</sup> Archiwalna strona Ministerstwa Środowiska (2019). URL: <https://www.gov.pl/web/srodowisko/polityka-ekologiczna-panstwa-2030--strategia-rozwoju-w-obszarze-srodowiska-i-gospodarki-wodnej?fbclid=IwAR0j6u3nGSIVYwIRhbgCdeIXIVqyKCHp76yQnEwWvjnPohjEIIDJ9j7v5ps>. Last viewed: 2020-05-25.

<b>EVALUATION THROUGH DESK STUDY:</b>	The strategy is extensive and contains important information, so it would be worth specifying individual priorities and activities to better understand it by a larger number of citizens.		
<b>BIOMASS PRODUCTION</b>	Strategy of the State Forest Holding of the State Forests for 2014–2030 <sup>83</sup>	State Forests	Document defines the mission, vision and strategic goals of the State Forests as well as the undertakings necessary to achieve them  The State Forests ensure that forest management, which supplies the universal ecological raw material (wood), to the market is carried out in accordance with the principles of sustainable development, taking into account all the functions that forests perform.
<b>BIOMASS PROCESSING / BIOREFINERY</b>	National low-carbon economy development program <sup>84</sup>	Ministry of Development	Strategic document describing the directions of actions aimed at achieving the objectives of the climate and energy package, namely: reduction of greenhouse gas emissions, increasing the share of energy from renewable sources, reduction of final energy consumption, improving air quality changes in energy consumption consumer attitudes  This Program is an attempt to define the Polish approach to a low-carbon economy. The main goal of the Program is to develop a low-carbon economy while ensuring sustainable development of the country. The specific objectives are: low-carbon energy production; improving the efficiency of raw materials, including waste; development of sustainable production; low-carbon transformation in distribution and mobility, and promotion of sustainable consumption.
<b>BIOMASS PROCESSING / BIOREFINERY</b>	GreenEvo - Green Technology Accelerator <sup>85</sup>	Ministry of Climate	Project of the Ministry of Climate aimed at international technology transfer, conducive to environmental protection and economic development  This an innovative program prepared to promote Polish green technologies. The following technological areas are supported: renewable energy sources, environmentally friendly solutions for the mining industry, solutions supporting energy saving, systems supporting the natural environment monitoring, technologies conducive to climate protection, technologies supporting waste management, water and sewage technologies, low-emission technologies transport.

<sup>83</sup> Lasy Państwowe. Index page: <https://www.lasy.gov.pl/pl>. Last viewed: 2020-05-25.

<sup>84</sup> Misja Emisja. Baza wiedzy. Plany gospodarki niskoemisyjnej – cele i zadania. URL: <http://misja-emisja.pl/knowledgebase/plany-gospodarki-niskoemisyjnej-cele-zadania/>. Last viewed: 2020-05-25.

<sup>85</sup> GREENEVO. Akcelerator Zielonych Technologii. URL: [https://greenevo.gov.pl/pl/?doing\\_wp\\_cron=1590491548.6696770191192626953125](https://greenevo.gov.pl/pl/?doing_wp_cron=1590491548.6696770191192626953125). Last viewed: 2020-05-25.

<b>BIOMASS PROCESSING / BIOREFINERY</b>	Regional Action Plan BIOMASS in the Pomeranian Voivodeship <sup>86</sup>	Marshal's Office of the Pomeranian Voivodeship	Implementing activities leading to the popularisation of the use of biomass in the Pomeranian Voivodeship, contained in the document "Regional energy strategy with particular emphasis on renewable sources	The plan is focused on the management of excess biomass for energy production, promotion and development of heat sources fired with solid biomass and biogas as well as cogeneration aggregates and the development of energy crops. The program indicates obstacles and barriers to biomass processing.
	<b>EVALUATION THROUGH DESK STUDY:</b> The plan is still too little widespread in the Pomeranian Voivodeship.			
<b>BIOMASS PROCESSING / BIOREFINERY</b>	Regional energy strategy with particular emphasis on renewable sources <sup>87</sup>	Marshal's Office of the Pomeranian Voivodeship	Regional strategy	It aims to process state energy policy arrangements at a regional level. The Strategy introduces the principle of sustainable development of the energy economy in the Pomeranian Region. The Strategy sets itself the following goals: reducing the consumption of energy carriers and primary fuels by approx. 50%; reduction of heat demand by approx. 23%; reducing the share of carbon in the fuel balance to 48%; increase in the share of renewable energy.
<b>END OF LIFE / CASCADING</b>	Circular Economy: Roadmap <sup>88</sup>	Ministry of Entrepreneurship and Technology	One of the projects under the strategy for responsible development	This roadmap contains tips and suggestions for specific actions to develop circular economy in Poland. The need for changes in biomass processing is emphasised - currently, biomass is mainly used for energy purposes (direct combustion or fuel production). This approach is not one of the pillars of the circular economy and the value of biomass should be maximised.
<b>EVALUATION THROUGH DESK STUDY:</b> The map does not provide specific sources of financing, except for Horizon 2020 and possibly public sector finances, i.e. environmental fees. One of the assumptions of the document is to create a unit responsible for coordinating the activities described in the Roadmap. The document states that the creation of such a team is to take place in the years 2019-2020, but it is not precisely specified who will supervise the cooperation of the Ministries and who could be contacted as part of the questions/proposals for cooperation.				

<sup>86</sup> Regionalny. Plan Plan działań BIOMASA w województwie pomorskim. URL: <http://bape.com.pl/wp-content/uploads/2014/11/REGBIE-Regionalny-Plan-dzialan-BIOMASA-20012009.pdf>. Last viewed: 2020-05-25.

<sup>87</sup> Urząd Marszałkowski Województwa Pomorskiego. Program rozwoju energetyki z uwzględnieniem źródeł odnawialnych w Województwie Pomorskim do roku 2025. URL: [http://www.praze.pl/UserFiles/File/Przepisy%20Prawne/01\\_PRE.pdf](http://www.praze.pl/UserFiles/File/Przepisy%20Prawne/01_PRE.pdf). Last viewed: 2020-05-25.

<sup>88</sup> Ministerstwo Rozwoju Pracy i Technologii (2019). Rada Ministrów przyjęła projekt. Mapy drogowej GOZ. URL: <https://www.gov.pl/web/rozwoj/rada-ministrow-przyjela-projekt-mapy-drogowej-goz>. Last viewed: 2020-05-25.

<p><b>END OF LIFE / CASCADING</b></p>	<p>National Strategy for Regional Development until 2030<sup>89</sup></p>	<p>Ministry of Investment and Development</p>	<p>Basic strategic document of Poland's regional policy until 2030</p>	<p>The strategy emphasises the need to develop waste management in such a way as to introduce a circular economy that aims to maximise the use of waste as raw materials in new processes, thus preventing food waste. This is associated with the creation of innovative waste recycling projects and their selective collection, as well as installations for the processing of biowaste, adapted to the specificities of the region.</p> <p>In the Strategy draft, too little attention was devoted to the development of bioeconomy in the Pomeranian Voivodship, even though this region has very high potential. Although local enterprises and universities are focused on this development, the draft document does not mention this and does not emphasise the advantages of developing the bioeconomy, for example, the creation of new jobs.</p> <p>The draft strategy also lacks information on the implementation of the circular economy in Poland, which should translate into more efficient waste management, recycling of raw materials, and reduce resource consumption in the Pomeranian region.</p> <p>The above suggestions were submitted by the Gdańsk University of Technology as part of the Strategy draft consultation</p>
<p><b>END OF LIFE / CASCADING</b></p>	<p>National Waste Management Plan 2022<sup>90</sup></p>	<p>Ministry of Climate</p>	<p>Strategic document based on the Waste Act</p>	<p>This document contains information on generated waste and ways of dealing with it, as well as directions of activities in the field of waste prevention and shaping the economy system.</p> <p>In this document no detailed division about biowaste is made (the division is only for different sectors where biowastes are generated – agri-food sector, wood industry) for example, residues, leftovers, etc., which could be relevant in determining the method for further management of this waste.</p>
<p><b>MARKET SUPPORT</b></p>	<p>GOSPOSTRATEG<sup>91</sup></p>	<p>National Centre for Research and Development</p>	<p>Strategic research and development program</p>	<p>The main goal of the Program is to increase the use of the results of socio-economic research in shaping national and regional development policies by 2028. The specific objectives of the Program are: implementation of policies, strategies, operational documents and specific solutions developed under the Program; implementation of solutions developed under the Program, strengthening the social capital necessary to implement national and regional development policies.</p>

<sup>89</sup> Ministerstwo Funduszy i Polityki Regionalnej. Krajowa Strategia Rozwoju Regionalnego. URL:

<https://www.gov.pl/web/fundusze-regiony/krajowa-strategia-rozwoju-regionalnego>. Last viewed: 2020-05-25.

<sup>90</sup> Biullyn Informacji Publicznej. Ministerstwa Klimatu i Środowiska. URL: <https://bip.mos.gov.pl/strategie-plany-programy/krajowy-plan-gospodarki-odpadami/krajowy-plan-gospodarki-odpadami-2022/krajowy-plan-gospodarki-odpadami-2022-przyjety-przez-rade-ministrow-uchwala-nr-88-z-dnia-1-lipca-2016-r/>. Last viewed: 2020-05-25.

<sup>91</sup> Narodowe Centrum. Badań i Rozwoju. Społeczny i gospodarczy rozwój Polski w warunkach globalizujących się rynków – GOSPOSTRATEG. URL: <https://www.ncbr.gov.pl/programy/programy-strategiczne/gospostateg/>. Last viewed: 2020-05-25.

<b>MARKET SUPPORT</b>	SB WELL: Wellbeing Tourism in the South Baltic Region - Guidelines for good practices & Promotion <sup>92</sup>	Pomeranian Development Agency	Addressed to SME sector enterprises, potential tourists and stakeholders, among others local and regional authorities who can influence tourism in the South Baltic region	The aim of the project is to increase public awareness of the concept of wellbeing, the possibilities of its use in the tourism sector, as well as the promotion of the South Baltic Area as a touristic attractive place. The project is implemented by 9 partners from 5 countries from the South Baltic Area and falls within the priority axis: Exploiting the environmental and cultural potential of the South Baltic area for the blue and green growth.
<b>MARKET SUPPORT</b>	Polish Circular Hotspot <sup>93</sup>	INNOWO Institute of Innovation and Responsible Development	Platform which promotes circular concepts and combines the potential and resources of various stakeholder groups: state administration, local government, business and the world of science	The mission of Polish Circular Hotspot is paving the way for circular transformations in Poland by exchanging knowledge and experience and supporting the process of creating new business models that strengthen the position of companies on the market and that will help solve the greatest challenge of humanity which are shrinking natural resources.
<b>MARKET SUPPORT</b>	National Smart Specialisations <sup>94</sup>	Ministry of Development	National Smart Specialisations indicate preferences in providing support for the development of research, development, and innovation (R&D&I) under the financial perspective for 2014-2020	Smart specialisations are to contribute to the transformation of the national economy through its modernisation, structural transformation, diversification of products, and services as well as the creation of innovative socio-economic solutions, also supporting the transformation towards an economy that efficiently uses resources, including the natural resources.

<sup>92</sup> Agencja Rozwoju Pomorza S.A. SB WELL. URL: <https://www.arp.gda.pl/1339,sb-well>. Last viewed: 2020-05-25.

<sup>93</sup> Polish Circular Hotspot. Index page: <http://circularhotspot.pl/>. Last viewed: 2020-05-25.

<sup>94</sup> kis. Krajowa inteligentna specjalizacja. URL: <https://smart.gov.pl/pl/>. Last viewed: 2020-05-25.

### 2.2.6 Summary of EU legislation

However, it is not only national and regional legislation which is crucial for the development of a sustainable bioeconomy. Many of these laws have been implemented nationally as a result of EU legislation. EU regulations are legal acts that apply automatically and uniformly to all EU countries as soon as they enter into force. They are binding in their entirety on all EU countries.<sup>95</sup> Whereas EU legislation such as directives are indirectly applicable, obliging EU countries to achieve certain results but leave them the choice to decide how to do that. EU countries must adopt measures to transpose them into national law within the deadline set by the directive (generally within 2 years).<sup>96,97</sup> Directives can further be split into minimum and maximum harmonisation. Minimum harmonisation is understood as the setting of minimum standards by the directive facing the possibility that those are lower than the standards set in some EU countries. In this case, the EU country is allowed to set higher standards than those given by the EU directive. Maximum harmonisation directives leave no room for EU countries interpretation and the standards set by the directive cannot be higher or lower than those of the EU countries. In either ways, both forms – direct or indirect EU legislation – must be implemented by the EU Member States. Therefore, EU legislation with importance and influence to the bioeconomy was also assessed in this report. The assessment is again based on the four sectors of the bioeconomy, with the addition of a further sector called 'General'.

