

Roadmap for building ETV market acceptance and recognition: SLOVENIA

**From cost to value perception,
market acceptance and recognition of ETV
as a voluntary environmental scheme
supporting innovations uptake
and diffusion for circular construction**

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1. INTRODUCTION

1.1. About the roadmap

This document presents a roadmap for building market acceptance and recognition for a specific ETV use case and related business case in the context of: the Corporate Sustainability Reporting Directive (CSRD), European Sustainability Reporting Standards (ESRS) and the EU taxonomy for sustainable activities capitalising on the potential and role of the ETV identified in a LIFEproETV Policy Brief: How the ETV scheme may foster the EU green transition?¹

1.2. Context for the roadmap

One of area of interest for ETV is construction sector and recycling (related to the former EU ETV pilot programme technology area Materials, Waste and Resources). We recognise construction sector as one of the essential sectors for achieving circular economy and decreasing carbon emissions in Europe due to its huge impacts on environment. On the other hand, the construction industry is considered as one of the most conservative sector slowly adopting new technologies. Further, there is also opportunity for ETV to enter construction industry since in the recent years many national and international sustainability schemes were introduced especially for buildings (mostly based on Life Cycle Assessment – LCA), e.g. LEVEL(s)², and there is a special Technical Committee (TC) for sustainability of construction works³ on the level of European Committee for Standardisation (CEN).

Construction industry (as well as some of larger investors) will in the near future fall under the Corporate Sustainability Reporting Directive (CSRD) therefore it is necessary to think how above-mentioned standards as well as ETV can be part of CSRD for construction companies. Although discussions on the final stipulations of the delegated and implementing acts are ongoing, we considered the content of the draft documents as a starting point for defining the potential role of the ETV scheme in verifying functionalities and characteristics of environmental technologies in terms of their impact on sustainability development in companies.

The European construction sector is one of the major European sectors contributing about 9% to the EU GDP and is composed of around 95% of SMEs⁴. It also consumes more than 50% of all extracted raw materials in Europe and produce more than 30% of waste, in some countries even more than 70%. In Slovenia, in 2019, 19.443 companies acting in construction industry were registered (after 10 year the first year of similar number as in 2008 before major crisis in Slovenia and Europe)⁵. In 2020 the construction sector had the total turnover about 11.2 billion EUR⁶. A slight decrease in construction activities was observed in 2021 although the number of construction permits is increasing⁷. Further the

¹ https://lifeproetv.eu/wp-content/uploads/2022/09/d.B.2.1-Policy-Brief_ETV-Final-1.pdf

² LEVEL(s) – European framework for sustainable buildings. https://environment.ec.europa.eu/topics/circular-economy/levels_en

³ CEN TC 350: Sustainability of construction works. <https://www.cencenelec.eu/areas-of-work/cen-sectors/construction/sustainability-safety-and-accessibility/>

⁴ European Commission. Construction sector. https://single-market-economy.ec.europa.eu/sectors/construction_en

⁵ Statistical Office of Republic of Slovenia. Construction in Slovenia. <https://www.stat.si/StatWeb/news/Index/8278>

⁶ European Construction Sector Observatory. Country Profile Slovenia. October 2021.

⁷ Statistical Office of Republic of Slovenia. <https://www.stat.si/StatWeb/File/DocSysFile/12130>

circular economy index connected shows that the level of treatment of construction and demolition waste in 2021 was 87 %⁸ although these numbers are mostly connected to the excavated soil and stone which is mostly used for backfilling and is not connected to the real recycling into construction products. Public sector infrastructure (e.g. improvement of railway and motorway networks in country), digitalisation, transport system upgradation and shift towards a circular economy, supported by EU funding, are expected to dominate the sector's growth in the near future. which shows that the construction All in all, we can say that the construction industry in Slovenia has a positive outlook in the medium and long term. Construction industry was also recognised as one of the sectors with high potential for transition to circular economy, especially with construction works being banks and source of secondary materials for their further use^{9,10,11}. in the sectors itself while also recognising other potential sources of secondary raw materials for construction (e.g. different industrial waste).

Considering the role of construction industry in achieving sustainability in Slovenia and Europe as well as dimension of the CSRD, the ESRS and the EU taxonomy as an overarching EU policy and as global interest in ensuring sustainable performance of companies, the experiences from demonstrating the utility of the ETV use case and the accompanying business case have strong potential for transfer and replication towards other countries and verification bodies and towards other environmental objectives covered in the EU taxonomy delegated acts.

