80th International Scientific Conference of the University of Latvia



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TOWARDS CLIMATE NEUTRALITY: DIMINISHING OF THE CO2 EMISSIONS IN CONSTRUCTION MATERIALS' PRODUCTION IN LATVIA

Why construction materials?

Multiple EU prescriptive documents (e.g., No. 2018/842) present specific targets of CO₂ emissions reduction to be achieved by member-countries (including Latvia) before 2030. The way to achieve such reduction of the CO₂ is also by using "greener" building materials in a construction (e.g., increase the use of wooden material)



19.6.2018 Official Journal of the European Union L 156/39 ANNEX I MEMBER STATE GREENHOUSE GAS EMISSION REDUCTIONS PURSUANT TO ARTICLE 4(1)

Belgium	- 35 %
Bulgaria	-0%
Czech Republic	- 14 %
Denmark	- 39 %
Germany	- 3 <mark>8</mark> %
Estonia	- 13 %
Ireland	- 30 %
Greece	- 16 %
Spain	- 26 %
France	- 37 %
Croatia	- 7 %
Italy	- 33 %
Cyprus	- 24 %
Latvia	<mark>-6%</mark>
Lithuania	- 9 %

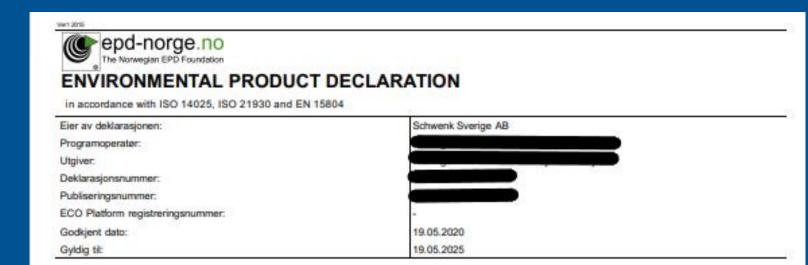


How the CO₂ is measured in a

construction materials?



- Environmental production declaration
- Standards (e.g. ISO 21930:2017 Sustainability in buildings and civil engineering works – core rules for environmental product declarations of construction



Infracement CEM I 42,5 N-SR3 MH/LA

Schwenk Sverige AB



Råmaterialer	Transport	Tilvirkning	Transport	K onstruksjon s/ in stallasjonsfase	Bruk	Vedlikehold	Reparasjon	Utskiftinger	Renovering	Operasj onell energibruk	Operasj onell v annbruk	Demontering	Transport	Avfallsbehandling	Avfall til sluttbehandling	Gjenbruk/gjenvinning/ resirkuler ing- p otensiale	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	X	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	ŀ

Miljøpåvirkning (Environmental impact)

Parameter	Unit	A1-A3	A4
GWP	kg CO ₂ -eq	8,17E+02	1,61E+01
ODP	kg CFC11 -eq	1,68E-05	3,10E-06
POCP	kg C ₂ H ₄ -eq	8,14E-02	2,87E-03
AP	kg SO ₂ -eq	1,70E+00	8,66E-02
EP	kg PO ₄ 3eq	3,16E-01	1,72E-02
ADPM	kg Sb -eq	9,55E-05	2,37E-05
ADPE	MJ	2,35E+03	2,45E+02

GWP Global warming potential; ODP Depletion potential of the stratospheric ozone layer, POCP Formation potential of tropospheric photochemical oxidants, AP Acidification potential of land and water, EP Eutrophication potential; ADPM Abiotic depletion potential for non fossil resources; ADPE Abiotic depletion potential for fossil resources