All of the listed EU directives and regulations are of great importance when it comes to the *European Union Strategy for the Baltic Sea Region* which supports the integrated territorial development towards a better accessible and sustainable BSR. The *European Green Deal* aims towards a carbon neutral EU by 2050 and economic growth decoupled from resources use with the overall goal to make the entire economy of the European Union sustainable. Also the associated *Farm to Fork Strategy* is aiming for a fairer, healthier and environmentally-friendlier food system. Forest management and protection is regulated by the *Forest Strategy (COM(2013)659)* and illegal logging is restricted by the *Forest Law Enforcement, Governance and Trade*. The European Commission implemented an overall policy for the production and promotion of energy from renewable sources, the *Renewable Energy directive (2009/28/EC) and (revised(EU) 2018/2001)*, which obliges the EU to generate at least 32% of its total energy from renewable resources by 2030. It furthermore sets out a biofuels sustainability criteria covering biofuels, bioliquids and biomass, produced or consumed in the EU to ensure their sustainably and environmentally friendly production. The *2030 Climate and Energy Framework (22 January 2014)* addresses not only the reduction of GHG emissions and the sustainable use of land and forest but also the ILUC impacts due to the use of biomass for different bio-based industries.

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<sup>95</sup> European Commission. Types of EU law. URL: [https://ec.europa.eu/info/law/law-making-process/types-eu-law\\_en](https://ec.europa.eu/info/law/law-making-process/types-eu-law_en). Last viewed: 2021-02-01.

<sup>96</sup> Legislation.gov.uk. Legislation originating from the European Union. URL: EU legislation and UK law. Last viewed: 2021-01-20.

<sup>97</sup> European Commission. Types of EU law. URL: Types of EU law | European Commission (europa.eu). Last viewed: 2021-01-28.



## 2.3 Interview methodology

The interviews were carried out based on the most important laws, regulations, cross-border frameworks and projects assessed through the desk study. The main objective of the interviews was to evaluate the identified laws and regulation. Each partner country carried out the interviews, whereby Germany (FNR, UG) and Sweden (SLU, RISE) conducted each 10 interviews and Denmark (RUC) and Poland (GUT) each 5 interviews. The interviewed stakeholders are working in research institutes, state offices and ministries at national and regional level, foundations, associations/networks, energy agencies and municipality owned waste holding companies, all with relation to the field of bioeconomy. In this purpose, FNR prepared an interview guideline (Annex II) in order to create a comparable basis to compare statements.

## 2.4 Interview results

### 2.4.1 Laws and regulations hindering or supporting bioeconomy in the region

The aim of the interviews was to have the laws and regulations identified in the desk study and cross-border activities evaluated by experts from different fields of the bioeconomy. The listed laws, regulations and even projects either are of great support or state a barrier for the development of a regional bioeconomy. During the interviews, not only the previously identified laws were discussed, but also other laws and topics that were not examined in the desk study. The additional identified laws, regulations, authorities and topics were categorised according to the four sectors of the bioeconomy: biomass production, biomass processing/biorefinery, end of life/cascading and market support. The assessment of the respondents regarding laws and regulations identified in the desk study can be found under the respective laws in Annex III. The division above was not sufficient for the further assessed laws and regulations. Therefore, the category “General” (these laws were difficult to assign to a particular sector) and a further subdivision into “Sectors” were added. The sectors describe areas, which were not included in the desk study such as the health sector or the construction sector. The subdivision of the sectors is different between each PP.

The tables within the sections for the respective countries contain further topics, laws and guidelines related to the bioeconomy that were addressed during the interviews. Mainly problems were raised which need to be remedied.

#### 2.4.1.1 Sweden

To obtain different and detailed opinions on the respective laws and directives with regard to the bioeconomy, the Swedish partner interviewed the following institutions:

- Avfall Sverige and Sysav, two municipality owned waste holding companies
- Energimyndigheten (Swedish Energy Agency)
- Helsingborg municipality
- Lantmännen, Agricultural Cooperative
- Nordvästra Skånes Renhållnings AB (NSR AB), a waste holding company
- Region Skåne, the public institution responsible for health care, transport, tourism and trade
- Swedish Forest Agency
- Skåne Energy Agency
- The Federation of Swedish Farmers – LRF (also member of two stakeholder panels for bioeconomy in EU representing Copa Cogeca (European Farmers and European Agricooperatives))

During the interviews, carried out between June and October 2020, the majority of the interviewees discussed the law on sustainability criteria for biofuels and liquid biofuels. Up to 80 % of Sweden's biofuels are imported from outside of Sweden. Although biofuels imported to the EU have to have a certificate proving that they have been produced in compliance with certain requirements, fulfilment of these regulations are rarely checked and no proper control points exist where this would be examined. Furthermore, the fact that the regulation requires that at maximum 7% of the biofuel production may be based on food crops, presents a great restriction on what can be planted on the available arable land. Sweden possesses large areas of set-aside land that can be used for cultivation of biomass for food, feed and fuel. The Forestry Act was seen to greatly benefit the Swedish bioeconomy guaranteeing the export of sustainable products. In addition, the law (2014:1009) on trade in timber and timber products is benefiting the bioeconomy by regulating illegal import to EU from none-EU countries.

Public procurement and certifications are seen as valuable tools to push the development of the bioeconomy forward. Laws and regulations need revision in order to apply them in a meaningful manner.

Table 15: Swedish interview results on laws and regulations with regard to the bioeconomy.

General	
The Income Tax Act	Forest owners and the forestry industry are quite favourably taxed, which have been beneficial for investments in the forestry sector [Swedish Forest Agency].
National laws and regulations	
Biomass production	
Law on trade in timber and timber products	Countries that conduct sustainable forestry management benefit from the law. The law regulates the illegal import of timber and timber products. It is difficult to trace wood raw materials, which has caused problems in the work against illegal imports. [Swedish Forest Agency]
Greenhouse gas reduction mandates	Only apply to low-blended biofuels, as supported under the state aid system. This is problematic because from 2021 Sweden are not allowed to give state aid to biofuels from crops. [Lantmännen]
End of life/cascading	
Cascading	Different actors in the forest sector have been negative towards cascading because they do not want detailed control of the market arguing that this detailed control from the EU is not needed. [Swedish Forest Agency]
Sectors	
Public procurement	It has been utilised in Sweden for food purchases in the public sector with the demand that the food production has to follow Swedish environmental law. Could be a powerful tool to promote sustainable and renewable fuels. [Lantmännen]
Positive market stimulus	Positive market stimulus is needed to replace over-regulation to steer the market in the right way. [LRF]
Education	Education is a great tool to improve the bioeconomy. People need education at all levels [LRF].
Ecological focus areas (EFA)	Biomass from crops grown on EFAs are currently incorporated into the soil, but could possibly be utilised as feedstock for the bioeconomy, e.g. as raw material for plant protein extraction or as substrate for biogas. The possibility to remove this biomass should be regulated in order not to impact its original goal for increasing biodiversity in the agricultural landscape. [Biogas Syd]

Certification systems	Certification is an effective way to push a development forward; this applies for the bioeconomy market as well. [Skåne Energy Agency]
<b>Cross-border/international laws, institutions and projects</b>	
Nordic Ministry council	Good at starting different initiatives but is lacking money to continue the different initiatives. [LRF]
Working together in projects	This can be done across national borders, for example work with knowledge and experience exchange between industrial parks. [Skåne Energy Agency]
Infrastructure for renewable fuels	Revitalising measures within strategic infrastructure for renewable fuels. [Region Skåne]
Legislative work	Organisation of a common approach from stakeholder companies regarding legislative work is needed. [Biogas Syd]

#### 2.4.1.2 Denmark

Solrød Biogas and Bigadan A/S were interviewed in relation to the executive order on the utilisation of waste for agricultural purposes '*Bekendtgørelse om anvendelse af affald til jordbrugsformål (BEK nr 1001 af 27/06/2018)*'.

The regulation can be viewed as a historical document for agricultural use of sludge from wastewater and industrial by-products/residuals directly circulated on agricultural fields. The juridical framework and related interpretations of product-categories (eligible as biowaste under appendix 1) is thereby less adapted to new (industrial) biological resources for biogas and subsequent circulation.

Main regulatory barriers for the development of a sustainable bioeconomy within the framework can be specified as (1) Different and sometimes conflicting municipal interpretations of what can (and cannot) be defined as eligible under appendix 1. This increases administrative time and related costs, when handling biological resources for biogas. Especially if biological resources are collected in one municipality, treated in a second municipality, and circulated in a third municipality. (2) The sampling method and sampling rate is designed to continuous and large flows of homogeneous biological resources and thereby to a less extend seasonal by-products and residuals of smaller amounts and heterogeneity. The willingness to supply the latter as input for biogas-plants thereby decreases, as the sampling costs tend to be too high for suppliers (compared to expected revenues). Subsequently, biological resources are diverted to incineration (loss of nutrients), wastewater treatment or composting processes (lower resource efficiency).

The regulatory framework has continuously been adapted to new biological resources for biogas. However, a more effective regulatory approach could potentially be to establish a new regulatory framework based on biological resources for biogas. The framework should (1) support sampling methods for different types of biological resources (composition, amount) and related material flows. (2) create coherent and clear definitions of biological resources eligible as biowaste within the framework and (3) reduce administrative burdens related to the regulation of material flows across municipal borders.

Morten Gylling, Senior advisor, and leader of the IFRO Bioeconomy Group at the University of Copenhagen - Department of Food and Resource Economics (IFRO) and former member of the National Bioeconomy Panel in Denmark was interviewed on design principles for financial schemes.

Financial schemes designed to protect national markets and export possibilities risk undermining optimal selection of geographical areas for biological resources, as the framework is based on geo-political conditions, instead of the natural and/or physical system. When choosing crops and agro-

production processes, market stakeholders tend to be more responsive to political regulation, than the ecosystem services embedded within a regulated area.

When developing cross-border regulation for a sustainable bioeconomy, subsidy- and charging schemes should therefore be designed to support the optimal production and allocation of agro-industrial resources, in relation to geographical conditions within a larger regulated area (such as the SBR). Positive effects beyond financial gain and resource productivity also needs to be included when designing (and justifying) financial support schemes. For example, the production of biogas not only produces energy, but also distributes and circulates nutrients, creates jobs within rural areas and cost reductions for agro-industrial value chains (in relation to the handling of industrial by-products and residues).

To initiate such processes, the interconnection of national regulations needs to be understood and harmonised towards optimal resource efficiency for the SBR. To minimise adverse and unforeseen negative effects between the regulated countries, cross-border analysis of resource foundations, material flows, existing regulations and related markets should be conducted. Cross-border regulatory frameworks also needs to support the entire value chain for biological resources and enhance financial support towards multi-purpose productions of goods and services.

The interviews were carried out in September and October 2020.

*Table 16: Danish interview results on laws and regulations with regard to the bioeconomy.*

<b>General</b>	
Financial schemes	Financial schemes designed to protect national markets and export possibilities risk undermining optimal selection of geographical areas for biological resources. Subsidy- and charging schemes should therefore be designed to support the optimal production and allocation of agro-industrial resources, in relation to geographical conditions. [IFRO]
<b>End of life/cascading</b>	
Executive order on the utilisation of waste for agricultural purposes (BEK nr 1001 af 27/06/2018)	One of the key findings related to the interviews was the lack of national initiative dedicated to the development of a coherent regulatory framework for collection and utilisation of biological resources for biogas production and nutrient circulation. The existing regulatory framework are not adaptive towards new biological resources, especially in relation to seasonal by-products and residual resources of smaller amounts and heterogeneity, which creates unnecessary costs and administrative burdens for municipalities and biogas-plants, subsequently decreases the willingness to use new biological resources for biogas. [Solrød Biogas and Bigadan A/S]

#### 2.4.1.3 Germany

In order to obtain a broad view on the effectiveness of laws and regulations relating to the bioeconomy in Germany, representatives from the following stakeholder organisations were interviewed in the period from August to October:

- Biogas Association and State Association Renewable Energies
- Former Bioeconomy Council
- German Biomass Research Centre (DBFZ)
- Hanseatische Umwelt CAM GmbH
- Industry and Chamber of Commerce (IHK-MV)
- Ministry of Agriculture and Environment MV (MLU)

- Research Centre Jülich (FZJ)
- State Research Institute Mecklenburg – Western Pomerania (LFA)
- State Office of Agriculture and Environment in MV (Stalu-V; Stalu-MM)

The interviews revealed that laws are interfering with each other, jeopardising innovation and growth. For example, nature conservation laws often contradict the sustainable and economic use of biomass e.g. cabbage is harvested in the field and the outer leaves are left on the field which is allowed as it is an agricultural product. However, if the same cabbage is taken to the factory and the leaves are removed there, the result is a waste material that must be disposed of in accordance with waste legislation. Thus, the same commodity addresses different rights/laws depending on the source sector (agricultural sector = commercial law, industrial sector = waste product). Overlapping, competing legislation clashes, which may not make sense in many areas. Often two areas of law meet which have been developed from other parts and are closed systems, but the legislation for the overlapping area becomes nonsensical.

