Bioeconomy inonovation week| March 3, 2021

Dušan Drabik – Wageningen University, BioMonitor project

BIOECONOMY INNOVATION WEEK
FOR BOOSTING THE REGIONAL BIOECONOMY IN CEEc

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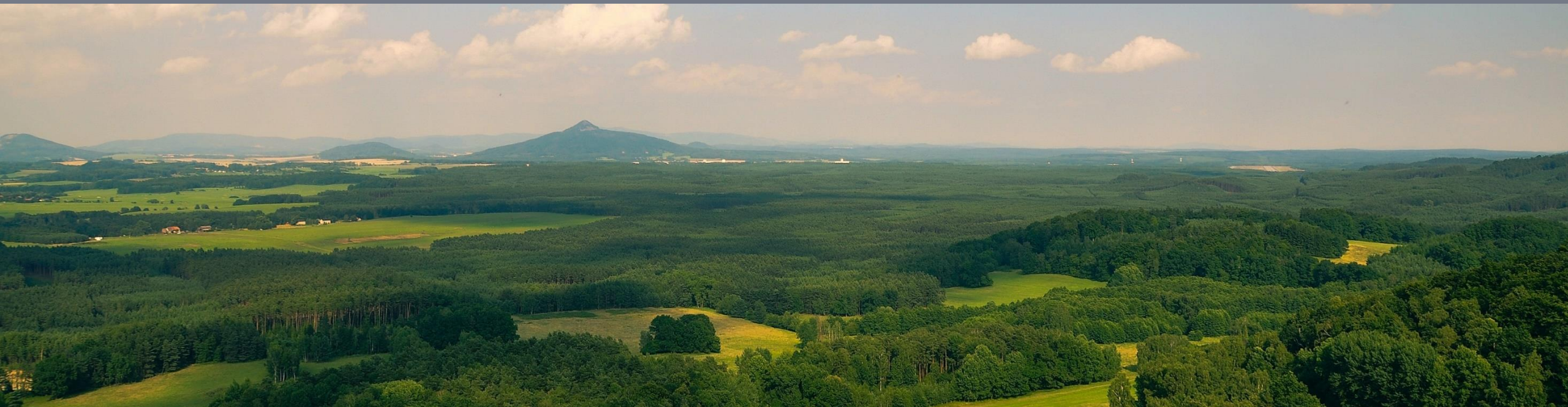
How Could the CEE Countries Better Assess their Bioeconomies



