

TENDENCIES OF SUSTAINABLE REGIONAL DEVELOPMENT IN THE CONTEXT OF SDGs: THE SITUATION IN LATVIA

A small white sailboat with a single white sail is sailing on a dark blue sea. The sky in the background is a mix of orange and blue, suggesting a sunset or sunrise. The boat is positioned in the lower center of the frame, leaving a small wake behind it.

NoRSA-ESPON Conference

October 13-14, 2021

Pärnu, Estonia

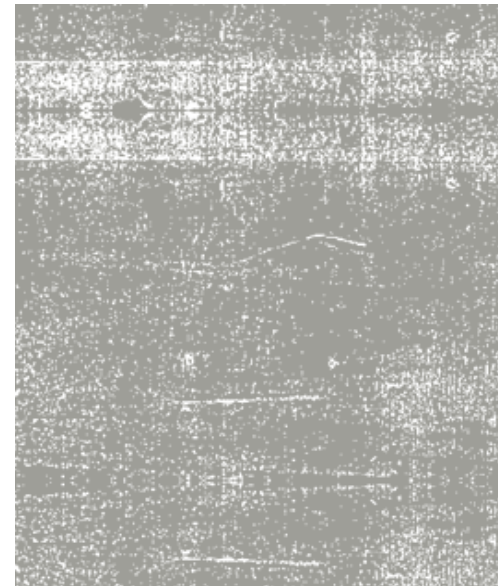
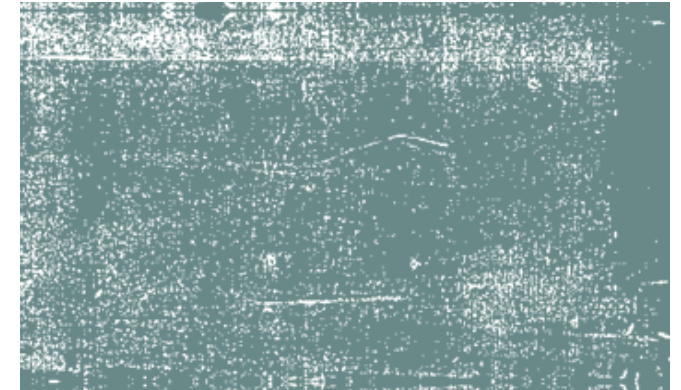
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Inese Trusina, PhD student
Latvia University of Life Sciences and Technologies**

GOALS

The aim of the presentation is to review the concepts of sustainable development and put forward new approaches and methodologies that could meet the new requirements of society, be able to identify the main laws and find ways to measure various qualitative socio-economic and natural processes in stable and universal units (measures)

SUBJECTS

- **INTRODUCTION**
- **SITUATION IN LATVIA**
- **NEW PHILOSOPHY OF SUSTAINABLE DEVELOPMENT**
- **METHODOLOGY**
- **RESULTS**
- **CONCLUSIONS**



INTRODUCTION

THE CONCEPT OF SUSTAINABLE DEVELOPMENT- 50 YEARS

2015 Agenda 2030 SDG

2001 - The Millennium Ecosystem Assessment


1994 - The Triple Bottom Line & Sustainable Development

1987 - The Brundtland Report And Sustainable Development

1980 - The Human Development Index And Sustainable Development

1972 - 1st UN Conference On The Sustainable Development

1972 - Limits to growth and sustainable development



Sustainable development is development that meets the needs of the present without danger for the opportunities in the future to meet the needs