Leseeksempel 9,0 E-03 = 9,0*10 -3 = 0,009 *INA Indicator Not Assessed



Actuality

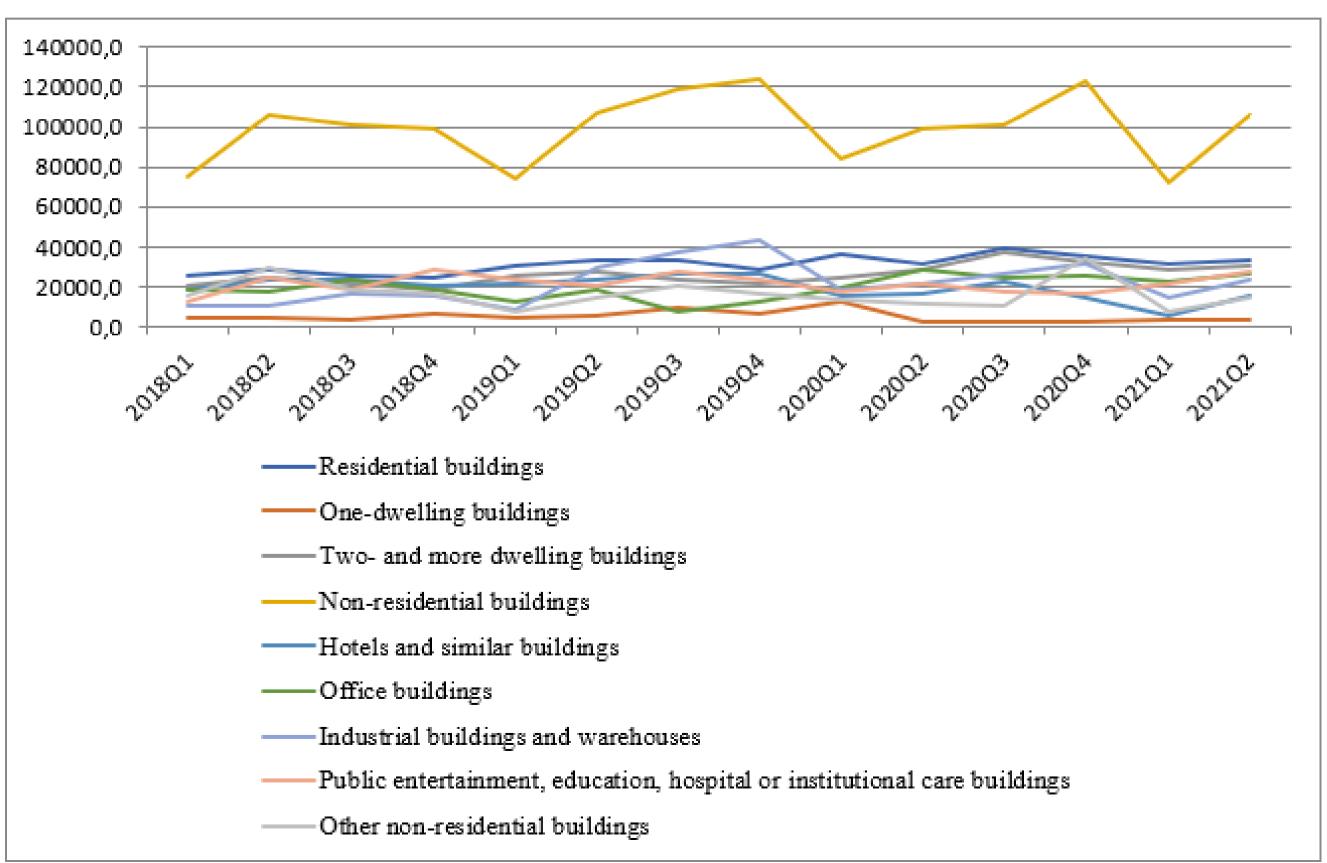


In Latvia construction always has been an important part of national economy

Recent tendencies in new construction in Latvia

Source: author's construction based on Official Statistics Portal of Republic of Latvia

B(UP030c)





Actuality

According to the Official Statistics Portal of the Republic of Latvia on 2021 Q2:

- wooden production in Latvia occupies 19,8 % from total Latvian export (the manufacturing sub-sector that probably will be influenced);
- an important memorandum was signed (April 2021) between Latvian Ministry of Economics and diverse local actors of the wooden manufacturing and construction industry in order to promote use of sustainable construction materials and construction products in Latvia;
 - the topicality of the research is related also to the fact that there are no empirical studies and scientifically substantiated evidence of the existing performance of the already implemented investment program in Latvia in the field of construction materials production.



Research's global goal

To elaborate a recommended specific mechanism (impact) to be offered to construction material production companies in Latvia, which would help to assess the factors influencing the production sub-sector (in terms of CO₂ emissions reduction). Consequently, that should allow the companies to become more competitive doing export



Tasks

- 1) Analyze the development of construction materials production in Latvia taking into account the requirements related to use of "greener" construction materials in construction. Analyze Latvia's export of construction materials
- 2) Analyze the time-series of salaries in the construction field (with possible specification in construction material production)
- 3) And other work subtasks



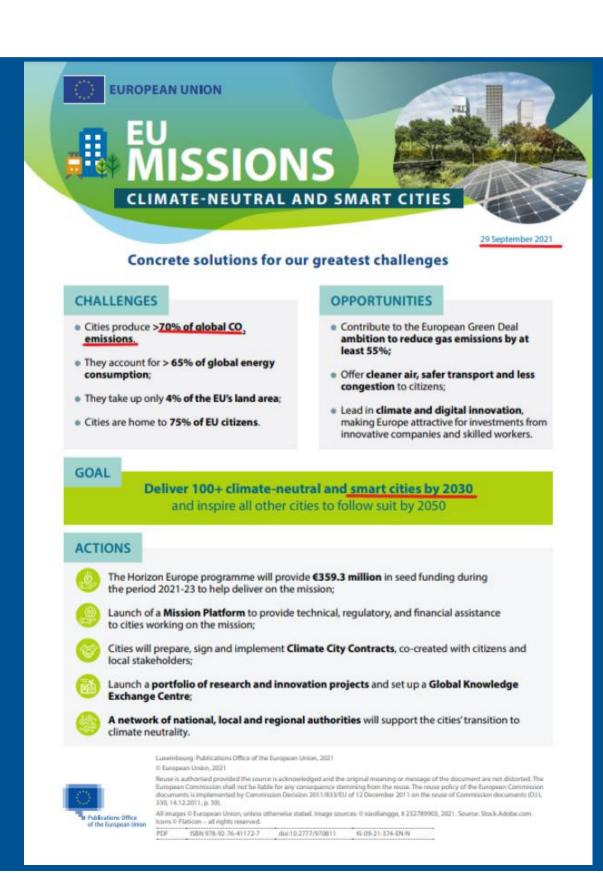
Results

- Gathering statistics
- Collecting information from different organizations/institutions (e.g.
 Investment and Development Agency of Latvia; Construction
 Manufacturers Clusters; Riga Technical University)
- Preparation work for the questionnaires



Next steps & perspectives

- To finalize the analysis of the situation
- To summarize the theoretical analysis
- To formulate questionnaires
- To begin work at empirical part



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- 6 years work experience in production company (wooden structures, heavy machinery production industry)
- 2,5 years work experience in over ~200 mio value construction projects
- worldwide work experience: in Western Europe, Asia, Russia, projects in cooperation with international partners
- from the 1-st of October, 2021 PhD doctoral student at Economics, Business and Management faculty, University of Latvia





Thank you for your attention!