This roadmap has been developed following an analysis of legal documents and a series of interviews and online meetings with relevant stakeholders. It includes goals, a problem definition, a map of stakeholders and a set of actions to: position the ETV system in the national sustainability financing and reporting ecosystem, to build strategic partnerships and to ensure awareness among environmental technology providers and users about the role of the ETV system in sustainability transition processes. A detailed analysis of these documents is included in the full version of the Roadmap which is attachment to this document.

2. CURRENT ETV STATUS AND RELATED CHALLENGES

Environmental Technology Verification in Slovenia is almost not recognisable since there is no ETV verification body in the country, no national policies mentioning ETV as well as according to our information no ETV granted. While on one hand this is opportunity for us to establish such system (especially as ZAG is already notified body according to the EU Construction Product Regulation (EU 305/2011)¹² and issues Environmental Product Declarations¹³) on the other hand there obstacles connected with low recognition of benefits connected to ETV, and established position of some other environmental "certificates" such as EMAS, forming national indicators for sustainable constructions on the principles of LEVEL(s) and low innovation level in construction industry in Slovenia in general.

⁸ Statistical Office of Republic of Slovenia. <https://www.stat.si/StatWeb/News/Index/10967>

⁹ Roadmap towards the circular economy in Slovenia.

¹⁰ SRIP Circular Economy. <https://srip-circular-economy.eu/>

¹¹ Deep demonstration in Slovenia. <https://www.climate-kic.org/circularslovenia-2/>

¹² Single Market Compliance Space. Notification details ZAG. <https://webgate.ec.europa.eu/single-market-compliance-space/#/notified-bodies/notifications/322951?organizationVersion=2>

¹³ Slovenian National Building and Civil Engineering Institute. Overview of issued EPD. <https://www.zag.si/en/certificates-and-approvals/issued-environmental-product-declarations/>

3. THE CHALLENGE FOR THE ETV USE CASE IN SLOVENIA

According to the European innovation scoreboard¹⁴ Slovenia is moderate innovator. There is direct connection between SMEs innovation capacity and innovation in country per general. Also, SMEs in more innovative regions are more independent on external sources while SMEs in less developed regions are mostly dependent on public R&D funding and external sources. Therefore, support to SMEs and market penetration of their innovations are of critical importance.

This is especially important in construction industry, which is relatively conventional sector and is lacking integrated approach to innovation. Currently, in Slovenia, it seems that the biggest focus is given to innovation and implementation of IT tools connected to Building Information Modelling, digital product passports, digital log books, use of augmented reality in construction never the less the sustainability innovation in construction is also current focus, including circular technologies and circular materials management (smart sustainable materials with increased resource efficiency, new waste sorting technologies, etc.). Further, the innovation of construction industry, especially in the view of circular economy, should be sought in symbiosis with other sectors, such as industry, waste management, municipal services and not only on construction sector itself.

One of the issues which construction industry will face soon and is already aware about it is new sustainability reporting under Corporate Sustainability Reporting Directive (CSRD). From 2024, the European Commission will require businesses to adopt the European Sustainability Reporting Standards (ESRS). Resource Use and Circular Economy is one of the 13 mandatory reporting areas demanded by the CSRD. This will apply to large companies (and indirectly their contractors along the value chain), and small and medium-sized enterprises (SMEs) in the EU, as well as companies outside the EU with substantial operations in the region. Many companies will face difficulties in navigating the complex concept of a circular economy and applying it to their business. Construction sector is one of seven sectors that have extra quantitative criteria set concerning the resource inflows and outflows.

The major challenge for the ETV use case in Slovenia which is moderate innovator is to accelerate innovative technologies for sustainable construction sector and to enhance understanding of the value of ETV statements for the company's sustainability reporting while competing with established environmental "certificates" such as EPD, national environmental indexes for sustainable construction¹⁵ and EMAS¹⁶.