BioMonitor - Monitoring the Bioeconomy

- H2020 project

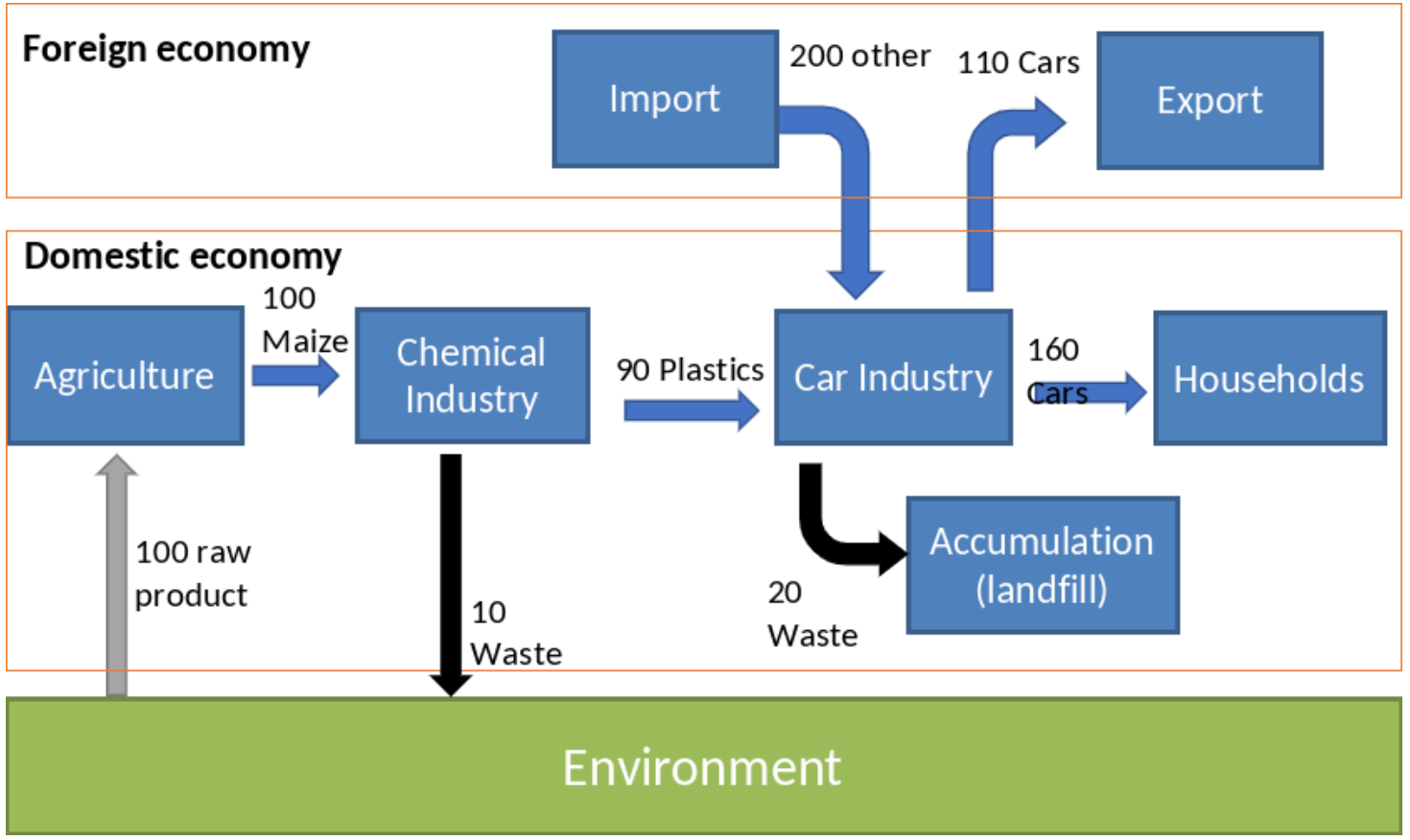
- 18 partners led by Wageningen University, The Netherlands
- Reduce the information gaps present in the bioeconomy
- Restructure existing data and modelling frameworks

My talk

- Availability of data for material flow monitoring in CEE countries
- How to assess the dynamics of the development of the CEE bioeconomies

Material Flow Monitoring

- Why important?
  - Can’t manage what can’t be measured
  - Input into modeling
- We follow and test the approach of Statistics Netherlands (CBS)
- Four case studies – Italy, Spain, **Slovakia**, and **Latvia**



Source: Roel Delahaye, CBS

What we learned so far

- Statistics do not distinguish bio-based and fossil-based industries/products
- Many statistical classifications (NACE, CPA, PRODCOM, HS/CN) used to collect data (conversion tables needed)
- Publicly available data often for broad categories of goods/industries

- Prices often only for representative goods
- Traditional sectors (e.g., agriculture, ag products) well documented but not so for mixed sectors/goods
- Statistics on flows from raw materials (including biowaste) to end products lacking
- Small companies producing bio-based goods have no obligation to report data or their data may be confidential

How to assess the CEE bioeconomies?

- Need indictors
  - 27 indicators to support the Europe 2020 Strategy
  - 100 EU SDG indicators
- But is a subset of indicators enough (e.g., number of people employed, value added, labor productivity)?
- Snapshots in time do not provide the whole picture

