

# REGIONAL BIOECONOMY PROFILE

Biobased Delta (NL)



## POLICY

### *Structure of the Bioeconomy Institutional system*

Info source: Region

Responsible Regional  
Authorities / Agencies

Stichting Biobased Delta  
Biobased Delta Foundation ([www.biobaseddelta.nl](http://www.biobaseddelta.nl))

### *List of "bioeconomy-relevant" regional policy initiatives*

|                                                                         |                                                                                                                                                   |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Regional Bioeconomy<br>Smart Specialisation Strategy<br>(if applicable) | RIS3 Policy document Z-NL (September 2013)<br>Koepelvisie Strategic Board ZW-NL<br>( <a href="http://www.deltaregion.eu">www.deltaregion.eu</a> ) |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|

## REGIONAL BIOECONOMY RELATED POLICY INITIATIVES

### BIOMASS PRODUCTION

- ✓ Hoofdpijnennotitie Biobased Economy  
<http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2012/04/02/hoofdpijnennotitie-biobased-economy.html>
- ✓ Strategie voor een groene maatschappij (Strategy for a green society) by the Wetenschappelijke en Technologische Commissie voor de Biobased Economy, December 2013  
<http://www.biobasedeconomy.nl/2013/12/03/strategie-voor-een-groene-samenleving/>
- ✓ Government view on the Biobased Economy and the Energy Transition. Closing the Loop. October 8, 2007  
<http://www.biobasedeconomy.nl/beleid/beleid-bbe/>
- ✓ Biobased Delta Business plan 2014-2017, ENG version  
[http://www.biobaseddelta.nl/sites/biobaseddelta/files/140336%20Businessplan%202014%20ENG\\_HR.PDF](http://www.biobaseddelta.nl/sites/biobaseddelta/files/140336%20Businessplan%202014%20ENG_HR.PDF)
- ✓ Biobased Delta Business plan 2013-2016;  
[http://www.greenchemistrycampus.com/images/uploads/Openbare\\_Samenvatting\\_Businessplan\\_Biobased\\_Delta.pdf](http://www.greenchemistrycampus.com/images/uploads/Openbare_Samenvatting_Businessplan_Biobased_Delta.pdf)

## BIOMASS CONVERSION

Energie Akkoord voor duurzame groei October 2013 SER rapport  
(Energy Policy agreement for sustainable growth) <http://www.ser.nl/nl/publicaties/overige/2010-2019/2013/energieakkoord-duurzame-groei.aspx>

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## ADDITIONAL REGIONAL POLICY INFORMATION

- ✓ Koepelvisie Strategic Board ZW-Nederland based on biobased, logistics and maintenance as economic growth sectors for the region, fitting the model of circular economy
- ✓ Planbureau voor Leefomgeving report Vergroenen en Verdienen (Greening and Making Money – chances for the Dutch Economy) 2013 <http://www.pbl.nl/sites/default/files/cms/publicaties/PBL-2013-Vergroenen-en-verdienen-1061.pdf>
- ✓ Biobased purchasing by regional governments (Zeeland) <http://www.biobaseddelta.nl/nieuws/provincie-zeeland-publiceert-rapport-over-biobased-inkopen>
- ✓ SER rapport Noord-Brabant/Zeeland :  
<http://www.omroepbrabant.nl/?news/200271512/Vergroening+economie+levert+Brabant+en+Zeeland+bijna+3000+nieuwe+banen+op.aspx>  
<http://www.pzc.nl/regio/zeeuws-nieuws/vergroening-economie-kan-3000-banen-opleveren-1.4035845>
- ✓ Human Capital Agenda: Center of Expertise for Biobased Economy <http://www.coebbe.nl/over-coebbe>



## RESEARCH

### *R&D Investments (public and private sector)*

#### **REGIONAL PUBLIC R&D INVESTMENT in Bioeconomy (year 2013 – 2014 )**

Info source: Region

R&D investment related to :