4. GOAL DEFINITION

Since the European Commission took the decision in 2022 to discontinue its work on the EU ETV Programme, the organisations previously working within this programme now have to elaborate a market-oriented business model to continue their activities following the ETV system in accordance with

¹⁴ European Commission. European innovation scoreboard. https://research-and-innovation.ec.europa.eu/statistics/performance-indicators/european-innovation-scoreboard_en

¹⁵ LIFE IP Care4Climate. Sustainable construction and the efficient use of energy in buildings and companies. <https://www.care4climate.si/en/project/project-areas-and-activities/sustainable-construction-and-the-efficient-use-of-energy-in-buildings-and-companies#project-activity>

¹⁶ Slovenian Institute of Quality and Metrology. <https://www.siq.si/en/our-services/organization-certification/about-us/environment-and-energy/emas/>

ISO 14034 Environmental management – Environmental Technology Verification (ETV). First of all, they have to overcome the misinterpretation by stakeholders concerning the difference between the European ETV Programme and the ETV scheme. Many organisations are in the opinion that, as a result of the decision of the European Commission to end the EU ETV Programme, the ETV system is no longer supported and has lost its credibility. This means that the ETV bodies in Europe will have to build new partnerships with market players and to explain their role in value chains, while positioning their competencies to:

- provide impartial and credible confirmation of the performance, innovation and environmental benefits of new environmental technologies, so to create a framework for innovative pre-commercial procurement, technology benchmarking by individual companies or a group of companies, as well as conditions for elaborating new standards by branch organisations;
- support innovative companies and research and development institutes in demonstrating and confirming the added value of their new environmental technologies in concrete application settings compliant with potential clients' sustainability transition targets and the EU taxonomy;
- support public sector organisations in defining new standards for green procurement as a result of which the public sector can contribute to environmental technology development in the country and spur the implementation of new technologies;
- provide stakeholders, including technology users, branch organisations and financial institutions with reliable and useful information on verified environmental technologies, as a means to support their investment project preparation process, investment project due diligence process (recognition of the ETV statement by the financial sector), as well as to give insight in the way new technologies can contribute to companies' green transition targets (CSRD, ESRS and EU taxonomy).

Considering the above the main goals to be achieved in Slovenia addressing the challenge are:

- G1** – *Support innovative companies by validating their environmental technologies in alignment with sustainability transition objectives.*
- G2** – Increase understanding of the benefits brought by ETV statements among SMEs and decision-makers.
 - a) Clarify the valuable results obtained by ETV statements that provide impartial and credible confirmation of the technology performance and its environmental benefits.
 - b) Highlight ETV substantial role towards transition to a circular economy in construction sector and greening construction value chains.
- G3** – Provide investors reliable and useful information on verified environmental technologies to support their trust in investments/projects support.

5. PROBLEM DEFINITION

The following specific problems/barriers have been defined for the ETV use case:

- Regulatory problems/barriers (Table 1):

Barrier 1: Lack of updated national laws related to ESG reporting.

Currently Slovenia has not yet transferred the EU CSRD directives into national legislation although the basic information about the EU directive has already been released and the process of introduction has

already been initiated. The CSRD directive will be incorporated into the Companies Act (ZGD-1L), which is currently being revised and in the phase of public discussion until the end of October 2023. With the amendment ZGD-1M, three directives will be transposed into the Slovenian legal system, including the measures connected with CSRD. The goal of ZGD-1M is to increase capital investments into sustainable growth while also increasing awareness about financial risks resulting from environmental measures. The ZGD-1M is implementing rules for non-financial reporting regarding companies' obligation, type and range of information which needs to be reported and increased surveillance about reporting.

- Cultural problems/barriers (Table 2):

Barrier 2: Lack of awareness and knowledge about sustainability reporting requirements in companies within the construction sector.

EU CSRD is relatively new European directive which so far has not targeted small and medium enterprises which represents the largest percentage in European and Slovenia construction industry. The SMEs are relatively unknown with the non-financial, sustainable reporting. Further they are also non-familiar with environmental attestation or in general presenting environmental benefits and hot spots of their products, unless their products have already undergone the life cycle assessment calculations.

Barrier 3: Lack of trust in circular technologies and SRM-based products due to fear of increased environmental impacts and presence of potentially toxic compounds.

There is general fear of hiding environmental threats when using secondary raw materials from recycled waste among producers as well as consumers. This fear is especially based on negative examples of using some industrial waste (e.g. residues from steel and energy industries, such as Siemens-Martin slags and coal ash in construction products), presence of hidden asbestos in construction and demolition waste as well as insufficient technical specifications in the field of potential environmental impacts of construction products, especially connected with basic requirement (BR) of construction works dealing with Hygiene, Health and Environment (BR #3).

- Technological problem/barrier (Table 3):

No special technological problems/barriers were identified. On contrary, it was identified while innovation potential in construction area is relatively good (moderate) in Slovenia there is knowledge and technological readiness for developing innovative environmental technologies.