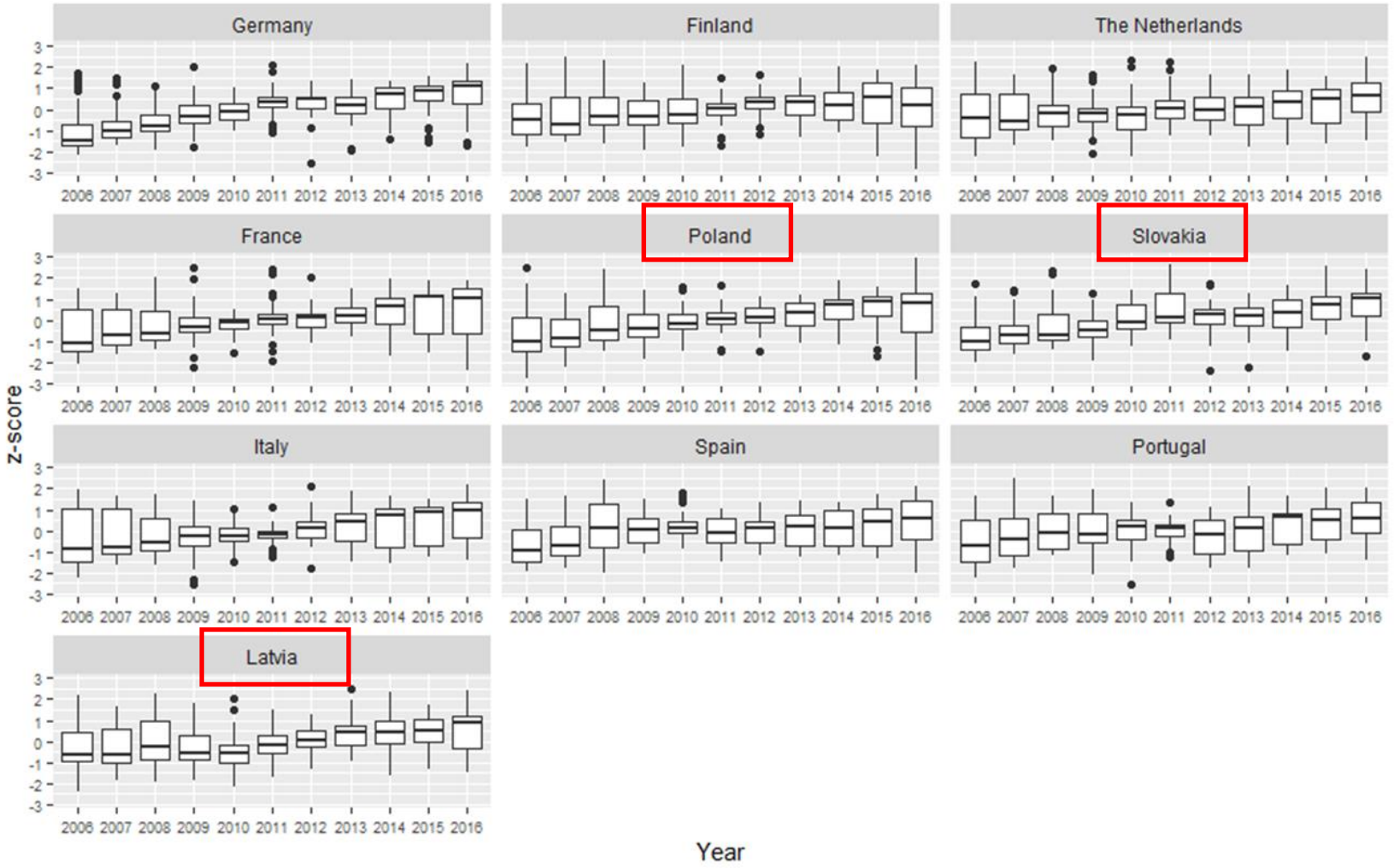
What we do

- Any number of well-defined quantitative indicators
- Normalization as units and magnitudes differ
- Provide a dynamic picture
  - Is a bioeconomy as a whole growing?
  - Which of its aspects are improving or lagging behind?