|                                                                                                                                                                                                                                                                                                                                                                                                                                           |             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <b>Biomass production</b>                                                                                                                                                                                                                                                                                                                                                                                                                 | > 2.5 M EUR |
| Agriculture, Forestry, Marine, Aquaculture, Waste                                                                                                                                                                                                                                                                                                                                                                                         |             |
| <ul style="list-style-type: none"> <li>- Biobased Innovation Garden @ Rusthoeve</li> <li>- Micro Algae production, several projects</li> <li>- Macro Algae production, several projects</li> <li>- New crops for plant ingredients, several projects</li> <li>- Valorisation of local reststreams, several projects</li> </ul>                                                                                                            |             |
| <b>Biomass conversion</b>                                                                                                                                                                                                                                                                                                                                                                                                                 | > 5 M EUR   |
| Food/feed, Energy, Industry uses                                                                                                                                                                                                                                                                                                                                                                                                          |             |
| <ul style="list-style-type: none"> <li>- Biorefinery, several projects including innovative pretreatment of biomass</li> <li>- Bioaromatics</li> <li>- Lignin valorisation, pyrolysis, gasification</li> <li>- Isobutanol platform and other platforms via fermentation</li> <li>- Power to gas</li> </ul>                                                                                                                                |             |
| <b>Biobased facilities, financial instruments and R&amp;D application infrastructure</b>                                                                                                                                                                                                                                                                                                                                                  | > 15 M EUR  |
| <ul style="list-style-type: none"> <li>- Biobased Brabant Fund</li> <li>- Green Chemistry Campus</li> <li>- Kenniscentrum Plantenstoffen</li> <li>- Innogo and Go BIO !</li> <li>- Biobase Europe Pilot Plant and Trainingcenter</li> <li>- BPF and BiotechCampus Delft</li> <li>- Plant One</li> <li>- Rusthoeve</li> <li>- Biobased Building &amp; Construction, infrastructure, coatings, natural colorants, natural fibers</li> </ul> |             |

#### **PRIVATE R&D INVESTMENT in Bioeconomy (year 2011- 2013)**

**N.A.**

### **R&D Programmes in Bioeconomy**

#### **Green Raw materials**

- Sugar beet value chain (including pulp and beet leaves)
- lignocellulosic value chains
- agro&food rest streams
- Natural fibers
- Plant ingredients

- Aquatic biomass
- Green Building Blocks
- Biorefinery (large and small), including pretreatment of biomass
- Bioaromatics
- Functional platform molecules
- Natural fibers
- Sustainable Process Technology
- Conversion technology (biotech and chemical catalysis)
- Separation technology (process intensification)
- C-1 chemistry (CO<sub>2</sub>, syngas, methane)
- Smart links (Energy, water, CO<sub>2</sub>, heat)

### EUROPEAN R&D ACTIVITIES in Bioeconomy (year 2011-2013)

Info: Regional Participation in FP6, FP7, KBBE, H2020 projects in Bioeconomy or related

- Chemical Regions for Resource Efficiency (R4R) FP7 CSA call
- BERST project (2013-2015) aiming at toolkit and network for enhancing regional bioeconomies (FP7)
- Biobase NW Europe Interreg 4b Sharing best practices and stimulating SME
- Connecting CO<sub>2</sub> (NL-VL), Interreg
- CO<sub>2</sub> and CH<sub>4</sub> as carriers for a regional economy, Interreg, continuation of Connecting CO<sub>2</sub>
- Biobase Europe Pilotplant and Trainingcenter (2009-2018), Interreg

### Participation in other EU bioeconomy R&D projects:

#### EU R&D funding projects (FP7, H2020)

R4R and BERST

EC Contribution

> 4 M EUR

#### EU regional development funding (ERDF)

OP and Interreg

EC Contribution

> 10 M EUR

### NATIONAL/REGIONAL R&D Activities in Bioeconomy (year 2011 - 2013)

Info: Regional Activities funded by MS or Region (no EC funds)

#### Listing of National Bioeconomy Research Programmes

TKI- Biobased Economy [www.tki-bbe.nl/projecten/projecten.html](http://www.tki-bbe.nl/projecten/projecten.html)

Alphaenzymes (enzymes), Progression Industry (lignin), Millvision (Paper Pulptusion), Nettenrgy (Pyrolysis), Deltalinqs (Isobutanol platform)

TKI-Agrifood: [www.tki-agrifood.nl/projectengalerij](http://www.tki-agrifood.nl/projectengalerij)

Bouwstenen voor duurzame polyamides, kleinschalige bioraffinage, productie groene grondstoffen door suikerbiet.