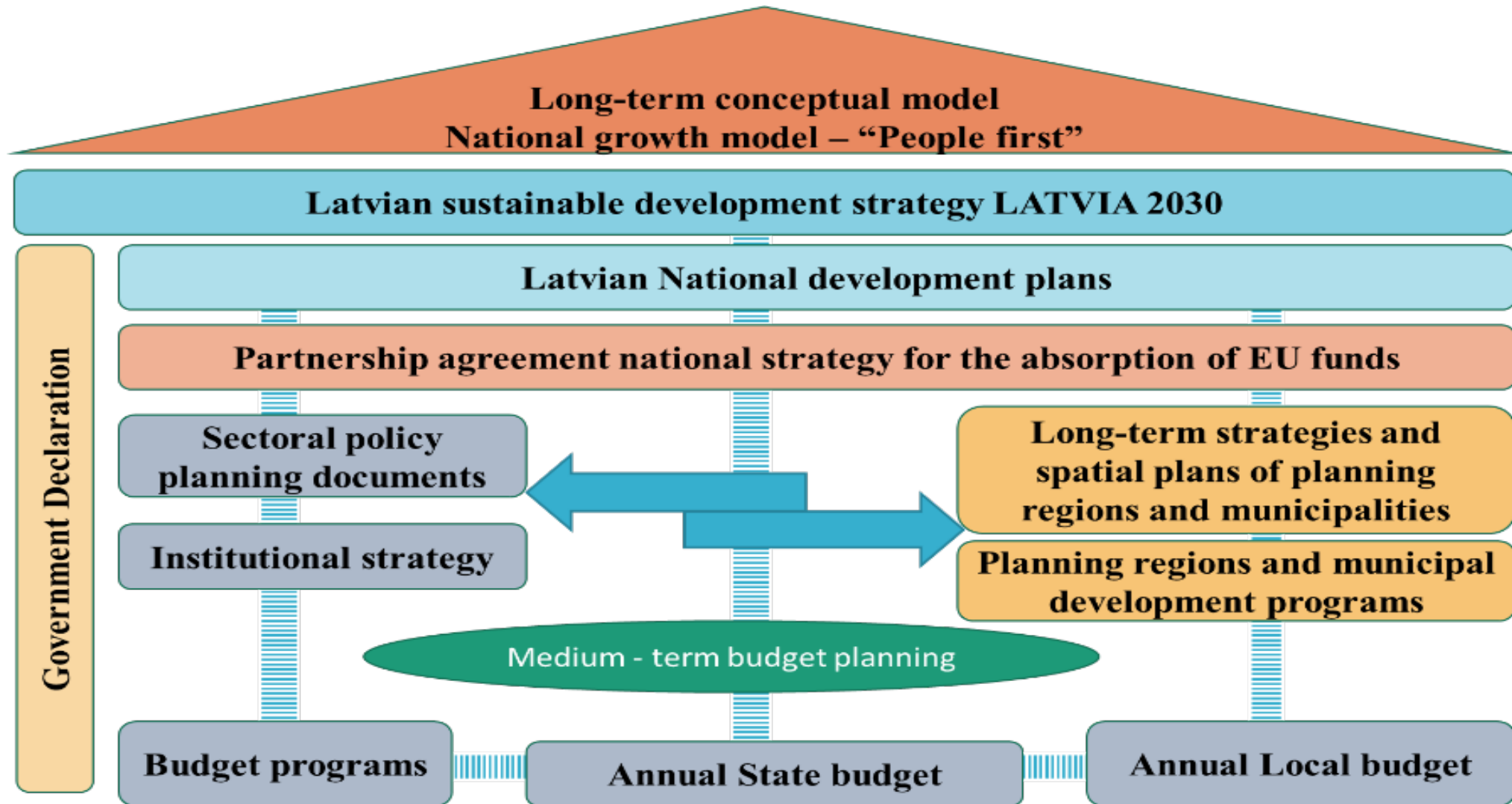
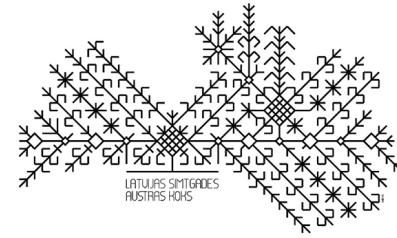
SUSTAINABLE DEVELOPMENT LEGAL FRAME - 2021

Global level		Agenda 2030 (2015) SDG	
	EUROPE UNION		EU 2030 (2019) EU 6 priorities 2019-2024 Strategic plan 2020-2024
	THE BALTIC SEA REGION		EU Strategy for Baltic Sea region
	National level LATVIA		Latvia 2030 (2010) National Development Plan 2021-2027 National growth model (2005)
			Local level Regional policy guidelines 2021-2027 Regional development Law (2002)

Source: author's construction based on literature review



NATIONAL LEVEL - LATVIA



NATIONAL LEVEL - SITUATION IN LATVIA

Interdepartmental Coordination Center (ICC) – leading institute for National development planning

ICC in cooperation with the policymakers of ministries is considering the SDGs in the context of Latvia's Sustainable Development Strategy (Latvia 2030) and the National Development Plan (NAP 2027)