How do we do that

- Adjust the indicators such that more is better
- Normalize them
- Rank them, taking into account the whole time period (not only beginning and end)
- Study the intra-distribution changes

Development of select. EU bioeconomies



The most progressing and the most regressing indicators over 2006-2016

Most progressing indicators		Most regressing indicators	
Poland			
Tertiary educational attainment	0.299	Energy productivity	-0.294

Most progressing indicators		Most regressing indicators	
Poland			
Tertiary educational attainment	0.299	Energy productivity	-0.294
Share of renewable energy in gross final energy consumption – electricity	0.298	Surface of marine sites designated under NATURA 2000	-0.293
Patent applications to the European Patent Office (number per million inhabitants)	0.298	Gross domestic expenditure on R&D – business enterprise sector	-0.280
Patent applications to the European Patent Office (total number)	0.298	Adult participation in learning	-0.255
Share of renewable energy in gross final energy consumption – heating and cooling	0.296	Private investments, jobs, and gross value added related to circular economy sectors – value added at factor cost – % of GDP	-0.183
Slovakia			
Tertiary educational attainment	0.297	Private investments, jobs, and gross value added related to circular economy sectors – gross investment in tangible goods – % of GDP	-0.229
Energy productivity	0.295	Adult participation in learning	-0.223
Share of renewable energy in gross final energy consumption – electricity	0.292	Gross nutrient balance on agricultural land – phosphorous	-0.206
Greenhouse gas emissions (index 1990 = 100)	0.290	Private investments, jobs, and gross value added related to circular economy sectors – gross investment in tangible goods – million euros	-0.194
Share of renewable energy in gross final energy consumption – all sectors	0.289	Employment rate of recent graduates	-0.091
Latvia			
Private investments, jobs, and gross value added related to circular economy sectors – % of total employment [V16111]	0.299	Ammonia emissions from agriculture (tonnes)	-0.286
Surface of marine sites designated under NATURA 2000	0.298	Ammonia emissions from agriculture (kg per hectare)	-0.266
Tertiary educational attainment	0.293	Private investments, jobs, and gross value added related to circular economy sectors – value added at factor cost – % of GDP	-0.264
Share of renewable energy in gross final energy consumption – electricity	0.288	Private investments, jobs, and gross value added related to circular economy sectors – ross investment in tangible goods – % of GDP	-0.252
Circular material use rate	0.282	Gross nutrient balance on agricultural land – nitrogen	-0.245

Short-term and long-term dynamics of bioeconomies

One-year transition matrix					Ten-year transition matrix				
Poland									
	Q_1	Q_2	Q_3	Q_4		Q_1	Q_2	Q_3	Q_4
Q_1	.58	.28	.09	.05	Q_1	.00	.30	.40	.30
Q_2	.23	.35	.23	.18	Q_2	.00	.45	.27	.18
Q_3	.14	.17	.38	.32	Q_3	.33	.11	.11	.44
Q_4	.07	.17	.20	.56	Q_4	.73	.18	.00	.09
Ergodic	.254	.242	.218	.286	Ergodic	.252	.288	.211	.249
Slovakia									
	Q_1	Q_2	Q_3	Q_4		Q_1	Q_2	Q_3	Q_4
Q_1	.47	.27	.13	.13	Q_1	.00	.40	.50	.10
Q_2	.27	.32	.23	.17	Q_2	.10	.10	.30	.50
Q_3	.14	.29	.32	.25	Q_3	.20	.30	.10	.40
Q_4	.11	.11	.29	.50	Q_4	.64	.18	.09	.09
Ergodic	.245	.245	.243	.267	Ergodic	.245	.244	.244	.268
Latvia									
	Q_1	Q_2	Q_3	Q_4		Q_1	Q_2	Q_3	Q_4
Q_1	.53	.22	.18	.07	Q_1	.10	.10	.40	.40
Q_2	.22	.37	.26	.16	Q_2	.20	.10	.30	.40
Q_3	.16	.26	.33	.25	Q_3	.00	.60	.20	.20
Q_4	.08	.14	.22	.56	Q_4	.64	.18	.09	.09
Ergodic	.243	.244	.247	.267	Ergodic	.245	.243	.244	.268

Contributions

- Test the implementation of the CBS MFM methodology in CEE countries
- Help national statistical offices to develop their MFM systems (know-how)
- A novel framework to assess the dynamics of the evolution of EU bioeconomies

More about us

E-mail: Dusan.Drabik@wur.nl

Our website: www.biomonitor.eu

A BioMonitor video worth seeing:
https://www.youtube.com/watch?v=oUqGHRxJ7c8