#### Listing of Regional Bioeconomy Research Programmes

Biobased Innovations Cluster (2010-2012) [www.biobasedinnovations.nl](http://www.biobasedinnovations.nl)

Biofunctionals [www.biofunctionals.eu](http://www.biofunctionals.eu)

IPC Biobased 1 & 2 [www.innovatiehuis.nl](http://www.innovatiehuis.nl)

Biorizon: [www.biorizon.eu/research](http://www.biorizon.eu/research)

## MARKETS

### References to existing Market Studies/Forecasts about Bioeconomy

| Biomass production sectors                  | Enterprises number    | Employment number | Turnover M EUR | Value added M EUR |
|---------------------------------------------|-----------------------|-------------------|----------------|-------------------|
| Agriculture & Fisheries                     | 20,000                | 50-70,000         | 11,000-12,000  | 3,000-4,000       |
| Data Sources:: CBS 2010, LISA 2013, WUR-LEI | SBI-2008 metho-dology |                   |                |                   |
| Biomass conversion sectors                  | Enterprises number    | Employment number | Turnover M EUR | Value added M EUR |
| Agro & Food                                 | 27,000-33,000         | 175,000-200,000   | N.A.           | N.A.              |
| Paper & Carton                              | 100-120               | 4000-5000         | N.A.           | N.A.              |
| Biobased Industry                           | 600-800               | 25,000-30,000     | N.A.           | 3,000             |
| Datasource: Chamber of Commerce             | SBI-2008 meth-odology |                   |                |                   |

## **i** GENERAL INFORMATION

### **Main/Regional economic and social indicators (source Eurostat/DG REGIO)**

Info source: Eurostat

#### **REGIONAL DEMOGRAPHY (2013)**

|                         |                               |                                                                     |
|-------------------------|-------------------------------|---------------------------------------------------------------------|
| Number of inhabitants   | people                        | <b>381077p</b>                                                      |
| Population by age group | Share of total population (%) | <b>27.4 %</b> (<25)<br><b>52.0 %</b> (25-64)<br><b>35.1 %</b> (>64) |

#### **REGIONAL ECONOMY (2011)**

|              |                                                     |                    |
|--------------|-----------------------------------------------------|--------------------|
| GDP          | M EUR                                               | <b>13088 M EUR</b> |
| GDP per head | Euro per inhabitant                                 | <b>34300</b>       |
| GDP per head | Euro per inhabitant in percentage of the EU average | <b>137</b>         |
| GDP PPS      | Euro per inhabitant                                 | <b>31000</b>       |
| GDP PPS      | Euro per inhabitant in percentage of the EU average | <b>124</b>         |

#### **REGIONAL ECONOMY STRUCTURE (2010)**

|                                               |                 |               |
|-----------------------------------------------|-----------------|---------------|
| Agriculture weight in the economy             | % of GVA        | <b>N.A. %</b> |
|                                               | % of employment | <b>N.A. %</b> |
| Industry & construction weight in the economy | % of GVA        | <b>N.A. %</b> |
|                                               | % of employment | <b>N.A. %</b> |
| Services weight in the economy                | % of GVA        | <b>N.A. %</b> |
|                                               | % of employment | <b>N.A. %</b> |

#### **REGIONAL SOCIAL (2013)**

|                                   |                                               |               |
|-----------------------------------|-----------------------------------------------|---------------|
| Employment rate, aged 20-64       | % of population, aged 20-64                   | <b>76.9 %</b> |
| Unemployment rate                 | % of the active population (20 – 64)          | <b>4.0 %</b>  |
| Unemployment rate of young people | % of the active population less than 20 years | <b>7.0 %</b>  |

## ***Symbols, Units, Acronyms used***

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|                |                                                      |
|----------------|------------------------------------------------------|
| <b>%</b>       | Percentage                                           |
| <b>N.A.</b>    | Not Available                                        |
| <b>T.B.C.</b>  | To Be Confirmed                                      |
| <b>p</b>       | People                                               |
| <b>EUR</b>     | Euro                                                 |
| <b>Bn</b>      | Billion                                              |
| <b>M EUR</b>   | Million Euros                                        |
| <b>FP6</b>     | Sixth Framework Programme                            |
| <b>FP7</b>     | Seventh Framework Programme                          |
| <b>H2020</b>   | Horizon 2020                                         |
| <b>R&amp;D</b> | Research and Development                             |
| <b>KBBE</b>    |                                                      |
| <b>ERDF</b>    | EU regional development funding                      |
| <b>GDP</b>     | Gross Domestic Product                               |
| <b>GDP PPS</b> | Gross Domestic Product in Purchasing Power Standards |
| <b>GVA</b>     | Gross Value Added                                    |