Moreover, new technologies are often not yet reflected in current laws or are not taken into account at all which makes the development of a sustainable bioeconomy harder. Germany's transfer of research into practical applications is poor even so a good basic research exists. Pilot projects are mainly carried out for large-scale projects but not for small-scale projects.

In the field of agriculture, Germany has the risk of groundwater contamination due to an increased share of corn monoculture, resulting from the extension of biogas production, leading to a high nitrate intake. Regarding laws on nature conservation, permanent grassland is not allowed to be used for agricultural purposes leading to a shortage of arable land and a loss to farmers as their nature protection performances is not sufficiently rewarded.

The Circular Economy Act, which covers the waste management, does not specify when waste can turn into a product again. The law needs to leave more space for innovative processes of materials currently regarded as waste. Moreover, the material cycles are often not economical, as for example biomass in the region has problems to find buyers for fermentation residues and compost. Germany needs to improve its material and energy use as well as its final use of biomass waste products.

The fossil economy is still a big competitor because standards and reference values for organic materials are often missing. Nevertheless, also the planning of the biogas/ biomass plants is difficult and often fails due to the construction law and finding of suitable locations (e.g. emissions). Consideration is needed whether biogas or biomass plants should also be granted a privilege right within laws on construction.

*Table 17: German interview results on laws and regulations with regard to the bioeconomy.*

General	
Biomass production	The framework conditions for biomass production and use have become significantly worse. The policy changes are leading to a major decommissioning of biomass plants. [LFA]
EEG: Expansion of the biogas plants	<p>Extreme biogas production is unsustainable, as increased corn cultivation leads to high nitrate intake and contaminates groundwater. Germany is therefore heavily criticised. [Stalu]</p> <p>Biogas plants are subject to many regulations from a wide range of sectors (industry, agriculture, etc.). They were collected and have different amendment times. Unfortunately, there is no uniform biogas regulation with clear rules and uniform amendment.</p> <p>Many plants are now (when the 20-year funding has expired) out of funding and are being reinstated instead of expanded. The Biogas Association is working on the</p>

	current draft for the expansion of biogas plants (biomass plants). The Federal Ministry for Economic Affairs and Energy supports the expansion until 2030. However, the plants have to play a different role due to changing conditions, especially with regard to storage technology: it should be possible to retrieve electricity according to demand [Biogas Association and State Association Renewable Energies]
Novel-Food Regulation	Sustainable ideas, such as the production of protein products from insects, are diminished. Since insects are considered as animals, hence they are not taken into account in the Biomass Ordinance [FZJ]
Law on Employee Inventions /Law patent exploitation	The common public interest and the economic-liability are of key importance which often overshadows or disregards the Invention Act. Public funds are intended to guarantee the common public interest, which is expected to result in a return of the funds. Founders have to invest a lot of money in order to be able to use the patent which can ruin them financially. [FZJ]
Procurement strategies	Costs are playing a too important part. There is a lack of procurement strategies that focus procurement activities more on sustainability and innovation. In addition, modern procurement methods are hardly used in the German administration, thus missing the opportunity to prepare a market for bio-based innovations or to promote innovative enterprises. [HightechForum]
EU State Aid Law	Areas used for growing hemp shall be eligible only if the tetrahydrocannabinol content of the varieties used does not exceed 0.2 %. Whether farmers may cultivate hemp also on other areas, which are subsidised accordingly, has to be elaborated under the state aid law at great expense, so that it can be worked with it perspectival. [IHK NB]
<b>National laws and regulation</b>	
<b>Biomass production</b>	
Restriction of varieties	The legal basis for the cultivation of commercial hemp is the EU's common catalogue of varieties of agricultural plant species. Listed here for 2021 are 73 varieties (2 less than 2020). Only a few varieties of them have properties that can be used e.g. for fibre production (currently only 16 suitable varieties). [IHK NB]
Narcoic Act	Hemp is to be cultivated in Germany for use in the construction sector. The EU limits for THC (laid out in the Narcotic Act) are uniformly set at 0. 2% for commercial hemp. This requirement severely limits the use of commercial hemp in Germany. [IHK]
<b>Biomass processing/biorefinery</b>	
Water Management Act (WHG 2009)	Even a temporary storage of waste at the beach (e.g. seaweeds) is subject to permission according to the Water Resources Act and must be approved under building law even if the total storage capacity is less than 100t. Concrete buildings like in Poel or Boltenhagen have to be built for a lot of money. This is not only unnecessary interference with nature, but also means a considerable additional financial expenditure. Recycling often fails because of this. [Hanseatische Umwelt CAM]
Building Energy Act	Innovative heat from electricity-based heat sources (including biomass) is to be generated. The law is to be amended this year - there is still plenty of room for improvement. [Biogas Association and State Association Renewable Energies]
Construction Products Regulation No. 305/2011 (EU Bau-PVO; certification of construction products; building regulations of the federal states (LBO)	For the use of natural building materials, there are, in addition to REACH, other European directives and regulations (e.g. the Preparations Directive 1999/45/EC or the Product Safety Act (ProdSG)). However, there is a lack of regulations to enable corresponding approvals for biogenic building materials. The basic materials and also the product are always compared with conventional products (e.g. based on resin adhesive, or plastic). Innovations are strongly hindered by lobbying associations, the approvals therefore take considerably longer, reference values are often missing, and the authorities do not ensure that these reference values are defined. [IHK NB]
<b>End of life/cascading</b>	

Biowaste regulation BioAbfV (2017)	<p>Vegetable components of marine waste may only be recycled if the limit values specified in the BioAbfV are not exceeded. This means that for marine waste by independent investigations in an approved laboratory the compliance with the limit values according to the <i>Biowaste Ordinance</i> for lead-cadmium-chromium-copper-nickel-mercury and -zinc must be proven. The analyses are carried out on the finished products (one analysis per batch).</p> <p>Municipalities have the possibility to be exempted from the duty to act (analysis of the marine drift) according to §10 of the BioAbfV. This was not possible until October 2019 because the fertilizer ordinance has prescribed biological treatment. Thus, BioAbfV and DüMV are synchronised in this point and nothing stands in the way of an utilisation of the marine biowaste. [Hanseatische Umwelt CAM]</p>
<b>Market support</b>	
Advanced Biofuels	The 1st and 2nd generation of biofuels must be used within their capabilities and expanded to save fossil fuels. Bridging technologies need to be used until fossil fuels are no longer in use. Until then biofuel bridging technologies are needed to reduce greenhouse gas emissions. [DBFZ]
<b>Sectors</b>	
Health care industry	Nowadays, there is a great growth due to changes in technology. But there is a huge gap between the advances in research and the impact on the economy. [FZJ]
Biotechnology	Decision-makers needs to cover wider areas of application and take into account that cycles (period during which new technologies are introduced) are becoming shorter and shorter. New technologies are often not yet reflected in current laws and are not taken into account at all. → Amendment of these laws is necessary [FZJ]
Material cycle	Material cycles are often not economical. Biomass in the region: problems finding buyers for fermentation residues and compost. Either privileges for the regional substances need to be created or the price of mineral oil needs to be regulated. Improvement of material and energy use is needed [Stalu]
Admission procedure	Is dominated by European law. Describes the requirements for the construction of a plant in the region. Opportunities for participation are used quite abusively in reality, even so rather unintentionally. [Stalu]
Financial support	<p>When restructuring process sequences (agriculture) it is important that the changes can be implemented in time and to the intended extent without the plant operator's own financial expenditure.</p> <p>Support programmes are not evaluated, which means that the overall objective, to be sustainable, is not fulfilled. The governmental agencies that manage the funding often do not carry out the evaluation that is urgently needed to guarantee the sustainability of the programme/project due to lack of staff. → Random sample checks are needed [Stalu]</p>
Climate Policy and Federal Pollution Control Act	<p>Optimisation of incentives: Currently farmers get incentives for managing drained peatlands (→ high CO<sub>2</sub> -emissions). Instead this should be sanctioned and they should receive subsidies for rewetting and planting paludiculture (cultivating humid-tolerant plants and selling the biomass). Optimisation of incentives to make agriculture more sustainable and emission friendly [MLU]</p> <p>The protection of peatland from agricultural use plays an important role for climate protection. [Stalu]</p>
Construction law	Planning of a biogas/ biomass plant is difficult and often fails due to the construction law and locating of suitable locations (e.g. emissions). Consideration whether biogas or biomass plants should also be granted a privilege right within laws on construction. [Stalu]
Fossil economy	Fossil economy is still a big competitor -> CO <sub>2</sub> taxes needed; standards and reference value for organic material is often missing. [DBFZ]
Technical aspects	Good fundamental research, poor implementation. There is a lot of research but the implementation often takes place outside of Germany. Attractive framework conditions and increased risk-taking is required. Pilot projects exist mainly for large-scale projects but not for small-scale projects [DBFZ]



Cross-border/international projects	
Power4Bio	Networking of bioeconomy structures with a focus on South/Eastern Europe. Many activities, exchanges are well run, but networking needs to be further supported. [DBFZ]
Bioeconomy Cluster-regional	(Focus area: Central Germany- Saxony, Saxony-Anhalt and Thüringen). The cluster has good basics but those could be expanded. Stakeholders must be brought together to develop new economic networks. There is a lack of basic understanding which highlights the need of communication. [DBFZ]

#### 2.4.1.4 Poland

The following stakeholders were interviewed in order to assess whether the respective laws and regulations are hindering or promoting the bioeconomy in Poland:

- Association Bioeconomy Cluster
- Centre for Bioeconomy and Renewable Energy (UWM)
- Pomeranian Region Marshall Office
- Ministry of Development (GOV)
- Energy Conservation Foundation in Gdańsk (FPE)

The interviews, carried out from June 2020 till October 2020, revealed the amendment of the Waste Act, as currently there are no general procedures to be followed in order to use waste raw materials in subsequent processes. The loss of waste status is carried out pursuant to individual decisions. The procedures existing are too complex, time-consuming and costly, discouraging entrepreneurs from investing in innovative biotechnologies. Furthermore, a consistent implementation of the provision of the Circular Economy Road Map is needed. Poland must resign using coal as a pillar of the energy sector and linking the coal-mining sector with the bioeconomy. When implementing this approach, job offers for miners in the bioeconomy sector should be co-financed.

To provide and support a sustainable and regional bioeconomy, a Ministry responsible for bioeconomy related matters in Poland has to be created. In order to implement sustainable and environmental approaches, Poland needs to focus on supporting the development of biotechnolgy.

Table 18: Polish interview results on laws and regulations with regard to the bioeconomy.