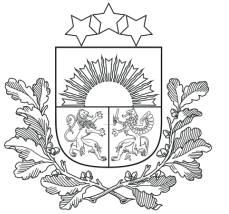
Calendar of events:

2017 - Mapping Latvia's development and SDGs - mapping SDG objectives to existing public policy documents

2018 – Latvia's Voluntary National Review and Latvia's Report to the UN on the Implementation of Sustainable Development Goals are based on two processes:

1) comparison of the SDGs at the target level with the policy of Latvia with the participation of all ministries

2) Mid-term impact assessment of the National Development Plan until 2020, which also tracks progress towards Latvia until 2030



Cross-Sectoral
Coordination Centre
Republic of Latvia

NATIONAL LEVEL - LATVIA

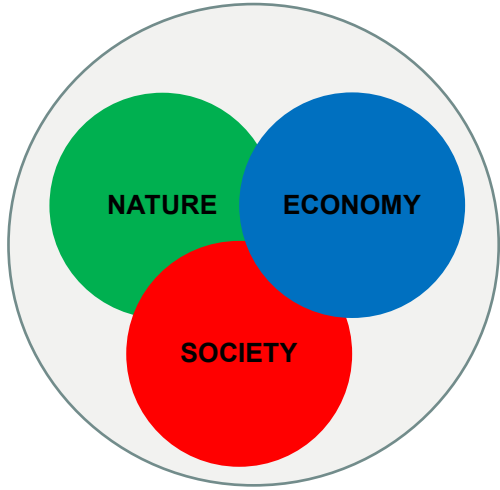
NGO “Latvian Platform for Development Cooperation” - LAPAS

- founded in 2004 when Latvia joining the EU as a “community of ideas”
- ~ 40 members: small non-governmental organizations and networks, a wide range of topics
- Directions - development cooperation, localization, global education
- Activities - protection of interests, cooperation, national and global projects
- Instruments: action "The World is Getting Better", Global Education Week, information campaigns, discussions, research

2018 – Sustainable development of Latvia: analysis of NGO participation. Spotlight Review on the Report by Government of Latvia on Implementation of the SDGs in Latvia.

At the UN High Level Forum on Sustainable Development in New York (July 17, 2018) following the state report of the Minister of Economy of Latvia, Report on the contribution of public organizations and citizens was presented by Inese Vaivare, Director of LAPAS.





17 GOALS

169 TARGETS

265 INDICATORS

Source: Agenda 2030



CRITICISMS

- Society is forced to make decisions based on biased information
- This is due to the lack of adequate methodology and technology for measuring sustainable development
- All the criteria for sustainable development do not full meet the general system requirements as well as SMART parameters of goals (*Specific, Measurable, Achievable, Realistic, Timely*)

THE QUESTION IS: WHY, DESPITE ENORMOUS EFFORTS, IT IS IMPOSSIBLE TO CHANGE NEGATIVE TRENDS AND ENSURE THE TRANSITION OF THE WORLD COMMUNITY TO SUSTAINABLE DEVELOPMENT?

NEW PHILOSOPHY OF SUSTAINABLE DEVELOPMENT

Create conditions that ensure the sustainability development of the world on a scientific, reasonable basis.

Vernadsky V. (1863-1945)
Podolinsky S (1850-1891)
Bauer E (1890-1938)

Odum Howard T (1924-2002)
Daly Herman E (1938)
Ayres Robert U (1932)
Ropke Inga
Rockstrom Johan
Sukhdev Pavan

Kapica Sergei (1928-2012)
Kuznetsov B (1924-2000)
Bartini Robert (1897-1974)
Bolshakov B (1941-2018)

MAIN POSITIONS:

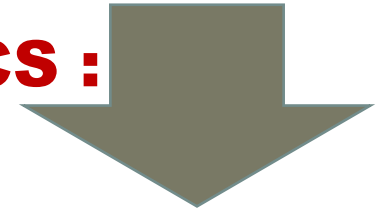
- The World is System of Systems
- Economic system is subsystem of Ecology system
- Economic system < Ecology system
- Ecology Law is preferable of Economic Law
- Social – Economic - Ecology systems are Open Life Systems
- Energy flows and Power