- Market problem/barrier (Table 4):

Barrier 4: Lack of support (governmental incentives, external investment) to innovation breakthroughs. Lack of quantified criteria for fact-based decision-making about investments and funding of environmental technologies and products.

Currently bringing novel technologies and products applied to construction sector in Slovenia is relatively complicated and challenging task (see Barrier no. 5). Additionally there is almost no or little subsidies on national levels which would support environmental technologies and products to faster transition to the market except occasional calls for more favourable loans for demonstration (initial investments) of innovative technologies, and subventions to energy efficient reconstruction of buildings or part of

buildings which impacts energy efficiency of buildings (replacement of insulation, windows, installation of electro photovoltaic, energy storage, and similar).

Barrier 5: Lack of quantified sustainability criteria for construction works in (public) procurement.

This barrier is partly connected with already identified barrier number 3 above (Lack of trust in circular technologies and SRM-based products due to fear of increased environmental impacts and presence of potentially toxic compounds) which is partly connected with lack of existing regulation. As stated, there are currently some advances on-going with development of new Decree on management of construction waste and waste which can be used for construction sector although this topic is broad and complicated covering not only environmental legislation but also construction legislation and others. The environmental legal requirements should be developed together with construction legislation (construction products legislation and construction act) to align environmental requirements especially with BR number 3 (Hygiene, Health, and Environment) with different intended uses of construction products made of secondary raw materials. Further, although the sustainability indexes for buildings as part of Green Public Procurement (GPP) are now underway they are not connected directly with risk assessment of construction products from secondary raw materials but are based on LCA and general environmental impacts of buildings along the life span (excluding infrastructure as part of construction activities).

Barrier 6: Low market uptake of innovative technologies.

The major cause for low market uptake of innovative technologies in construction field is long procedures to bring innovations to the market which relates to relative long procedures and costs of attestation of their conformity. While EU Construction Product Regulation¹⁷ foreseen harmonised technical specifications for “non-standard” construction products which are not covered by harmonised standard through European Technical Assessment. Manufacturers of products which undergo such attestation of conformity can draw up the declaration of performance and affix the CE marking but the procedure is relatively long since it involves technical assessment bodies across Europe and relatively expensive. Similarly, procedure can be implemented only on national level (non-harmonised are) in Slovenia through National Technical Approvals¹⁸. On the other hand national Construction Product Act and its underling regulations doesn’t foreseen testing of new technologies and products in real environment like in some other countries which prevents their use in buildings and infrastructural construction works.

For each problem/barrier, a dedicated table was prepared (Tables 1, 2, 3, 4) containing the following information:

- Cause
- Current situation
- Objective(s)
- Solution(s)

¹⁷ Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC Text with EEA relevance. Off. Journal of EU L88/5 from 4.4.2011.

¹⁸ Construction Products Act (Zakon o gradbenih proizvodih *in Slovene*) – Off. Gazz. of Republic of Slovenia no. 82/13.

- Key stakeholders

Table 1 Regulatory problem/barrier for Slovenia

REGULATORY	LACK OF UPDATED NATIONAL LAWS RELATED TO ESG REPORTING
Cause	Relatively new EU directive on ESG reporting
Current situation	The Companies Act (ZGD-1L) ¹⁹ is currently being revised (public discussion until the end of October 2023). With the amendment ZGD-1M, three directives will be transposed into the Slovenian legal system, including the directive regarding the corporate reporting on sustainability.
OBJECTIVE	
OBJ1	Definition of indicators and performance parameters in the use of recyclable and recycled materials; sustainable production processes.
OBJ2	Introducing assessment systems to verify compliance with the performance levels of the BAT
OBJ3	Define a regulatory and performance framework for the intended use of recycled waste to transformation into by-products.
OBJ4	Define national requirements for Basic requirement number 3 for Construction works: Hygiene, health and environment (e.g. limiting values for leaching, emissions in air, ...) also for primary raw materials-based products.
SOLUTIONS	
<p>ETV is already an ISO standardized process and can be a circular economy standard for providing a valid proof of compliance and existing environmental standards (e.g. for leaching tests) for providing a valid proof of compliance.</p> <p>ETV can help verify the performance of innovative technologies enabling conversion of waste to resources.</p> <p>ETV should be considered in GPP to help public institutions buy green innovative technologies.</p>	
Opportunities	ETV can help towards green transition awareness raising.
KEY STAKEHOLDERS	
Who and why	Policy and legislation makers (e.g., Ministry of the Environment, Spatial Planning and Energy, Ministry of Public Affairs, Local governments) responsible for national and local policies and regulations implementation in which ETV can be incorporated.
Who and why	Business support organizations, national agencies and ministries (e.g. Chamber of Commerce and Industry of Slovenia, Slovenian agency for Entrepreneurship under Ministry of Economy,