General	
Regional Operational Program for the Pomeranian Voivodeship for 2014-2020	It enabled the implementation of bioeconomy projects in several priority axes. There have been and are ongoing bioeconomy projects in the area of innovation, research and development, energy, and environment. There is no need for changes to the program, also taking into account the practical depletion of allocations [UM].
National laws and regulations	
Biomass production	
National Waste Management Plan 2022	Despite the general nature of the definition of waste in Poland, the legal understanding of waste should not be changed, even if the waste includes, for example, straw. In common understanding, waste is everything that is unnecessary and must be disposed somewhere [UWM]. The "National Waste Management Plan 2022" should be linked to the bioeconomy. Just as circular economy involves two cycles of nutrients (technical and biological), the "National Waste Management Plan 2022" should highlight how biological nutrients are recirculated to the environment [UWM].
Biomass processing/biorefinery	

Regional Action Plan BIOMASS in the Pomeranian Voivodeship	Biomass limited only by its use in the energy sector does not fulfill the full range of bioeconomy. The addition to the full spectrum of bioeconomy is necessary in order to make them aware of the role of bioeconomy in country development [FPE].
<b>End of life/cascading</b>	
Circular Economy (CE): Roadmap	<p>The most important aspect in the wide implementation of CE is to identify the problem to be addressed. Until now, no one has seen the problem in the linear economy. It was believed that higher consumption of raw materials is a sign of development of the national economy. It should be clearly stated that the consumption of raw materials is not an indicator of development [MR].</p> <p>Standardisation and parameterisation of waste is important. In order to create a valuable framework on which the bioeconomy could be based, we need to create documents describing all products/waste in a very precise way so that it can be used in other chains. That should be implemented in the Circular Economy: Roadmap document [MR].</p> <p>It is important to map and define Polish resources to know how much local raw material can be used, and how much it may need to be taken from external sources and whether it will be profitable [ABC]</p> <p>To support the development of bioeconomy in Poland, one should start with the creation of a dedicated bioeconomy roadmap. Currently the bioeconomy is in fact a small part of "Circular Economy: Roadmap" document. The bioeconomy is connected with circular economy indeed. However, these two topics are so wide that they deserve to be treated separately [UWM].</p>
National Strategy for Regional Development until 2030	The greatest attention should be focused on the integration of various industrial sectors and not focusing on the development of specific sectors recognised as smart specialisations. It should be remembered that bioeconomy is an interdisciplinary field and only cooperation on a local and global level, between various fields of science and industry, can contribute to its development [UWM].
<b>Market support</b>	
National Smart Specialisations (NSS)	A lot of emphases are put on the approach to various NSS issues in terms of the circular economy. Various issues will be considered as a circular economy, and wherever possible, value chains, or entire production cycles, will be combined: raw material, product, waste, recycling or various forms of reuse [ABC].
<b>Sectors</b>	
The idea of one biogas plant in each municipality	The problem in the profitability of biogas plants is the necessary amount of biomass input. There are municipalities where there would be a sufficient amount of it, and there are also those where the input would have to be transported from very long distances, which would significantly increase the cost of maintaining a biogas plant in relation to the profit. Such a solution would be ineffective [FPE].
Bioeconomy development	The bioeconomy should be connected with a coal mining sector. Poland energy sector is still focused mainly on coal. Today coal covers approx. 75% demand of the Polish power industry. Due to the understandable necessity of shutdown the hard coal sector, rational co-financing of job offers by miners in the bioeconomy sector may be a good idea [UWM]
<b>Cross-border/international laws and projects</b>	
"Rural RDI milieus in transition towards smart Bioeconomy Clusters and Innovation Ecosystems" (RDI2CluB).	The project supports participating rural areas in unlocking their full potential in the bioeconomy. This goal will be reached, among others, by the regional bioeconomy profiles of partner regions and action plans developing the most prospective sectors of the bioeconomy [ABC].
STAR-ProBio	European Committee for Standardisation (CEN) cooperates with national standardisation institutions on the unification of standards, involving also the Polish

	Committee for Standardisation (PKN). The latest initiative of global cooperation is the agreement between CEN and American Society for Testing and Materials (ASTM) and one of the expected results is the unification of terminology for bio-based products. STAR-ProBio proposed a modification of the current EU standard for bio-based products [UWM].
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#### 2.4.2 Recommendations on establishing an enabling framework to facilitate bioeconomy in the SBA

The desk study and the interviews addressed various authorities with and without regulatory competences, laws and regulation, projects, policy frameworks and other sectors and fields, all of them with influence on the bioeconomy. This chapter proposes what needs to be changed – and if possible how – in order to remove obstacles to sustainable growth and establish an enabling framework to facilitate bioeconomy in the South Baltic Area.

##### 2.4.2.1 Sweden

Sweden concluded, that authorities should facilitate the utilisation of arable and forest land for bio-based purposes. In addition, land use needs optimisation in order to create a market for biomass and bio-based products equal to a market for food and feed. Also, a state commission is required whose responsibility it is to handle the bio-based market. Besides, the country is in need of economic and technical stimulation measures in order to support and maintain a sustainable development. Using public procurement to promote the bioeconomy and certification systems to push the market development.

It is often left unclear to companies how regulations should be applied. The bioeconomy would therefore benefit from laws and regulations that are more helpful in terms of what is desired and what operating space is acceptable, so that large companies, authorities as well as SMEs can apply them in a meaningful manner. A solution could be the creation of a control system involving and influencing different stakeholders on the market, serving as a supplement to laws and regulations.

For the improvement of trans-border cooperation between neighbouring countries, revitalising measures within strategic infrastructure for renewable fuels as well as organisation of a common approach from stakeholder companies regarding legislative work are needed.

Finally yet importantly, the education in general but mainly the education of the younger generation is of great importance and potential for the bioeconomy and therefore needs to be pursued further and intensively.

##### 2.4.2.2 Denmark

The interviewees highlighted several issues in relation to the definition of bioeconomy and the complexity of regulating new material flows. A circular and sustainable utilisation of by-products, residuals and biowaste moves between several regulatory frameworks for waste, chemicals, nature, energy, water and so on. This creates a complex interaction between existing regulatory frameworks and thereby increases the administrative burden for multi-purpose utilisation of biological resources (cascading use).

For example, the utilisation of biological resources for biogas and nutrient circulation across municipal borders, activates several municipal institutions. This increases the risk of conflicting views, as the number of regulatory interpretations increases. Conflicting views and discussions can mitigate regulatory misunderstandings, but is also time consuming and costly processes, subsequently complicating the physical management of continuous flows of biological resources.

New regulatory frameworks, related to resource management, should support a systematic harmonisation of regulations through the entire value chain, such as minimising contradictory or

ineffective regulatory processes (in relation to the physical management) - without undermining related laws, EU directives etc.

#### *2.4.2.3 Germany*

The interviews discovered a need to amend some laws, whereas policies need to cover wider areas of application and take into account that technology cycles (period during which new technologies are introduced) are becoming shorter and shorter. Many interviewees suggested CO<sub>2</sub> -taxes, which are needed in order to make bio-based products an equal competitor to fossil-based products and in general to push the bioeconomy, which will be supported by the design of attractive framework conditions and increased risk-taking when bringing research into practice.

Optimisation of incentives is important to make agriculture more sustainable and emission friendly. Furthermore, care must be taken when restructuring agricultural processes so that changes can be implemented in time and to the intended extent without the plant operator's own financial expenditure.

The interviews showed that Germany has many cross-border and transnational activities resulting in a good knowledge and technology exchange but there is great potential for further development of networks.

In order to resolve procedural issues, the cross-border communication needs improvement. Often there is only the choice between none or a complete involvement of a neighbouring country which makes the cooperation harder and more time intensive. The introduction of a dedicated level of communication is needed.

The bioeconomy also has an impact on the aquatic environment and therefore the Baltic Sea Countries need to improve and strengthen their cooperation in limiting nutrient inputs into the sea. Due to the high use nutrients (phosphates) as a result of excessive fertilisation of the fields, spare organic substances were washed into the Baltic Sea. By improving access to the large quantities of biomass, a process can be developed which allows a profitable use of the surplus nutrients. The legal situation should allow the extraction of surplus nutrient around the Baltic Sea.

In general, uniform rules and laws within Europe are particularly important for the industry and projects with universities and schools of great importance as the education of the young generation holds undetected potential for the development of the bioeconomy.

#### *2.4.2.4 Poland*

Like all the other countries before, Poland has noted that one of the main actions needed is to increase the awareness towards bioeconomy. Activities are needed to raise awareness of entrepreneurs, those who are still unaware of the possibilities of waste re-use. Increasing awareness includes the education of customers on the organic products available on the market, companies and product developer should implement the eco-design approach and universities should include the approach in their curriculum.

An inter-sectoral working group should be created identifying the needs in the region and supporting stakeholders to apply for funds under international programs, will strengthen the international cooperation.

It is necessary to improve the possibility of commissioning research projects to scientific institutions and building commercial pilot projects by the administration in order to gain experience and offer entrepreneurs ready to duplicate solutions.

Projects have to focus on developing a cooperation between enterprises from different regions, building cross-border value chains, creating cross-border Smart Specialisations in the field of bioeconomy, to accelerate the exploitation of project results.

### 3. Conclusions

The interviews with experts from various fields, including science, waste management, agriculture, environmental protection, the energy sector and many others who are involved on a daily basis with laws and policies related to the bioeconomy, expanded on the results found in the desk study. Additional laws, frameworks, authorities and projects were mentioned which were not covered by the desk study. Findings of the desk study were verified and often explained in more detail by the experts. Much is done to promote the sustainable growth of the bioeconomy but there is still high potential to increase these activities. In general, the sustainable development of the bioeconomy needs to be promoted more and activities in this field encouraged.

In general, many laws and regulations need amendment because they often have a negative impact on each other or do not consider new technologies and therefore hindering sustainable growth. Clearer definitions are needed which specify when waste can be turned into a product again and laws need to leave more space for innovation of waste utilisation leading to new products. Public procurement and regulation are valuable tools to accelerate the bioeconomic development.

A better alignment between organisations, networks, companies and policy makers is needed in order to create a common basis for the exchange of information, problems and suggestions on current laws with regard to the bioeconomy in the SBA.

All partner countries agree on the need to further strengthen cooperation and, above all, to improve communication with one another. It is also important to provide more information about the bioeconomy and bio-based products and their availability on the market. For the bioeconomy of the future, it is necessary to involve the younger generation in the topic of bioeconomy earlier and further, to collaborate with schools and universities and also to learn from each other.

## Annex

### I. Desk study outline

#### **Assessment of National Legal and Administrative Bioeconomy Related Frameworks**

#### **-COUNTRY NAME-**

First section: legal issues (regulation, laws, etc.)

1. Please identify three to five of the most relevant national/regional (depending on your country's project area) regulatory authorities, and in two to three sentences outline their role in regard to the bioeconomy. Please provide references (using footnotes)
2. Are there laws or regulations in your country region that support the bioeconomy? Name and describe max. three of the most relevant laws pertaining to each of the following four sections of the bioeconomy: biomass production, biomass processing/biorefinery, end of life/cascading, market support. Please specify in the description if the law addresses the material or energetic use of biomass. Pay specific attention to the WP4 value-chains in consideration of straw, sugar, wood and food waste. Please provide references (using footnotes).
3. Are there cross-border activities initiated or supported by regulatory authorities of your country or region in regard to the bioeconomy? Describe up to three good practice examples. Please specify in the description if the activity addresses the material or energetic use of biomass. Pay specific attention to the WP4 value-chains for straw, sugar, wood and food waste. Please provide references (using footnotes).
4. Specify whether the law/regulation is helpful in terms of advancing the bioeconomy, or if it is detrimental to its positive development. Finally, specifically outline suggestions regarding the potential improvement processes relevant to each law/activity. Please provide references to support your opinion (using footnotes).

Second section: public policy measures (strategies, support measures, etc.)

5. Please identify three to five of the most relevant national/regional (depending on your country's project area) authorities with no regulatory competencies. Please specifically outline their role in regard to the bioeconomy in two or three sentences. Please provide references (using footnotes).
6. Please identify three to five of the most relevant national/regional (depending on your country's project area) policy frameworks (good practice examples: e.g. National bioeconomy strategies and action plans, subsidy/incentive frameworks, programmes discouraging the use of fossil-based materials, competitions, other policy measures, etc.), for each of the four sections of the bioeconomy: biomass production, biomass processing / biorefinery, end of life / cascading, market support. Please specify in the description if the framework addresses the material or energetic use of biomass. Pay specific attention to the WP4 value-chains for straw, sugar, wood and food waste. Please provide references (using footnotes).
7. Which are the two to three most relevant cross-border policy measures of your country/region (depending on your country's project area) regarding the bioeconomy? Please specify in the description if the framework policy addresses the material or energetic use of biomass. Pay specific attention to the WP4 value-chains for straw, sugar, wood and food waste. Please provide references (using footnotes).

8. Specify whether the framework policy measure is helpful in advancing the bioeconomy or if it is detrimental to its positive development. Finally, outline specific suggestions for improvement for each framework policy measure. Please provide references to support your opinion (using footnotes).

First section: legal issues (regulation, laws, etc.)

1. Please identify three to five of the most relevant national/regional (depending on your country's project area) regulatory authorities, and in two to three sentences outline their role in regard to the bioeconomy. Please provide references (using footnotes)

Copy the template as many times as you want to fill it in:

<b>Name of the authority:</b>	
<b>Type of the authority:</b>	
<b>Scope of the authority:</b>	
<b>Role with regard to the bioeconomy:</b>	

<b>Name of the authority:</b>	
<b>Type of the authority:</b>	
<b>Scope of the authority:</b>	
<b>Role with regard to the bioeconomy:</b>	



2. Are there laws or regulations in your country region that support the bioeconomy? Name and describe max. three of the most relevant laws pertaining to each of the following four sections of the bioeconomy: biomass production, biomass processing/biorefinery, end of life/cascading, market support. Please specify in the description if the law addresses the material or energetic use of biomass. Pay specific attention to the WP4 value-chains in consideration of straw, sugar, wood and food waste. Please provide references (using footnotes).

