



## D8.4: Chemical industry (NOVA)

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### SUMMARY:

This case study focuses on a selected part of the chemical sector, including both mature and new industries, and applies monitoring methodologies to assess their applicability. Several socio-economic indicators are selected and tested for feasibility, significance, data requirements, and validity in monitoring the bio-economy. To compute these indicators to such a heterogenous and hybrid sector as the chemical industry, several valid sources of information and data are introduced and exploited. Data and indicators are further complemented and validated via interviews with relevant stakeholders and experts. The strengths, weaknesses, barriers and opportunities of the applied methodology are shown as a result of this analytical task.

### RESEARCH QUESTIONS:

How feasible is the quantification of selected indicators for the chemical industry? How do monitoring methodologies work in practice? Are the quantified indicators in line with expectations of experts?

### CASE:

The applicability of monitoring methodologies to the bio-based chemical sector

### BIO-BASED PATHWAYS:

Lubricants and PHAs productions

### DEVELOPMENT STAGES:

Mature; Drive to maturity

### DATA SOURCES:

Official databases (EUROSTAT, OECD, NOVA), literature and interviews

### DATA ANALYSIS:

Qualitative analysis

### INDICATORS:

Patents submitted; R&D investments; Turnover and Value-added of sectors; Share of SMEs and high-tech companies in the respective sectors; Bio-material replacing non-renewable resources; Terms-of-Trade/export & import prices of sectors; Production/consumption of sector; Employment

### GEOGRAPHICAL SCOPE:

All EU member states

### TIME REFERENCE:

From 2017

### AUDIANCE:

Researchers; Policymakers; Statistical offices

### KEY RESULTS:

- The indicators promise to be a well-functioning tool to express socio-economic information on the European bioeconomy.
- Solid and reliable datasets are crucial to achieve meaningful results with these indicators. However, datasets lack most of the required data to apply any socio-economic indicators successfully and meaningfully.
- The levels of disaggregation pose barriers and challenges to the successful calculation of the indicators.
- Estimations and derivations alter the outcome of the indicators significantly.
- Data-driven indicator approaches can lose touch with the real complexity of what the indicator is trying to express.
- There is a need for a tool to distinguish between the fossil side and the bioeconomy side of an industry. Without the application of such a tool, available public data cannot be easily processed for the bioeconomy.

### CONTEXT and DRIVERS:

- The drivers of change often originate from regulation and policy institutions.
- Policy makers rely on valid statistical data and indicators in order to make regulatory decisions.
- BioMonitor aims to provide these indicators and the methodologies developed within BioMonitor are tested and applied in this case study to deliver findings, strengths and weaknesses to the other work packages in BioMonitor and result in a set of valid indicators.

### LIMITATIONS:

- There is great competitiveness between the different companies which leads to a high level of confidentiality. Especially new and emerging industries are rather secretive which aggravates the monitoring of these industries.

### GOOD PRACTICES:

- The best practice to gather market data is to interview experts and stakeholders, which yields in valuable exchange of information but is far from being the best option when it comes to monitoring mechanisms.

### FEEDBACK and RECCOMANDATION to other WPs

#### WP1 Indicators:

The case study specifically works with indicators developed and compiled in WP1. In the course of the project, the long list of indicators initially collected has been reduced to the most important and valuable ones. The case study helped showing what challenges and obstacles in the indicator methodologies led to indicators being cut from the list.

#### WP2-3 Data collection:

Many of the findings of this case study will be taken to work package 3 and help provide valuable feedback that will subsequently be implemented in the efforts of creating and filling the bioeconomy database. The feedback includes how the different data sources can be applied in WP3, what data is available and useful and what limitations come along with the methodologies used in WP3.

#### WP4-5 Model Toolbox:

These findings also may be used by the modelling efforts of BioMonitor as the data needs and challenges became obvious in the course of this case study. The modelling efforts are, among others, looking at similar indicators and use the same data sets as WP3. Any learnings from applying the available data can directly support the work of the models as the aggregation and availability challenges are similar. The models rely on solid data of the past to project the future.