ECOLOGICAL ECONOMICS



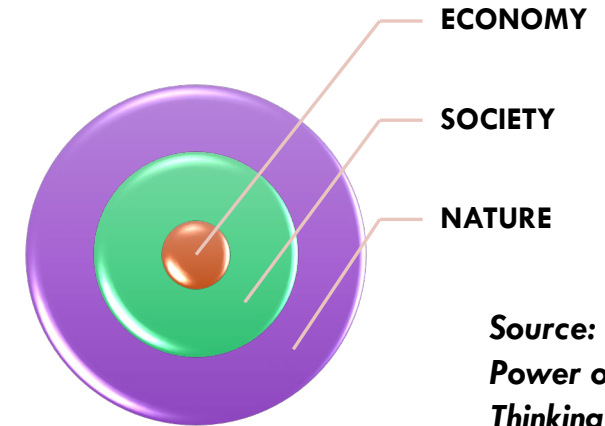
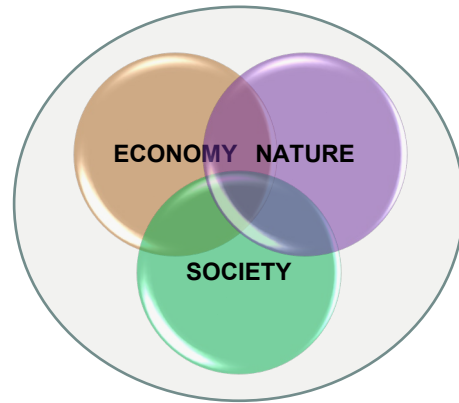
THE MAIN PRINCIPLES OF ECOLOGICAL ECONOMICS :



- the human economy is embedded in nature
- the economic processes are always the natural processes as biological, physical and chemical processes and transformations
- the economic processes should be conceptualized in terms used to describe processes in nature
- the human activities could be described in terms of flows of energy and matter



NEW PARADIGM – ECOLOGICAL ECONOMICS



Source: B. Doppelt The Power of Sustainable Thinking



Source: author's construction based on Rockström and Sukhdev



Source: author's construction based on literature review



METHODOLOGY 1

THREE PRINCIPLES OF SUSTAINABLE DEVELOPMENT

1. THE PRINCIPLE OF SUSTAINABLE DEVELOPMENT (IN UNITS OF POWER)

SUSTAINABLE DEVELOPMENT DEFINITION

Sustainable development is a continuous process of conserving the increasing of opportunities to meet the constant existing needs of the system, expressed in units of power.

The goal - sustainability- are achieved by development the quality of planning and introducing innovations that ensure a steady growth in the efficiency of resource use, as well as an increase in income without an increase in the rate of their consumption, as well as a decrease in losses in conditions of negative external and internal influences

(Bolshakov, B. et al., 2019).



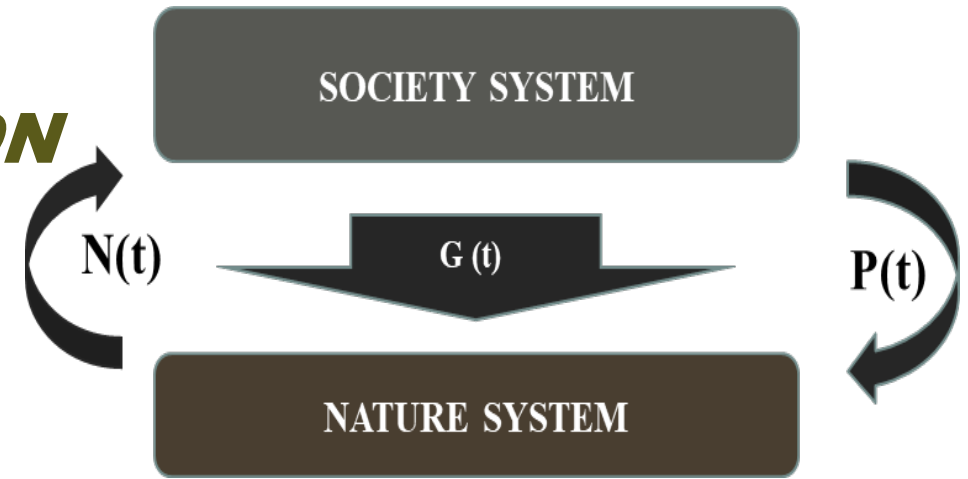
Source: author's construction based on literature review