Copy the template as many times as you want to fill it in:

Biomass production

<b>Name of the law:</b>	
<b>Author of the law:</b>	
<b>Scope of the law:</b>	
<b>Description:</b>	

<b>Name of the law:</b>	
<b>Author of the law:</b>	
<b>Scope of the law:</b>	
<b>Description:</b>	

End of life / cascading

<b>Name of the law:</b>	
<b>Author of the law:</b>	
<b>Scope of the law:</b>	
<b>Description:</b>	

Market support

<b>Name of the law:</b>	
<b>Author of the law:</b>	
<b>Scope of the law:</b>	
<b>Description:</b>	

- Are there cross-border activities initiated or supported by regulatory authorities of your country or region in regard to the bioeconomy? Describe up to three good practice examples. Please specify in the description if the activity addresses the material or energetic use of biomass. Pay specific attention to the WP4 value-chains for straw, sugar, wood and food waste. Please provide references (using footnotes).

Copy the template as many times as you want to fill it in:

<b>Name of the activity</b>	
<b>Author of the activity</b>	
<b>Scope of the activity</b>	
<b>Description:</b>	

- Specify whether the law/regulation is helpful in terms of advancing the bioeconomy, or if it is detrimental to its positive development. Finally, specifically outline suggestions regarding the potential improvement processes relevant to each law/activity. Please provide references to support your opinion (using footnotes).

Add as many rows to the table as you want to fill in.

- 1=very helpful
- 2=rather helpful
- 3=neither nor
- 4=rather detrimental
- 5=very detrimental

Law / activity	Scale 1-5	Suggestions for improvement

Second section: public policy measures (strategies, support measures, etc.)

5. Please identify three to five of the most relevant national/regional (depending on your country's project area) authorities with no regulatory competencies. Please specifically outline their role in regard to the bioeconomy in two or three sentences. Please provide references (using footnotes).

Copy the template as many times as you want to fill it in:

<b>Name of the authority:</b>	
<b>Type of the authority:</b>	
<b>Scope of the authority:</b>	
<b>Role with regard to the bioeconomy:</b>	

<b>Name of the authority:</b>	
<b>Type of the authority:</b>	
<b>Scope of the authority:</b>	
<b>Role with regard to the bioeconomy:</b>	

6. Please identify three to five of the most relevant national/regional (depending on your country's project area) policy frameworks (good practice examples: e.g. National bioeconomy strategies and action plans, subsidy/incentive frameworks, programmes discouraging the use of fossil-based materials, competitions, other policy measures, etc.), for each of the four sections of the bioeconomy: biomass production, biomass processing / biorefinery, end of life / cascading, market support. Please specify in the description if the framework addresses the material or energetic use of biomass. Pay specific attention to the WP4 value-chains for straw, sugar, wood and food waste. Please provide references (using footnotes).

Copy the template as many times as you want to fill it in:

General (added section)

<b>Name of the framework:</b>	
<b>Author of the framework:</b>	
<b>Scope of the framework:</b>	
<b>Description:</b>	

Biomass production

<b>Name of the framework:</b>	
<b>Author of the framework:</b>	
<b>Scope of the framework:</b>	
<b>Description:</b>	

Biomass processing / biorefinery

<b>Name of the framework:</b>	
<b>Author of the framework:</b>	
<b>Scope of the framework:</b>	
<b>Description:</b>	

End of life / cascading

<b>Name of the framework:</b>	
<b>Author of the framework:</b>	
<b>Scope of the framework:</b>	
<b>Description:</b>	

Market support

<b>Name of the framework:</b>	
<b>Author of the framework:</b>	
<b>Scope of the framework:</b>	
<b>Description:</b>	

7. Which are the two to three most relevant cross-border policy measures of your country/region (depending on your country's project area) regarding the bioeconomy? Please specify in the description if the framework policy addresses the material or energetic use of biomass. Pay specific attention to the WP4 value-chains for straw, sugar, wood and food waste. Please provide references (using footnotes).

Copy the template as many times as you want to fill it in:

<b>Name of the framework</b>	European Union Strategy for the Baltic Sea Region (EUSBSR)
<b>Author of the framework</b>	
<b>Scope of the framework</b>	
<b>Description:</b>	

8. Specify whether the framework policy measure is helpful in advancing the bioeconomy or if it is detrimental to its positive development. Finally, outline specific suggestions for improvement for each framework policy measure. Please provide references to support your opinion (using footnotes).

Add as many rows to the table as you want to fill in.

- 1=very helpful
- 2=rather helpful
- 3=neither nor
- 4=rather detrimental
- 5=very detrimental

Framework policy measure	Scale 1-5	Suggestions for improvement

## II. Survey questions

### Assessment of National Legal and Administrative Bioeconomy Related Frameworks

#### Interviews

#### -COUNTRY NAME-

##### **Preliminary Notes**

**A6.5** states that, “All PPs will interview a minimum of five decision makers, policy or legal stakeholders, by utilising an interview guideline prepared by FNR” (p. 25, Project Proposal).

Since A6.5 contributes to D6.2, “Regulatory Frameworks and Changes to Support Transition to a cross-border Sustainable Bioeconomy”, the interview should aim to generate statements and assessments from experts regarding national, legal and administrative bioeconomy related frameworks. Before you start the interviews, the relevant desk research on the national legal framework conditions should have already been carried out, with a preliminary draft version ready to be presented. The interviews are intended to check the results of your own assessment with the stakeholders.

The proposal does not specify at which level (municipal, regional, national) the interview partners need to be active. Therefore, the goal is not to exclusively aim for high-level interview partners. The goal is to carry out the interviews with the most relevant national/regional regulatory authorities as well as authorities without regulatory competencies, which you identified during your own assessment of the National Legal Frameworks. You may also reach out to bioeconomy associations, regional/municipal politicians active in related bioeconomy policy areas, within their respective constituencies within your country. At best, cover all relevant levels that are applicable to your region and clearly identify the level your interview partners focus on.

##### **Guidelines for the Interview**

You may conduct the interviews yourself in person, on the phone or via an online phone conference tool. We recommend carrying out the interviews with two people, one conducting the interview and the other one taking notes. In any case, the interviews should be recorded. It is not mandatory to transcribe the whole interview though but the recording can be used to refresh your memories. In order to better determine certain important elements of the interview on the recording, the person taking minutes should note down exact times in which a new thematic section of the interview is started (e.g. whenever you read out a main question). We also recommend to add a quick note of time in the case that the interviewer touches on topics of your own interest. That makes evaluation/interpretation of the interview much easier.

Please limit your interviews to a maximum of 30 minutes.

Basic information may be clarified in writing beforehand. Including name of the interviewee, affiliation, position, etc.

Interviews can only be conducted with the informed consent of the interviewee (EU GDPR). You can find the corresponding template in the same e-mail as this document.

### **What kind of information do we need?**

We want to capture the different opinions currently in place in regard to the legal and political situation of each country/region related to the bioeconomy, in order to find realistic suggestions for improvement. Please focus your interviews on issues you identified during your own assessment. However, interviewees should also have room to provide new ideas/aspects which you might have missed.

For example: Pick one of the laws regarding the bioeconomy (question number four of the Legal Frameworks Guideline) and discuss if it is helpful in advancing the bioeconomy as well as your ideas for improvement with the interviewee. You may proceed like this with some more examples of laws / policy activities, depending on how detailed you discuss each one, but at least one legal and one political issue should be discussed.

### **Questions:**

- If you could change three things directly about the current legal and administrative framework conditions in COUNTRY / REGION to benefit the bioeconomy, what would those be?
- What is your / your institution's position on law A/ policy B? (repeat with several)
- What improvements would you suggest for law A / policy B to enhance the bioeconomy further? (repeat with several)
- Are you aware of any cross-border policy measures to enhance the bioeconomy in your country/region? If so, what is your / your institution's position on the matter?
- What policy measure could improve cross-border cooperation with neighbouring countries on the subject of the bioeconomy?

The questions above should be regarded as a “main structure” of the interview, and should be asked in every interview. Depending on the answers of the interviewee, you are free to ask additional questions to get deeper into the subject. However please keep in mind that interviews should not exceed 30min.

### III. National Laws and Regulations

#### Sweden

Table 19: List of national laws and regulations and their relevance to bioeconomy in Sweden.

SECTOR	NAME OF LAW	AUTHOR OF THE LAW	SCOPE OF THE LAW	RELEVANCE TO BIOECONOMY
<b>BIOMASS PRODUCTION</b>  <b>EVALUATION THROUGH DESK STUDY:</b>	Law on the Management of Agricultural Land (1979:425) <sup>98</sup>  Existing arable land can be utilised more efficient. Revision of regulations regarding the financial support measures in agriculture with respect to the use of crops and crop residues originating from measures such as cover cropping and ecological focus area cropping/greening Biofuels produced from agricultural biomass does not automatically mean higher prices on food or displaced production, this insight must be spread. Long-term strategies and goals including taxes, subsidies and incentives. It is time to put the long-term strategies into action. <sup>99</sup>	Ministry of Enterprise and Innovation	Management of agricultural land.	The use of arable land and cultivated pasture (agricultural land) must meet some minimum standards. Agricultural land, which is suitable for agricultural production regarding location, nature and other conditions will thus be used so that the production capacity of the land is utilised in an appropriate manner.
<b>BIOMASS PRODUCTION</b>	Forestry Act (1979:429) <sup>100</sup>	Ministry of Enterprise and Innovation	Expresses the demands that society has on forest owners.	In the current forest management act, equal importance is attached to the two forest policy objectives: production and the environment. The law states that the forest is a renewable resource that must be managed so that it consistently produces a good return. At the same time nature, the cultural environment, the reindeer industry and other interests should be considered. Harvest of logging residues from the forest is regulated in the forestry legislation with associated regulations. According to the legislation, the methods used should not impact noticeably on biological diversity, cultural remains, or the long-term

<sup>98</sup> Sveriges Riksdag. Lag (1979:425) om skötsel av jordbruksmark. URL: [https://riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-1979425-om-skotsel-av-jordbruksmark\\_sfs-1979-425](https://riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-1979425-om-skotsel-av-jordbruksmark_sfs-1979-425). Last viewed: 2020-06-05.

<sup>99</sup> Mat eller motor. URL: <https://www.macklean.se/insikter>. Last viewed: 2020-06-05.

<sup>100</sup> SKOGSSTYRELSEN. Skogsvårdslagen. URL: <https://www.skogsstyrelsen.se/lag-och-tillsyn/skogsvardslagen/>. Last viewed: 2020-06-05.



	nutritional balance and acid/base status of the soil negatively.		
INTERVIEW RESPONSE:	Beneficial for the bioeconomy and assures export of sustainable products. [Swedish Forest Agency]		
BIOMASS PRODUCTION	Law (1998:811) about the Implementation of the Swedish Environmental Code <sup>101</sup>	Ministry of Environment	Implementation of the Swedish environmental code.  The purpose of the Swedish environmental code is to promote sustainable development. More detailed rules can be found in the environmental regulations. Several other laws also include inscribed links to the Environmental Code.
BIOMASS PROCESSING / BIOREFINERY	Law (2010:598) on Sustainability Criteria for Biofuels and Liquid Biofuels <sup>102</sup>	Ministry of Infrastructure	Sustainability criteria for biofuels and liquid biofuels.  The purpose of the sustainability criteria is that the production and use of biofuels and liquid biofuels should contribute to reduced greenhouse gas emissions and that the production of raw material takes place without threatening valuable nature areas.
EVALUATION THROUGH DESK STUDY	The Law includes social aspects and wider environmental IMPACT; ecosystem services in future sustainability criteria. Research and development on methods is ongoing.		
INTERVIEW RESPONSE:	Around 80% of the biofuels utilised in Sweden today are imported from outside the EU. Although biofuels imported to the EU have to have a certificate proving that they have been produced in compliance with certain requirements, fulfilment of these regulations are seldom checked and no proper control points exist where this is examined. The regulation that max. 7% from food crops can be used for the biofuel production gives great restrictions on what can be grown on the arable land in Sweden. There are large areas of set-aside land that could be used for cultivation of biomass for both food, feed and fuel. Also, the forestry side in Sweden has been critical towards the law on sustainability criteria due to the risk of detailed control that can hamper production. [Lantmännen, LRF]		

<sup>101</sup> Sveriges Riksdag. Lag (1998:811) om införande av miljöbalken. URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-1998811-om-inforande-av-miljobalken\\_sfs-1998-811](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-1998811-om-inforande-av-miljobalken_sfs-1998-811). Last viewed: 2020-06-05.