¹⁹ Companies Act (Zakon o gospodarskih družbah – *in Slovene*). Off. Gaz. of Republic of Slovenia No. 65/09, 33/11, 91/11, 32/12, 57/12, 44/13, 82/13, 55/15, 15/17, 22/19, 158/20, 18/21, 18/23 and 75/23)

	Tourism and Sport, Slovene Enterprise Fund) responsible for supporting innovation processes in companies.
Who and why	Start-up communities / incubators (e.g. Startup Slovenia) that help innovations reach the market.

Table 2 Cultural problem/barrier for Slovenia

CULTURAL	LACK OF AWARENESS AND KNOWLEDGE ABOUT SUSTAINABILITY REPORTING REQUIREMENTS IN COMPANIES WITHIN THE CONSTRUCTION SECTOR
Cause	The CSRD is a new directive and not well known among organisations in Slovenia. SMEs in construction industry previously had no obligations regarding reporting according to CSRD.
Current situation	The Companies Act (ZGD1-M) is currently being prepared, where three directives will be transposed into the Slovenian legal system, including the directive regarding corporate reporting on sustainability. This act updates the existing rules regarding non-financial reporting and expands the scope of those liable, as all large companies and small and medium-sized companies listed on the stock exchange will be liable for sustainable reporting.
OBJECTIVE	
OBJ1	Include ETV in the awareness raising campaigns and training sessions concerning CSRD, ESRS
OBJ2	Inform stakeholders about the connections between the requirements and the role of ETV statements
SOLUTIONS	
ETV can help verify the performance of innovative technologies related to resource use (waste into secondary materials) and help companies reaching circular economy	
Opportunities	Technology buyers and investors can benefit from ETV as a statement which could provide data on the environmental performance of the products and technologies in their investment processes.
KEY STAKEHOLDERS	
Who and why	Technology buyers (construction procurers) that need a proof of compliance for purchased technologies and products.
Who and why	Financial investors that need a proof of innovative and environmental benefits of technologies they invest in.
Who and why	Business organizations who inform organizations about the requirements related to necessary environmental reporting.
Who and why	Media organisations responsible for environmental related events (training, conferences, fairs) to plan and provide joint awareness raising and training activities.

Who and why	Relevant decision-makers, regulation-makers responsible for sustainability reporting, environment.
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CULTURAL	LACK OF TRUST IN CIRCULAR TECHNOLOGIES AND SRM-BASED PRODUCTS DUE TO FEAR OF INCREASED ENVIRONMENTAL IMPACTS AND PRESENCE OF POTENTIALLY TOXIC COMPOUNDS.
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Cause	Bad examples of recycled waste construction practices in the past, abundant use of hazardous materials, such as asbestos in past.
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Current situation	Current Decree on waste management ²⁰ defines limiting values for pollutants in leachates for treated substances and mixtures with intended use in exterior and which are subjected to atmospheric influences an can leach. Further, a new Decree on management of waste arising from construction activity are being developed on national level which will give additional requirements for ending waste status for waste which can be once treated used in construction market.
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OBJECTIVE

OBJ1	Include ETV in the awareness raising campaigns and training sessions presentation ETV benefits when verifying environmental claims such as leaching values.
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OBJ2	Inform stakeholders about the connections between the requirements and the role of ETV statements
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SOLUTIONS

ETV can help verify the performance of innovative technologies related to impact on health and environment (BR # 3 of construction works) and help companies achieving necessary permits (e.g. Environmental Permits) for recycling waste into construction products.