METHODOLOGY 2

2. THE PRINCIPLE OF CONSERVATION THE POWER (ENERGY FLOW)

$$N(t) = P(t) + G(t) = \text{const}$$



3. THE PRINCIPLE OF CONSERVATION THE DEVELOPMENT

$$\Delta\varphi(t) = \frac{df(t)}{dt} > 0,$$

where $f(t) = N(t) / P(t)$



METHODOLOGY 3

SUSTAINABLE DEVELOPMENT PARAMETERS

Definition	Designation	Unit	Formulae
NEEDS (total consumption of resources)	N (t)	Watt	$N(t) = \sum_j^k \sum_{i=1}^3 N_{ij}$
OPPORTUNITIES real (useful power of system or GPD)	P (t)	Watt	$P(t) = \sum_{i=1}^3 N_i(t) f_i(t)$
LOST OPPORTUNITIES (power losses)	G (t)	Watt	$G(t) = N(t) - P(t)$
OPPOTUNITIES (integrated) or QUALITY OF LIFE	QL (t)	Watt/p	$QL(t) = T_A(t) U(t) q(t)$
TECHNOLOGIES EXCELLENCE Full power efficiency or	f (t)	x	$f(t) = P(t) / N(t)$
Additional indicators			
The standard of living	U (t)	Watt/p	$U(t) = P(t) / M(t)$
Normalized time of active life	T_A (t)	x	$T_A(t) = (\text{time of active life})/100$
Quality of environment	Q (t)	x	$q(t) = G(t) / G(t - 1)$

METHODOLOGY 4

GROWTH and DEVELOPMENT PARAMETERS

Conditions / Parameters	ΔN	ΔP	ΔG	Δf
The conditions of DEGROWTH	≤ 0	≤ 0	≤ 0	≤ 0
The conditions of “ZERO” GROWTH	$= 0$	$= 0$	$= 0$	$= 0$
The conditions of GROWTH	≥ 0	≥ 0	≥ 0	$= 0$
The conditions of DEVELOPMENT	≥ 0	≥ 0	< 0	≥ 0
The conditions of SUSTAINABLE DEVELOPMENT	≤ 0	≥ 0	< 0	≥ 0





RESULTS -1

GROWTH and DEVELOPMENT PARAMETERS for period 2010 - 2019

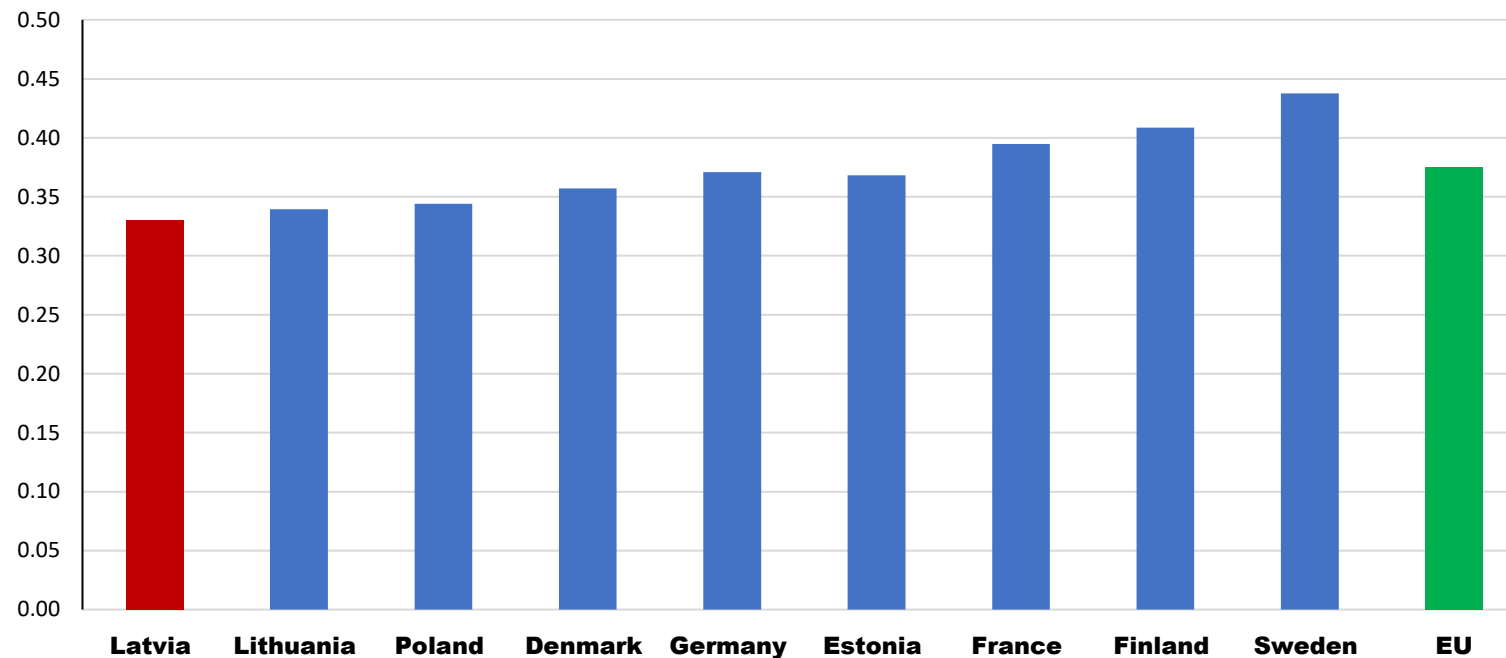
countries	Description	ΔN	ΔP	ΔG	Δf
LATVIA	"ZERO"	=0	=0	=0	=0
ESTONIA	ZERO	=0	=0	=0	= 0
FINLAND	ZERO	=0	=0	=0	=0
LITHUANIA	GROWTH	≥ 0	≥ 0	≥ 0	≥ 0
POLAND	GROWTH	≥ 0	≥ 0	≥ 0	≥ 0
GERMANY	DEGROWTH	< 0	< 0	< 0	=0
SWEDEN	DEGROWTH	< 0	< 0	< 0	=0