<sup>102</sup> Sveriges Riksdag. Lag (2010:598) om hållbarhetskriterier för biodrivmedel och flytande biobränslen. URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2010598-om-hallbarhetskriterier-for\\_sfs-2010-598](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2010598-om-hallbarhetskriterier-for_sfs-2010-598). Last viewed: 2020-06-05.

<b>BIOMASS PROCESSING / BIOREFINERY</b>	Reach Directive <sup>103</sup>	Swedish Chemicals Agency	Rules on registration of substances, prohibitions or other restrictions on substances, requirements on permits for particularly dangerous substances and rules on informing customers.	Manufacturers, importers or selling of goods and chemical products in the EU / EEA need to follow the rules that apply to that specific business. The regulation also contains rules that the users of chemical products must adhere to.
<b>BIOMASS PROCESSING / BIOREFINERY</b>	Food Law (2006:804) <sup>104</sup>	Ministry of Enterprise and Innovation	To ensure a high level of protection for human health and for the interests of consumers in relation to food.	The law applies to all stages of the food production, processing and distribution chain. This law applies to all production of food and regulates food safety issues. This is specifically important for novel food production processes as applied in biorefinery processes.
<b>END OF LIFE / CASCADING</b>	Waste Directive (2011:927) <sup>105</sup>	Ministry of Environment	Contains regulations on waste and the management of waste.	The Waste Directive contains information on how to handle waste, defining general waste codes with which all waste is classified, defining properties that are used to classify waste as hazardous and regulations for transporting waste.
<b>END OF LIFE / CASCADING</b>	Law on Feed and By-products from Animals <sup>106</sup>	Ministry of Enterprise and Innovation	To ensure a high level of protection of animal and human health when it comes to feed and animal by-products.	It applies on all stages from the primary production of feed to the placing of feed on the market or animal feeding. It also applies to locations of origin for animal by-products and products.
<b>INTERVIEW RESPONSE:</b>	The utilisation of animal by-products can be improved. One idea could be to split up the animal by-products in different and new categories of which only specific categories need to be heat-treated to a varying degree. This would reduce the cost. [LRF]			
<b>END OF LIFE / CASCADING</b>	Regulation (1998:944) on the Prohibition,	Ministry of Environment	Handling and prohibition of handling contaminated materials.	Regulates e.g. the limits of content of heavy metals and other contaminations in sewage sludge for sale and cascading of

<sup>103</sup> KEMI. Kort om Reach. Last update: 2020-11-30. URL: <https://www.kemi.se/lagar-och-regler/reach-forordningen/kort-om-reach>. Last viewed: 2021.01-25.

<sup>104</sup> Sveriges Riksdag. Lag (2006:804). URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/livsmedelslag-2006804\\_sfs-2006-804](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/livsmedelslag-2006804_sfs-2006-804). Last viewed: 2020-06-05.

<sup>105</sup> Sveriges Riksdag. Avfallsförordning (2011:927). URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/avfallsforordning-2011927\\_sfs-2011-927](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/avfallsforordning-2011927_sfs-2011-927). Last viewed: 2020-06-05.

<sup>106</sup> Sveriges Riksdag. Lag (2006:805) om foder och animaliska biprodukter. URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2006805-om-foder-och-animaliska\\_sfs-2006-805](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-2006805-om-foder-och-animaliska_sfs-2006-805). Last viewed: 2020-06-05.

	Import and Export of Chemical Products <sup>107</sup>			sewage sludge for agricultural purposes (§20). The Swedish Environmental Protection Agency can grant exemptions.
<b>MARKET SUPPORT</b>	Directive (2015: 517) on Support for Local Climate Investments (the Climate Step Directive) <sup>108</sup>	Ministry of Environment	State aid in the form of grants may be granted under this regulation for the purpose of reducing greenhouse gas emissions.	A directive for an investment aid for local and regional measures that reduce emissions of carbon dioxide and other gases that affect the climate. The invested funds should provide the greatest possible emission reduction per invested Swedish crown. Companies amongst others can be granted support. The calculation of emission reductions is one of the most important supporting documents in the application. Applicants should be able to show how the emissions would look both with and without investment support.
<b>MARKET SUPPORT</b>	Law on Energy Taxes <sup>109</sup>	Ministry of Finance	Regulates among others energy and carbon taxes on fuels.	Reduced energy and carbon taxes for renewable fuels are regulated in this law. Tax exemptions are an important measure to regulate renewable fuels on the Swedish market.
<b>MARKET SUPPORT</b>	Regulation on Governmental Support for the Production of Biogas used as Vehicle Fuel <sup>110</sup>	Ministry of Enterprise and Innovation	Rules for support of biogas production.	Production of biogas is subject to financial operational support managed by the Swedish Board of Agriculture. This is limited to biogas that is upgraded to vehicle fuel standards and used as such. The support is limited to remove the difference between production costs and market price.

<sup>107</sup> Sveriges Riksdag. Förordning (1998:944) om förbud m.m. i vissa fall i samband med hantering, införsel och utförsel av kemiska produkter. URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-1998944-om-forbud-mm-i-vissa-fall\\_sfs-1998-944](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-1998944-om-forbud-mm-i-vissa-fall_sfs-1998-944). Last viewed: 2020-06-05.

<sup>108</sup> Sveriges Riksdag. Förordning (2015:517) om stöd till lokala klimatinvesteringar. URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-2015517-om-stod-till-lokala\\_sfs-2015-517](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-2015517-om-stod-till-lokala_sfs-2015-517). Last viewed: 2020-06-05.

<sup>109</sup> Sveriges Riksdag. Lag (1994:1776) om skatt på energi. URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-19941776-om-skatt-pa-energi\\_sfs-1994-1776](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/lag-19941776-om-skatt-pa-energi_sfs-1994-1776). Last viewed: 2020-06-05.

<sup>110</sup> Sveriges Riksdag. Förordning (2018:1501) om statligt stöd till produktion av biogas som ska användas som biodrivmedel. URL: [https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-20181501-om-statligt-stod-till\\_sfs-2018-1501](https://www.riksdagen.se/sv/dokument-lagar/dokument/svensk-forfattningssamling/forordning-20181501-om-statligt-stod-till_sfs-2018-1501). Last viewed: 2020-06-05.

## Denmark

Table 20: List of national laws and regulations and their relevance to bioeconomy in Denmark.

SECTOR	NAME OF LAW	AUTHOR OF THE LAW	SCOPE OF THE LAW	RELEVANCE TO BIOECONOMY
<b>GENERAL</b>	Danish Environmental Protection Act (LBK nr 1218 af 25/11/2019) <sup>111</sup>	Ministry of Food, Agriculture and Fisheries and the Ministry of Environment	The environmental protection act is the overall Danish regulatory framework for air, water, waste etc. in relation to pollution, resource efficiency, best available technology (BAT) etc.	The law regulates aspects of the bioeconomy under waste management, pollution (BAT) and many other areas connected to the preservation of nature and sustainable utilization of biobased resources.
<b>END OF LIFE/CASCADING</b>	Executive order on the use of waste for agricultural purposes (BEK nr 1001 af 27/06/2018) <sup>112</sup>	The administrative authority is the Environmental Protection Agency (EPA)	Regulates the utilisation possibilities of biowaste for agricultural use.	Specifies and defines biological resources as biowaste eligible for treatment in accordance with the regulation. Sets and monitors limit values for environmentally harmful substances in biowaste and regulates the utilisation possibilities in accordance with measured values. Limit values are set and monitored for heavy metals, pollutants and physical impurities. Defines hygienisation procedures for biowaste and utilisation possibilities in accordance with the procedures.
<b>INTERVIEW RESPONSE:</b>	<p>The juridical framework and related interpretations of product-categories is thereby less adapted to new (industrial) biological resources for biogas and subsequent circulation. It is sometimes conflicting municipal interpretations of what can (and cannot) be defined as eligible. This increases administrative time and related costs, when handling biological resources for biogas. Especially if biological resources are collected in one municipality, treated in a second municipality, and circulated in a third municipality.</p> <p>The sampling method and sampling rate is designed to continuous and large flows of homogeneous biological resources and thereby to a less extend seasonal by-products and residuals of smaller amounts and heterogeneity. The willingness to supply the latter as input for biogas-plants thereby decreases, as the sampling costs tend to be too high for suppliers (compared to expected revenues). Subsequently, biological resources are diverted to incineration (loss of nutrients), wastewater treatment or composting processes (lower resource efficiency). [Solrød Biogas, Bigadan A/S]</p>			

<sup>111</sup> The Environmental Protection Act: <https://www.retsinformation.dk/eli/lta/2019/1218>. Last viewed: 2021-02-01.

<sup>112</sup> Executive order on waste for agricultural purposes: <https://www.retsinformation.dk/eli/lta/2018/1001>. Last viewed: 2021-02-01.

## Germany

Table 21: List of national laws and regulations and their relevance to bioeconomy in Germany

SECTOR	NAME OF LAW	AUTHOR OF THE LAW	SCOPE OF THE LAW	RELEVANCE TO BIOECONOMY
<b>BIOMASS PRODUCTION</b>	Law on Nature Conservation and Landscape Management; 14 Interventions in Nature and Landscape <sup>113</sup>	Federal Ministry of Justice and Consumer Protection and the Federal Office of Justice	German law on land use versus nature protection.	Land use in agriculture, forestry and fisheries is not to be regarded as an intervention, provided, that the objectives of nature conservation and landscape management are taken into account. Proper agricultural land use is excluded from the intervention and compensation scheme. Since paludicultures are understood as agricultural use, they are not covered by the intervention and compensation scheme, provided, that good practice is followed.
<b>EVALUATION THROUGH DESK STUDY</b>	Agricultural and forestry land use is not considered to be an interference (paragraph 2), provided that good technical practice is respected. This is defined in § 5 paragraphs 2 to 4 and secures the bioeconomy-relevant aspect of sustainable land use. Only if soils are managed sustainably do they offer the long-term opportunity to produce renewable raw materials and thus generate yields. <sup>114</sup>			
<b>BIOMASS PRODUCTION</b>	Law on Permanent Greenland Conservation <sup>115</sup>	Federal state parliament	MV. Land use versus nature protection.	Regulations for the sustainable prevention of the upheaval of permanent grassland, preservation of permanent grassland for the purpose of climate, nature, soil and water protection.
<b>EVALUATION THROUGH DESK STUDY:</b>	The restrictions laid down in the law for a flat-rate permit for re-seeding following re-seeding are too general. Citing the production of "efficient" grassland, the cultivation of highly intensive, but extremely species-poor silo grasslands could also be justified with a three to four-year cycle of upheaval/re-acidification (according to NABU). This would run counter to the objectives of the law. <sup>116</sup> On the other hand, greenland is a big chance for bioeconomy and should be pushed, as there are many possible uses, as for bioenergy or carbonisation.			

<sup>113</sup> „Gesetz über Naturschutz und Landschaftspflege (Bundesnaturschutzgesetz - BNatSchG) § 14 Eingriffe in Natur und Landschaft.“ URL: [https://www.gesetze-im-internet.de/bnatschg\\_2009/\\_\\_\\_14.html](https://www.gesetze-im-internet.de/bnatschg_2009/___14.html). Last viewed: 2020-08-25.

<sup>114</sup> Bundesministerium der Justiz und für Verbraucherschutz: Gesetz über Naturschutz und Landschaftspflege. URL: [http://www.gesetze-im-internet.de/bnatschg\\_2009/\\_\\_\\_5.html](http://www.gesetze-im-internet.de/bnatschg_2009/___5.html). Last view: 2020-08-07.

<sup>115</sup> Dienstleistungsportal (2017-06-29). Mecklenburg-Vorpommern. URL: [www.landesrecht-mv.de/jportal/portal/page/bsmvprod.psm1?nid=2&showdoccase=1&doc.id=jlr-DGr%C3%BCnErhGMVV3P1](http://www.landesrecht-mv.de/jportal/portal/page/bsmvprod.psm1?nid=2&showdoccase=1&doc.id=jlr-DGr%C3%BCnErhGMVV3P1). Last viewed: 2021-06-18.