Opportunities	Technology buyers and investors can benefit from ETV as a statement which could provide data on the environmental performance of the products and technologies in their investment processes. This can also support governmental bodies granting permissions based on environmental claims in ETV.
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KEY STAKEHOLDERS

Who and why	Technology buyers (construction procurers) that need a proof of compliance for construction products based on environmental technologies.
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Who and why	Financial investors that need a proof of innovative and environmental benefits of technologies and products they invest in.
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Who and why	Decision making governmental bodies granting different environmental benefits
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Who and why	Relevant decision-makers, regulation-makers responsible for sustainability reporting, environment.
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²⁰ Decree on waste (Uredba o odpadkih in Slovene), Off. Gazz. of Republic of Slovenia No. 37/15, 69/15, 129/20, 44/22 and 77/22)

Table 3 Technological problem/barrier for Slovenia

TECHNOLOGICAL		NA
Cause	NA	
Current situation	NA	
OBJECTIVE		
OBJ1	NA	
OBJ2	NA	
OBJ3	NA	
SOLUTIONS		
Opportunities	NA	
KEY STAKEHOLDERS		
Who and why	NA	
Who and why	NA	

Table 4 Market problem/barrier for Slovenia

MARKET	LACK OF SUPPORT (GOVERNMENTAL INCENTIVES, EXTERNAL INVESTMENT) TO INNOVATION BREAK-TROUGHS.	
Cause	Little or no public subsidies for innovative technologies / products in construction industry, especially in circular economy domain. Lack of quantified environmental criteria for decision making about investments and funding of environmental technologies and products.	
Current situation	EKOSKLAD (Ecofund), Slovenian Environmental Public Fund, is offering occasionally financial incentives such as soft loans for demonstration of environmental technologies in general. Further, it offers subventions for individuals and companies for energy efficient construction and refurbishment such as subventions for photovoltaics, energy storage, insulation, window replacement. Beside this, investments into environmental innovations and products especially in the domain of circular construction is currently not existing. Further, the Slovenian Business Development Agency (SPIRIT) is occasionally granting vouchers for Life Cycle Assessment.	

OBJECTIVE

- OBJ1** To disseminate and raise awareness of public authorities and agencies about ETV as indicator of environmental technologies and products
- OBJ2** Introducing assessment systems to verify compliance with the performance levels of the novel technologies.
- OBJ3** Promote marketing opportunities in the light of upcoming legislation of sustainable technologies and products and how ETV can prevent greenwashing.

SOLUTIONS

ETV can support easier decision-making how to incentives sustainable technologies and products.

Opportunities Public authorities and their agency can benefit from ETV as a statement which could provide data on the environmental performance of the products and technologies in their investment processes.

KEY STAKEHOLDERS

Who and why Ministries (Ministry of Economy, Tourism and Sport), Ministry of Environment, Climate and Energy and their agencies responsible for calls on incentives for environmental technologies and products and their environmental verifications.

MARKET

LACK OF QUANTIFIED SUSTAINABILITY CRITERIA FOR CONSTRUCTION WORKS IN (PUBLIC) PROCUREMENT.

Cause Lack of appropriate sustainability criteria for compliance of construction products according to the Basic requirement 3 (Hygiene, Health and Environment).

Current situation Existing Decree of Waste with limit leaching parameters for waste which goes treatment for putting in external conditions. Evolving sustainability indexes along life span for buildings as part of GPP based on LEVEL(s), development of new decree on management of waste from construction activities and waste intended for use in construction sector.

OBJECTIVE

- OBJ1** To disseminate and raise awareness of public authorities and agencies about ETV as indicator of environmental technologies and products
- OBJ2** Introducing assessment systems to verify compliance with the performance levels of the novel technologies.
- OBJ3** Promote marketing opportunities in the light of upcoming legislation of sustainable technologies and products and how ETV can prevent greenwashing.

SOLUTIONS

ETV can support partly replace lack of quantified environmental data based on environmental claims. .

Opportunities Information about environmental claims of novel technologies and products will stipulate development of limiting values and sustainability criteria for construction works.

KEY STAKEHOLDERS

Who and why Ministries: Ministry of Environment, Climate and Energy and Ministry of Public Affairs responsible for development of green (public) procurement criteria and environmental criteria. Ministry of Economy, Tourism and Sport, Ministry of Health responsible for development of national criteria for BR #3.

MARKET

LOW MARKET UPTAKE OF INNOVATIVE TECHNOLOGIES.

Cause Lack of technical specifications covering technical and environmental requirements for innovative environmental technologies and products for construction.

Current situation Harmonised (European technical assessments) and non-harmonised (Slovenian Technical Approval) area for putting innovative “non-standardised” construction products on the market. Existing technical specifications for use of materials in road construction: recycling²¹ from 2001.

OBJECTIVE

OBJ1 To disseminate and raise awareness of public authorities and agencies about ETV as indicator of environmental technologies and products

OBJ2 Introducing assessment systems to verify compliance with the performance levels of the novel technologies.