RESULTS -2

SUSTAINABLE DEVELOPMENT PARAMETERS TECHNOLOGICAL EXCELLENCE (Δf) FOR PERIOD 2010-2019



	f(1)
Latvia	0.33
Lithuania	0.34
Poland	0.34
Denmark	0.36
Germany	0.37
Estonia	0.37
France	0.39
Finland	0.41
Sweden	0.44
EU	0.38

Source: Author's calculation based on EU Central Statistical Bureau data

Average integrated changes of full power efficiency (Δf) (or technological excellence) for period 2010-2019

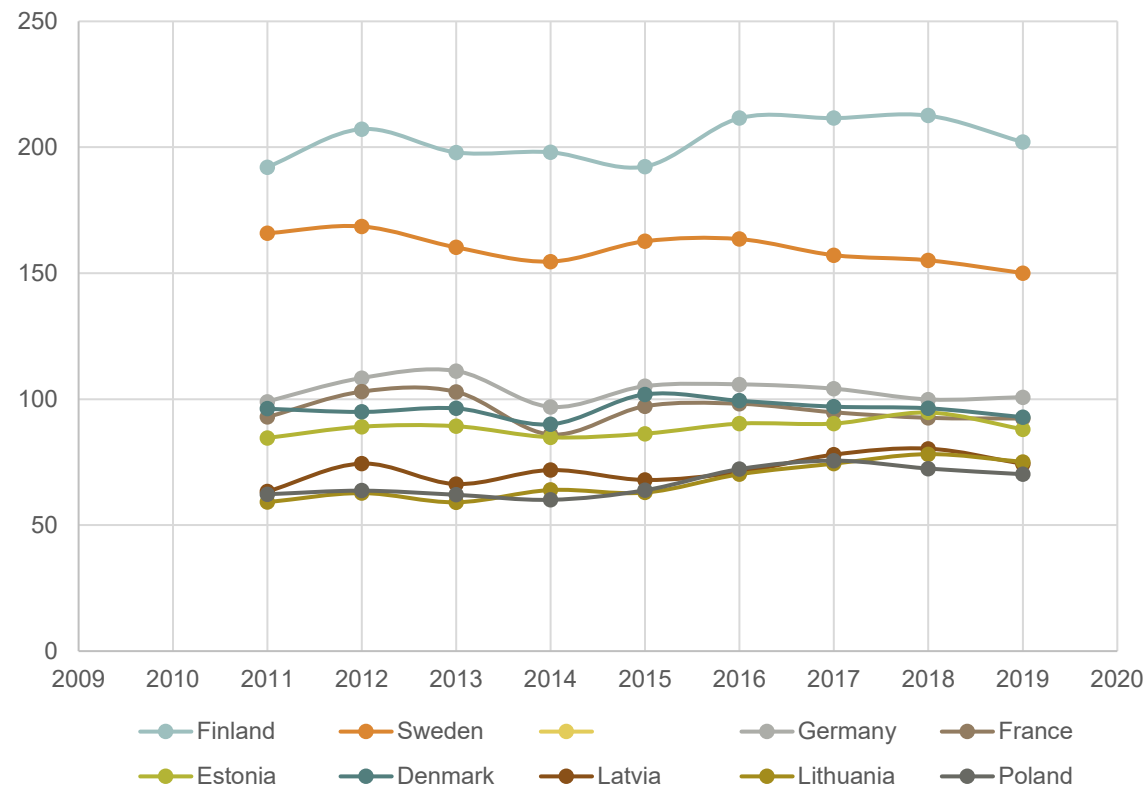




RESULTS -3

SUSTAINABLE DEVELOPMENT PARAMETERS

OPPORTUNITIES - QUALITY of LIFE as function of F (P(t), G(t), f(t))



Source: Author's calculation based on EU Central Statistical Bureau data for period 2010-2019, in Watt x 10⁹

				WORLD	f
FI	FINLAND	204	1	4	0.41
SE	SWEDEN	159	2	13	0.44
GE	GERMANY	104	3	8	0.37
FR	FRANCE	96	4	26	0.39
EE	ESTONIA	89	5	12	0.37
LV	LATVIA	73	6	31	0.33
LT	LITHUANIA	68	7	29	0.34
PL	POLAND	68	8	43	0.34

Source: Author's calculation based on EU Central Statistical Bureau data for period 2010-2019, in Watt x 10⁹



CONCLUSIONS 1



- ❖ 1) In Latvia, official documents have been developed for the achievement of SDGs and there are various institutions for their implementation
- ❖ 2) The modern requirements bring humanity closer to understanding that the socio-economic system is a subsystem of nature and is integrated into it, and economic processes are natural processes such as physical processes and transformations
- ❖ 3) Sustainable development is a continuous process of preserving the increasing of opportunities to meet the continuous existing needs of the system, expressed in universal units of power.