<sup>116</sup> GVOBl. M-V 2012, S. 544. Gesetz zur Erhaltung von Dauergrünland im Land Mecklenburg-Vorpommern. URL: <http://www.landesrecht-mv.de/jportal/portal/page/bsmvprod.psm1?showdoccase=1&doc.id=jlr-DGr%C3%BCnErhGMVrahmen&doc.part=X&doc.origin=bs&st=lr>. Last viewed: 2020-05-20.

<b>INTERVIEW RESPONSE:</b>	<p>The law is very important for nature conservation reasons, but not beneficial for agriculture, since permanent grassland cannot be used as arable land. Thus, there is a lack of arable land. If livestock use declines (lower milk demand, increased vegan lifestyle), the farmer needs an alternative use for his green area. Farmers' nature protection services are not adequately rewarded.</p> <p>The same applies more or less to the Federal Nature Conservation Act – BNatSchG; Law on Nature Conservation and Landscape Care; § 14 Interferences in Nature and Landscape.</p> <p>Increase financial reward [LFA]</p>			
<b>BIOMASS PRODUCTION</b>	National Forest Act <sup>117</sup>	Ministry of Food and Agriculture, Forestry Authorities of the Federal States	Germany. Forest owners (state and private). Consequent material and energetic use.	This act was created to promote forestry, the sustainable use of forest resources and to outline the importance of forest ecosystems for the whole society. Material use.
<b>EVALUATION THROUGH DESK STUDY:</b>	Establishes the necessary framework conditions to ensure sustainable forest management. This secures long-term availability of woody biomass.			
<b>INTERVIEW RESPONSE:</b>	Prevents the loss of agricultural land. Short rotation plantations have been converted into arable land, which was then cleared for forestry use and will no longer be arable land. This is of great loss for farmers. The Federal Forestry Act has amended this, so that the planning security for farmers remains. [LFA]			
<b>BIOMASS PRODUCTION</b>	Guideline for the Cutting of Reed in Reed Beds <sup>118</sup>	Ministry of Agriculture and Environment Mecklenburg-Vorpommern	MV. Mowing of reed (Phragmites australis) in reed beds, including the subsequent work such as the removal of the mowed material (bundles), the removal of the combing residues, etc.	The mowing of the reed outside of protected areas remains permitted, despite the legal protection, as long as it is carried out in a manner compatible with nature conservation and does not lead to the destruction or lasting or considerable impairment of the biotope as habitat for specific species.
<b>INTERVIEW RESPONSE:</b>	Paludian crops: reeds and bulrushes are not on the „positive-list“ of eligible species, therefore the farmer will no longer receive financial support. Once the farmer loses the right to receive support, it cannot be obtained again. Therefore, this regulation constitutes an obstacle when receiving financial support. [LFA, MLU]			

<sup>117</sup> S2BIOM. Factsheet: National Forest Act (BWaldG). URL: <https://s2biom.vito.be/node/941>. Last viewed: 2020-05-18.

<sup>118</sup> AmtsBl. M-V 2000 S. 1175. Richtlinie zur Mahd von Schilfrohr in Röhrichten (Rohrwerbung). Bekanntmachung des Umweltministeriums. Vom 21. August 2000 - X 210-1 5326.61–  
<http://www.landesrecht-mv.de/jportal/portal/page/bsmvprod.psml;jsessionid=23FDBCFA853C777EA04F7B1038005647.jp25?doc.id=VVMV-VVMV000000057&st=vv&showdoccase=1&paramfromHL=true>. Last viewed: 2020-05-20.

<p><b>BIOMASS PROCESSING / BIOREFINERY</b></p> <p><b>EVALUATION THROUGH DESK STUDY:</b></p>	<p>Ordinance on the Generation of Electricity from Biomass <sup>119</sup> <sup>120</sup></p> <p>Federal Ministry for the Environment, Nature Conservation and Nuclear Safety</p> <p>Nationwide definition of allowed biomass and technical requirements for energy production from biomass; energetic use.</p> <p>For the scope of application of the EEG, the Biomass Ordinance regulates, which substances are classed as biomass, the substances for which an additional substance-based tariff may be claimed, which energy-related reference values are to be used to calculate this tariff and how the substance-based tariff is to be calculated. Furthermore, which technical procedures for electricity generation from biomass fall within the scope of application of the act and which environmental requirements must be met, in generating electricity from biomass.</p> <p>It defines the eligible biomass for the Renewable Energy Sources Act (EEG). Biomass recognised and not recognised under the EEG is designated last. In addition, technical processes/type of plant for the generation of electricity from biomass and environmental requirements to be complied with are regulated. With the elimination of the EEG-regulated Bonuses (and thus the abolition of a differentiated remuneration according to the type and origin of the biomass) from the amendment EEG 2012 onwards, the Biomass Ordinance has become less important for a new commissioning of EEG biomass plants.</p>
<p><b>BIOMASS PROCESSING / BIOREFINERY</b></p> <p><b>EVALUATION THROUGH DESK STUDY:</b></p> <p><b>INTERVIEW RESPONSE:</b></p>	<p>Fertilizer Legislation <sup>121</sup></p> <p>Federal Ministry of Justice and Consumer Protection and the Federal Office of Justice</p> <p>Application of fertilisers, soil additives, growing media and plant additives; material use in Germany.</p> <p>The legislation provides information for the exact application of fertilisers, soil additives, growing media and plant auxiliaries in order to regulate the nitrogen and phosphorus content in the soil and to protect the soil and water quality as well as environment and human health.</p> <p>Fertilizer legislation can create new markets for by-products of bioenergy processes such as anaerobic digestion, but it can also limit those markets if the substrate is not approved as fertilizer. Legislation can also make the production of agricultural commodities more expensive (because of reduced yields) or make the production of specific qualities challenging (e.g. cereal production with high protein content of the corn). Enforcement of fertilizer legislation ensures that agricultural production is more sustainable, thus responding to one common criticism.</p> <p>There is a need for different framework conditions. However, it is difficult to meet all demands, so a revision of the DüV will be very complex. Example: From the point of view of food security and income security, high regional livestock numbers have been created, leading to a high level</p>

<sup>119</sup> "Biomasseverordnung vom 21. Juni 2001 (BGBl. I S. 1234), die zuletzt durch Artikel 8 des Gesetzes vom 13. Oktober 2016 (BGBl. I S. 2258) geändert worden ist. URL: <http://www.gesetze-im-internet.de/biomassev/BiomasseV.pdf>. Last viewed: 2020-05-20.

<sup>120</sup> S2BIOM. Factsheet: Ordinance on Electricity from Biomass (BiomasseV). URL: <https://s2biom.vito.be/node/923>. Last viewed: 2020-05-18.

<sup>121</sup> Düngeverordnung vom 26. Mai 2017 (BGBl. I S. 1305), die durch Artikel 1 der Verordnung vom 28. April 2020 (BGBl. I S. 846) geändert worden ist. [https://www.gesetze-im-internet.de/d\\_v\\_2017/D%C3%BCV.pdf](https://www.gesetze-im-internet.de/d_v_2017/D%C3%BCV.pdf). Last viewed: 2020-05-18.

	<p>of economic fertilizer demand. If you decrease livestock numbers in order to implement the DüV, it will result in income loss. A reduction in the use of fertilizer is good for nature conservation, but</p> <ul style="list-style-type: none"> <li>• Law-obeying Farmers are punished for mistakes made by others</li> <li>• Economic losses on farms must be compensated for by aid, otherwise it will lead to massive income losses and bankruptcy of many farms.</li> </ul> <p>So far, the aid has not been sufficient to guarantee stable economic viability for farmers. Whether and how the aid should be extended still needs to be clarified [LFA]</p> <p>Adjustment needed. On the one hand due to the cultivation of corn for biogas production. Increased corn cultivation is harmful to the soil, as water and nutrients cannot be absorbed in heavy rain and are therefore absorbed from the soil. However, one has to be careful to prevent the creation of an optimisation loop, where the administrative process can no longer be controlled. Very Long discussions about the approaches to improvement should also be avoided [Stalu].</p>		
<p><b>END OF LIFE / CASCADING</b></p> <p><b>EVALUATION THROUGH DESK STUDY:</b></p>	<p>Regulation on Requirements for Recovery and Disposal of Waste Wood <sup>122</sup></p>	<p>Ministry for the Environment, Nature Conservation, Building and Nuclear Safety</p> <p>Regulates recovery and disposal of waste wood; energetic as well as material use.</p>	<p>The Ordinance lays down criteria for used wood intended for the manufacture of wood-based panels. In addition to the limit values for potential pollutants, a visual control for the quality of the material is foreseen. Thresholds for the use of waste wood as raw material for the manufacturing of panels. Limit values for potential pollutants.</p> <p>This regulation promotes the recovery of waste wood and focuses on the elimination of pollutants from the economic cycle. The regulation is currently undergoing revision. It is anticipated that the five-tier EU waste hierarchy will be implement, that material recovery, recycling and reuse of wood will be prioritised over energetic use und that there will be improvements according to the current state-of-the-art technology with regards to collecting, sorting and sampling for analysis of used wood.</p>
<p><b>END OF LIFE / CASCADING</b></p>	<p>Circular Economy Act <sup>123</sup></p>	<p>Ministry for the Environment, Nature Conservation, Building and Nuclear Safety</p> <p>Central federal law of German waste legislation; energetic as well as material use.</p>	<p>Promoting the circular economy and safeguard the environmentally compatible management of waste.</p> <p>This law promotes waste avoidance (e.g. less packaging material, instead of one-way reusable packaging, recycling of packaging material). Raw materials are thus kept in circulation for as long as possible and managed sustainably in order to conserve resources and protect the environment. Federal law is supplemented by the waste legislation of the respective federal states, which usually have their own waste laws with</p>

<sup>122</sup> S2BIOM. Factsheet: Regulation on recovery and disposal of wood waste. URL: <https://s2biom.vito.be/node/937>. Last viewed: 2020-05-18.

<sup>123</sup> BMU. Kreislaufwirtschaftsgesetz. (2012-02-24). URL: [https://www.bmu.de/fileadmin/Daten\\_BMU/Download\\_PDF/Abfallwirtschaft/kreislaufwirtschaftsgesetz\\_en\\_bf.pdf](https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Abfallwirtschaft/kreislaufwirtschaftsgesetz_en_bf.pdf). Last viewed: 2020-05-18.



<p><b>INTERVIEW RESPONSES:</b></p>	<p>supplementary provisions as well as other legal ordinances and administrative regulations. Efforts should be made to ensure that all federal states have similar laws on waste recycling. For example, waste separation is still handled quite differently in the various states.</p> <p>The law is necessary in every aspect, especially regarding the disposal of sewage sludge and ashes. [LFA]</p> <p>The recycling of waste is not defined specifically enough. It is difficult to identify when waste can become a product again. No investment is made in special processes because the products from the previous waste cannot enter the market. More space for innovative processes of materials, which are still referred to as waste, is needed. [DBFZ]</p> <p>It is a good thing that sewage sludge can no longer be spread onto the fields, but that it is now taken to incineration plants and used for energy production. [Stalu]</p> <p>In terms of waste law, the municipalities are not always clear about how to deal with the marine waste. As long as it is on the beach, it is a part of nature. However, if the material is collected for disposal, it is waste that must be treated in accordance with waste disposal law. Or it can be recycled - in which case it is again not waste, but an economic good. But the dividing line is very difficult to determine. [Hanseatische Umwelt CAM]</p>		
<p><b>MARKET SUPPORT</b></p>	<p>Biofuel Quota Act <sup>124</sup></p>	<p>Customs - Biofuel Quota Authority</p>	<p>Regulates a minimum blending for biofuels into automobile fuels; energetic use in Germany.</p> <p>The main means of support for renewable energy sources used in transport is a quota obligation. The mechanism obliges companies importing or producing petrol, gas or diesel fuels to ensure that biofuels make up a defined percentage of the company's total annual sale of fuel as set out in the Biofuel Quota Act. Obligated fuel suppliers may assign this obligation to other companies. In 2009, an Amendment Act was adopted to amend parts of the Biofuel Quota Act and the Emission Control Act. The act amends the quota set on the minimum blending of biofuels and stipulates a climate protection quota for the reduction of greenhouse gas in the transport sector to be put in place in 2015.</p> <p>The biofuels quota act was set into force in January 2007 and set quantitative targets for biofuels in the transport sector, 1st in terms of energy content and then, since 2015, in terms of Greenhouse Gas reduction. It has been very successful in ensuring that the corresponding amounts of biofuels were used in the German market. The 2015 amendment incentivises those fuels with the highest GHG reduction. Although Germany wanted to set an example, very few European countries followed this approach, thus leading to market distortion in the biofuels sector. There is a criticism that waste and residue based biofuels are over-incentivised, on the other hand "advanced" biofuels, not yet fully commercialised, do not obtain</p>
<p><b>EVALUATION THROUGH DESK STUDY:</b></p>			

<sup>124</sup> S2BIOM. Factsheet: Biofuel Quota Act. URL: <https://s2biom.vito.be/node/930>. Last viewed: 2020-05-18.