OBJ3 Promote marketing opportunities of sustainable technologies and products and how ETV can prevent greenwashing.

SOLUTIONS

ETV can support partly replace lack of quantified environmental data based on environmental claims of novel technologies and products. .

Opportunities Information about environmental claims of novel technologies and products will stipulate development of technical specifications for environmental technologies and products.

KEY STAKEHOLDERS

Who and why Ministries: Ministry of Economy, Tourism and Sport, Ministry of Health responsible for development of national criteria for BR #3. Ministry of Natural Resources and Spatial Planning responsible for technical specifications in the field of buildings and Ministry of Infrastructural

²¹ TSC 06.800: 2001: Reuse of materials in road construction: recikliranje (Ponovna uporaba materialov v cestogradnji: recikliranje in Slovene). DARS.

	with Slovenian Infrastructure Agency and Slovenian Road Agency responsible for development of technical specifications in the field of road and railway infrastructure.
Who and why	Technology buyers that need a proof of compliance for their technologies.
Who and why	Financial investors that need a proof of innovative and environmental benefits of technologies they invest in..
Who and why	Business organizations (Chamber of Commerce and Industry), ministries and their agencies (Ministry for Economy, Tourism and Sport, Entrepreneurship agency, Business agency) who support industry in business modelling (inclusion of ETV in the business model) and develop legislation regarding attestation of conformity.
Who and why	Media organisations responsible for environmental related events (training, conferences, fairs) to plan and provide joint awareness raising about ETV.
Who and why	Relevant decision-makers, regulation-makers (Ministry for the environment, spatial planning and energy, Ministry for Public Affairs, Environmental Fund) responsible for GPP and green investments
Who and why	Industry, start-up – to promote ETV benefits for GPP and market penetration (including preventing of green-washing)

6. KEY STAKEHOLDERS MAP

For each category of problem/barrier, the following key stakeholders were identified:

- Regulatory:
 - **Policy and legislation makers** (e.g., Ministry of the Environment, Spatial Planning and Energy, Ministry of Public Affairs, Local governments) responsible for national and local policies and regulations implementation in which ETV can be incorporated.
 - **Business support organizations, national agencies and ministries** (e.g. Chamber of Commerce and Industry of Slovenia, Slovenian agency for Entrepreneurship under Ministry of Economy, Tourism and Sport, Slovene Enterprise Fund) responsible for supporting innovation processes in companies.
 - **Start-up communities / incubators** (e.g. Startup Slovenia) that help innovations reach the market.
 - **Technology buyers** (construction procurers) that need a proof of compliance for purchased technologies and products.
 - **Financial investors** that need a proof of innovative and environmental benefits of technologies they invest in.
 - **Business organizations** who inform organizations about the requirements related to necessary environmental reporting.
 - **Media organisations** responsible for environmental related events (training, conferences, fairs) to plan and provide joint awareness raising and training activities.
 - **Relevant decision-makers, regulation-makers** responsible for sustainability reporting, environment.

- Cultural:
 - **Technology buyers (construction procurers)** that need a proof of compliance for construction products based on environmental technologies.
 - **Financial investors** that need a proof of innovative and environmental benefits of technologies and products they invest in.
 - **Decision making governmental bodies** granting different environmental benefits.
 - **Relevant decision-makers, regulation-makers** responsible for sustainability reporting, environment.
 - Technological:
- NA
- Market:
 - **Ministries:** Ministry of Economy, Tourism and Sport, Ministry of Environment, Climate and Energy and their agencies responsible for calls on incentives for environmental technologies and products and their environmental verifications. Ministry of Environment, Climate and Energy and Ministry of Public Affairs responsible for development of green (public) procurement criteria and environmental criteria. Ministry of Economy, Tourism and Sport, Ministry of Health responsible for development of national criteria for BR #3. Ministry of Economy, Tourism and Sport, Ministry of Health responsible for development of national criteria for BR #3. Ministry of Natural Resources and Spatial Planning responsible for technical specifications in the field of buildings and Ministry of Infrastructural with Slovenian Infrastructure Agency and Slovenian Road Agency responsible for development of technical specifications in the field of road and railway infrastructure.
 - **Technology buyers** that need a proof of compliance for their technologies.
 - **Financial investors** that need a proof of innovative and environmental benefits of technologies they invest in.
 - **Business organizations** (Chamber of Commerce and Industry), ministries and their agencies (Ministry for Economy, Tourism and Sport, Entrepreneurship agency, Business agency) who support industry in business modelling (inclusion of ETV in the business model) and develop legislation regarding attestation of conformity.
 - **Media organisations** responsible for environmental related events (training, conferences, fairs) to plan and provide joint awareness raising about ETV.
 - **Relevant decision-makers, regulation-makers** (Ministry for the environment, spatial planning and energy, Ministry for Public Affairs, Environmental Fund) responsible for GPP and green investments.
 - **Industry, start-up** – to promote ETV benefits for GPP and market penetration (including preventing of green-washing).