- ❖ 4) In accordance with the proposed approach, calculations were carried out, which served as a basis for comparing dissimilar indicators. The values of universal indicators of sustainable development for Latvia and else 6 EU countries for the period from 2010 to 2019 were obtained



CONCLUSIONS 2



- ❖ 5) The system of 4 indicators in accordance with the requirements of sustainable development shows that by 2019 the system of Latvia had a trend towards zero growth, as well as in Estonia and Finland (Results 1)
- ❖ 6) The coefficients of technological excellence were determined for 8 EU countries. The range of changes is from 0.33 for Latvia to 0.44 for Sweden (Results 2)
- ❖ 7) For 8 EU countries, integrated opportunities or quality of life in power units were defined. Data correlate with data from international organizations (Results 3)
- ❖ 8) The power approach can be considered as a basis for identifying trends in sustainable development with further use of the goals and objectives of the SDGs as a superstructure –approach Boat and Sail – APPROACH NAVI & NAVIGARE

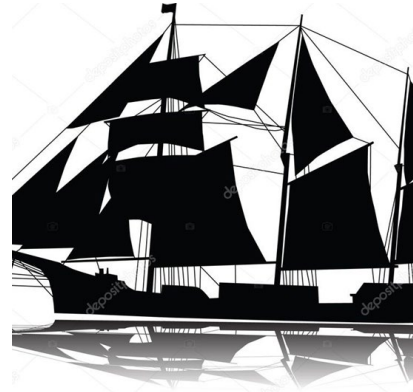


TENDENCIES OF SUSTAINABLE REGIONAL DEVELOPMENT IN THE CONTEXT OF SDGs



**Around us is a wide sea, sometimes stormy,
sometimes calm, but we must have a sustainable boat
(NAVI) and sails (NAVIGARE), which we direct to the
wind in order to reach the goal - SDGs.**

APPROACH NAVI & NAVIGARE



**Thank
you for
attention!**



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