<p><b>INTERVIEW RESPONSE:</b></p>	<p>sufficient support to become economically viable. Therefore, the Biofuel Quota Act is not sufficient to facilitate their market rollout. Subquotas for advanced biofuels could address this issue.</p> <p>Objective: Reduction of greenhouse gas emissions, expires in 2020. However, no ideas or approaches for the future of the common agricultural policy (GAP) for biofuels have been formulated or developed yet. The sustainability of biofuels has increased without the farmer having changed anything in his or her production, but through the sustainability declarations. The introduction of the rapeseed values made the biofuel more sustainable, but the facts were obscured since the calculation bases were changed, but not the causes. Due to economic contracts, we have also changed the definition of biofuels. With Indonesia's trade (we buy their palm oil biofuels – they buy our cars) the biological motives are destroyed again. Palm oil biofuel has no place in Germany, as it does not grow here.</p> <p>Likewise, rainforests are destroyed in Indonesia for the cultivation of palm oil. The European solution is the cultivation of rapeseed, the waste product of which can be used as feedstock in the production of biofuels. [LFA]</p>
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## Poland

Table 22: List of national laws and regulations and their relevance to bioeconomy in Poland.

SECTOR	NAME OF LAW	AUTHOR OF THE LAW	SCOPE OF THE LAW	RELEVANCE TO BIOECONOMY
<b>BIOMASS PRODUCTION</b>	Act on Renewable Energy Sources <sup>125</sup>	Polish Parliament	The purpose of the act is to provide a guarantee of sustainable economic development while at the same time increasing energy security and environmental protection, as well as a holistic attempt regulation of the renewable energy sector.	The Act defines different types of biomass along with a specification of the places where it is produced and describes possible ways of its utilisation.
<b>BIOMASS PROCESSING / BIOREFINERY</b>	Act on Biocomponents and Liquid Biofuels <sup>126</sup>	Polish Parliament	Aims to introduce provisions enabling obliged entities to implement the National Indicative Target (NCW) and to make the scope of obligations related to the implementation of the NCW more realistic in the coming years.	The Act sets out, inter alia, the rules for conducting business activities in the field of producing biocomponents; conducting business activities in the field of import or intra-community acquisition of biocomponents; the production of liquid biofuels for farmers for their use; conducting business activities in the scope of marketing biocomponents and liquid biofuels, as well as defining and implementing the National Indicative Target; confirming compliance with sustainability criteria.
<b>END OF LIFE / CASCADING</b>	The Waste Act <sup>127</sup>	Polish Parliament	Measures to protect environment, human life, and health, which prevent and reduce the negative impact on environment and human health resulting from the waste generation and management, and limit the overall effects of resource use and improve the efficiency of such use.	The Waste Act specifies what biowaste is and what waste is included in it. The Act also determines the obligation to segregate biowaste for further use.

<sup>125</sup> Kancelaria Sejmu. Dz. U. 2015 poz. 478. U S T AWA. z dnia 20 lutego 2015 r. o odnawialnych źródłach energii (2021-01-15). URL: <http://prawo.sejm.gov.pl/isap.nsf/download.xsp/WDU20150000478/U/D20150478Lj.pdf>. Last viewed: 2021-01-25.

<sup>126</sup> Kancelaria Sejmu. U S T AWA z dnia 25 sierpnia 2006 r. o biokomponentach i biopaliwach ciekłych (2020-03-18). URL: <http://prawo.sejm.gov.pl/isap.nsf/download.xsp/WDU20190001155/U/D20191155Lj.pdf>. Last viewed: 2021-01-25.

<sup>127</sup> Kancelaria Sejmu. Dz. U. 2013 poz. 21 U S T AWA z dnia 14 grudnia 2012 r. o odpadach (2021-01-15). URL: <http://prawo.sejm.gov.pl/isap.nsf/download.xsp/WDU20130000021/U/D20130021Lj.pdf>. Last viewed: 2021-01-25.

<b>EVALUATION THROUGH DESK STUDY</b>	In the Waste Act, only the definition of biowaste is clarified, no detailed division is made, for example, residues, leftovers, etc., which could be relevant in determining the method for further management of this waste.			
<b>MARKET SUPPORT</b>	Green Public Procurement <sup>128</sup>	Public Procurement Office	Regulation based on the national act: Public Procurement Law.	Green Public Procurement is a process by which public institutions seek to obtain goods, services and works whose environmental impact during their life cycle is smaller compared to goods, services and works of identical purpose that would be ordered otherwise.
<b>EVALUATION THROUGH DESK STUDY:</b>	Expanding contractors' knowledge of environmental problems that can be addressed in public procurement, and providing technologies and services that will help them integrate environmental considerations into their proceedings.			
<b>MARKET SUPPORT</b>	Energy efficiency certificates (White Certificates) <sup>129</sup>	Energy Regulatory Office	Certificate system based on the Energy Efficiency Act – these are property rights.	This system allows receiving additional funds for modernisation to improve energy efficiency resulting in energy saving. Any entity can benefit from this support, provided it meets the conditions set out in the Energy Efficiency Act, carries out an energy efficiency audit, and passes the assessment of the application by the President of the Energy Regulatory Office (ERO). These certificates are dedicated to the energy use of biomass.
<b>EVALUATION THROUGH DESK STUDY</b>	The real deadline for obtaining the certificate is much longer than the statutory deadline. <sup>130</sup>			

<sup>128</sup> Urząd Zamówień Publicznych. Zielone zamówienia. URL: <https://www.uzp.gov.pl/baza-wiedzy/zrownowazone-zamowienia-publiczne/zielone-zamowienia>. Last viewed: 2021-01-25.

<sup>129</sup> IEA. White Certificates (2020-09-14). URL: White Certificates – Policies - IEA. Last viewed: 2021-01-25.

<sup>130</sup> Katarzyna Zamorowska (2020-04-23). Czekając na Godot, czyli ogromne opóźnienia URE w rozpatrywaniu wniosków o białe certyfikaty. Teraz środowisko. URL: <https://www.teraz-srodowisko.pl/aktualnosci/URE-opoznienia-biale-certyfikaty-efektywnosc-energetyczna-apel-8584.html>. Last viewed: 2021-01-25.

## IV. Summary of EU Laws and regulations

Table 23: List of EU laws and regulations and their role in bioeconomy.

	NAME OF THE LAW	AUTHOR OF THE LAW	SCOPE OF THE LAW
GENERAL	Regulation (EC) No 1907/2006 Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)	European Parliament and Council	Regulation of the EU to improve the protection of human health and the environment of risks arising from chemicals while enhancing the competitiveness of the EU chemicals industry
	European Union Strategy for the Baltic Sea Region (EUSBSR)	European Parliament and Commission	A programme which supports integrated territorial development and cooperation for a more innovative, better accessible and sustainable Baltic Sea region
	Regulation (EU) No 1307/2013	European Parliament and Council	EU, Green Direct Payments (Greening) to farmers; correct and ecological management of agricultural land
	CAP Common Agricultural Policy	European Parliament	System of agricultural subsidies and other programmes in the EU
	The European Green Deal (COM(2019) 640 final)	European Commission	EU wide. It is a new growth strategy that aims to transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use.
	Clean Energy for all - European Package	European Commission	To facilitate transition from fossil fuels towards cleaner energy. RED II is part of the package. All member states are required to prepare National Energy and Climate Action Plans (NECPs) for 2021-2030 to outline how they will meet 2030 targets for renewable energy and energy efficiency.
BIOMASS PRODUCTION	EU Timber Regulation (Reg. 995/2010)	DG Environment	EU wide. Prevent illegally harvested timber products in EU markets.
	FLEGT (Forest Law Enforcement, Governance and Trade)	European Commission	The Action Plan from 2003 objective is the reduction of “illegal logging by strengthening the sustainability and legality of forest management, improving forest governance and promoting trade in legally produced timber” <sup>131</sup>
	Forest Strategy (COM(2013)659)	DG Agriculture and Rural Development	EU wide. Regulate forest protection and forest management.
	EU 2020 Biodiversity Strategy (COM/2020/380 final)	European Commission	EU wide. To support the conservation of biodiversity and their national habitat through land designations, to minimise the ecological costs of biomass harvesting and maintain the balance in the ecosystem services

<sup>131</sup> FLEGT.org

	Renewable Energy directive (2009/28/EC) and (revised(EU) 2018/2001)	European Commission	EU wide. Overall policy for the production and promotion of energy from renewable sources. Requires EU to fulfil at least 32% of its total energy by 2030. It sets out a biofuels sustainability criteria for biofuel, bioliquids and biomass, for all biofuels produced or consumed in the EU to ensure their sustainably and environmentally friendly production. (ILUC Directive 2018/2001 certification for low and high ILUC for biofuel production)
BIOMASS PROCESSING/BIOREFINERY	Characterisation of sludge (CEN-TC308)	CEN	EU wide. Standards for sludge characterisation and handling. Voluntary standard
	Animal by-products Regulation (ABP) - EU Commission Regulation (EU) No 142/2011 of 25 February 2011 → similar to Animal by-products Regulation EC No 1069/2009	DG Health and Food Safety	EU. Regulate health rules for animal by-products.
	A Clean Planet for all. A European strategic long-term vision for a prosperous, modern, competitive and climate neutral economy (COM/2018/773 final)	European Commission	EU wide. The strategy shows how Europe can lead the way in achieving climate neutrality by investing in realistic technological solutions (for example based on biomass), empowering citizens and aligning policy action in important areas
	Standards for bio-based products CEN/TC 411	European Committee for Standardisation	To develop standards for bio-based products
	Standardisation for products made from algae CEN/TC 454	European Committee for Standardisation	To standardise bio-based algae products. Defines the terms related to functions, products, and properties of algae and algae products. EN 17399:2020
END OF LIFE/CASCADING	Waste framework directive (Dir. 2008/98/EC)	DG Environment	EU. Prevention and management of waste.
	Construction Products Regulation 305/2011EU (CPR)	European Parliament and of the Council	Harmonised rules for the marketing of construction products in the EU
	Farm to Fork Strategy – for a fair, healthy and environmentally-friendly food system (COM(2020) 381 final)	European Commission	EU wide. The Farm to Fork Strategy aims to accelerate a transition to a sustainable food system that should: <ul style="list-style-type: none"> <li>- Have a neutral or positive environmental impact</li> <li>- Help to mitigate climate change and adapt to its impacts</li> <li>- Reverse the loss of biodiversity</li> <li>- Ensure food security, nutrition and public health, ensure access to sufficient, safe, nutritious and sustainable food for everyone</li> <li>- preserve affordability of food while generating fairer economic returns, fostering competitiveness of the EU supply sector and promoting fair trade</li> </ul>

	A new Circular Economy Action Plan for a Cleaner and More Competitive Europe (COM(2020) 98 final)	European Commission	EU wide. It announces initiatives along the entire life cycle of products, targeting for example their design, promoting circular economy processes, fostering sustainable consumption, and aiming to ensure that the resources used are kept in the EU economy for as long as possible.
	Closing the loop – An EU action plan for the Circular Economy (COM(2015) 0614 final)	European Commission	Its key strategy is to the promotion of the bio-based sector with the implementation of Bioeconomy Strategy and Action Plan. To ensure global competitiveness through the transition of using natural resources efficiently, promote circular economy and to contribute to climate change mitigation.
	2030 Climate and Energy Framework (22 January 2014)	European Commission	To improve energy efficiency to reduce GHG emissions, sustainable use of land and forest and address ILUC impacts because of biomass use for various bio-based industries.
MARKET SUPPORT	A New Industrial Strategy for Europe (COM(2020) 102 final)	European Commission	EU wide. The new industrial strategy aims to maintain Europe's leading position in industry; it focuses mainly on maintaining the competitiveness of European industry in the world.
	An SME Strategy for a sustainable and digital Europe (COM(2020) 103 final)	European Commission	EU wide. The strategy puts forward actions based on the following three pillars: capacity-building and support for the transition to sustainability and digitalisation; reducing regulatory burden and improving market access; and improving access to financing.