The above-mentioned stakeholders shall be addressed and involved in the promotional campaign dedicated to the presented ETV use case and build the business case to be implemented in under the LIFEproETV project following a set of actions as proposed in the Action Plan presented in the following section. Several communication activities has already been carried out (e.g. with Ministry of Environment, Climate and Energy, Ministry of Economy, Tourism and Sport, Ministry of Public Affairs, Ecosklad, SPIRIT,

Chamber of Commerce and Industry, SRIP Circular Economy and others) with whom we communicated on possibilities to include ETV in policies and activities.

7. ACTION PLAN

For each problem category described in section 5 (regulatory, market, technological and cultural) a set of actions to be considered in the promotion campaign has been defined (**Błąd! Nie można odnaleźć źródła odwołania.**).

ACTIONS	GOALS
REGULATORY	
R.A1: Identify leading ministries and institutions that are active in the field of sustainability reporting and are ready to consider ETV statements in national documents.	
R.A2: Provide bilateral meetings with representatives of leading ministries and institutions to explain the ETV scheme and to present the added value of the ETV service, particular in the field of circular economy and resource use.	G1 G2 G3
R.A3: Provide bilateral meetings with representatives of business support organization to explain the ETV scheme and to present the added value of the ETV service, particular in the field of circular economy and resource use.	
R.A4: Prepare informative materials about the ETV scheme related to sustainability reporting.	
CULTURAL	
C.A1: Identify technology buyers and producers in construction sector that are active in the field of sustainability reporting.	
C.A2: Prepare informative materials about the ETV scheme related to sustainability reporting for technology buyers and producers in construction sector	G1 G2 G3
C.A3: Provide information and training sessions for construction companies on the use of ETV in the context of green public procurement.	
C.A4: Enter into cooperation with associations in the construction sector and introduce ETV	
TECHNOLOGICAL	
NA	
MARKET	

M.A1: Identify technology producers in construction sector that are active in the field of research and innovative technologies development.

M.A4: Identify planned events directed to organisations involved in development of circular economy and policy related areas.

M.A3: Prepare presentation content for meetings and training content about the ETV scheme in the context of ESG reporting.

M.A4: Present and promote the self-assessment tool to perspective applicants in construction sector

G1
G2
G3

8. CONCLUSION FOR THE SLOVENIA BUSINESS CASE AND ROADMAP

Situation:

Construction sector in Slovenia is well known for potential of environmental benefits, especially in the field of energy efficiency and circular economy but on other hand ETV is almost not recognised as potential environmental “certificate” which would proof environmental claims of technologies and products connected to the construction sector. Most of governmental efforts for transition into circular economy recognise construction sector as important aspects for decarbonisation of country. On the other hand, there are several issues in circular transitions (some connected to the construction sector and some are more general) such as:

- how to recognise quantitative environmental benefits and critically assess environmental claims, not only for novel environmental technologies and products but technologies, products in general;
- how to validate if environmental technologies and products are really beneficial and are not posing harm or just allocate environmental burdens;
- how to enhance cooperation between and align different fields of sustainability of technologies and products (also cooperation between ministries) in order to develop appropriate legal requirements (e.g. End-of-Waste status, basic requirements for construction works in the field of hygiene, health and environment, GPP requirements) as well as appropriate incentives;
- how to enable for environmental technologies and products to quickly enter the market without long lasting procedures and high cost while at the same time ensure their environmental harmless.

This roadmap includes opportunities and goals which can bring as a main benefit transparent, fact-based introduction of environmental technology and products on the market while enhancing holistic transition to circular economy in Slovenia. In this, we see Slovenian National Building and Civil Engineering hasving important role, not just as LIFEProETV partner but also as only Slovenian public research center in the field of construction, notified body and technical assessment body, and therefore protagonist of sustainable construction in Slovenia.

Contact

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