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BUILDING MATTERS: Mitigating climate change transition risks of the construction sector through building capacity in sustainable building materials

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WP2. SUSTAINABLE BUILDING MATERIALS AWARENESS & COMPETENCE

Final Report – All Partners

Activity 2.2 Liaising with the VET, the educational sector, the academia, and the industry for identifying the utmost potential of sustainable building materials

Drafted by: Daniela Zirra, Project Manager



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WP2. SUSTAINABLE BUILDING MATERIALS AWARENESS & COMPETENCE

Activity 2.2 Liaising with the VET, the educational sector, the academia, and the industry for identifying the utmost potential of sustainable building materials

Final Report on National Interaction Round Tables

The aim of A2.2 was to gather firsthand input and insight from the building industry, as well as VET and the educational sector for identifying the utmost potential of sustainable building materials as well recommendations for the sustainable building materials VET curricula.

This activity had 2 objectives, which were fulfilled, namely:

1. To enable the exchange of knowledge, experiences and good practices between key stakeholders in the construction industry (professionals, designers, practitioners, professional associations, manufacturers/suppliers of construction materials, the educational environment, the academic environment) at national and transnational level.
2. To enable the establishment of an industrial alliance to respond to common challenges to achieve sustainable goals.

The obtained result at the end of A2.2 implementation was to facilitate networking and fostering synergies, cross-national cooperation between key stakeholders and at project partner level to align skills needs with construction industry requirements, but also engaging stakeholders in the use of good practice and sustainable building materials.

In this respect, all partner countries had to replicate minimum 1 National Interaction Roundtable each (minimum 6 National Interaction Roundtables), and were be responsible for providing each of them one National Recommendation, with minimum 26 participants (minimum 6 per country).

Initially, WP2 was planned to be implemented in the period October 2022 - May 2023. In order to involve as many stakeholders as possible and achieve the quality indicators assumed, together with ensuring the best coherence with the objectives proposed for WP3, at the level the partnership it was agreed to extend the implementation period of WP2 (mainly A2.2 and A2.3) until September 2023. In the following, the achievements of the partners will be presented and the way in which they acted to achieve the objectives, the obtaining of the planned results and, finally, the achievement of the aim envisaged in the project proposal approved for financing.

The partners involved in the implementation of A2.2 are presented in the following table:

Code	Acronym	Partner's Name	Country
PP	FGS FAMILIA	FEDERATIA GENERALA A SINDICATELOR FAMILIA	Romania
P1	PEDMEDE SOMATEIO	PEDMEDE SOMATEIO	Greece
P2	CCIS	GOSPODARSKA ZBORNICA SLOVENIJE (GZS ZGIGM)	Slovenia
P3	K&S SKOPJE	KNOWLEDGE AND SKILLS MANAGEMENT CENTRE	Macedonia
P4	BZB	BILDUNGSZENTREN DES BAUGEWERBES EV	Germany
P5	IIPLE	ISTITUTO PER L'ISTRUZIONE PROFESSIONALE DEI LAVORATORI EDILI DELLA PROVINCIA DI BOLOGNA	Italy
P6	PEDMEDE ECO	PEDMEDE ECO	Greece



The **National Interaction Round Tables** took place according to the following **schedule**:

No	Partner	Data	No of Stakeholders	Stakeholders' area of interest
1	FGS FAMILIA	21/04/2023	19 Professor/Trainer Managers Researchers Consultants/Advisors NGO employee	Training/Education in constructions Producers of construction materials Expertise/Counselling/Certification Association of Producers/Unions Construction industry Research in sustainable constructions and construction materials NGOs in Constructions area
2	PEDMEDE	27/04/2023	10 Civil engineers Mechanical engineers Technical professionals all working in the construction sector	Business representatives in the construction sector
3	CCIS	24/02/2023	9 Civil engineers Technical professionals working in and for the construction sector	Companies from the construction sector National standardization bodies The National Construction Institute Vocational school (for construction programs)
4	K&S SKOPJE	16/03/2023	16 Business representatives in the construction sector Academics Technical professionals in construction sector	Companies from the construction sector Producers of construction materials Suppliers of construction materials Entrepreneurship in the construction sector Training/Education in constructions Chambers of commerce
5	BZB	10/03/2023	8 Bricklayers and concrete construction foremens	Companies from the construction sector
6	BZB	23/03/2023	12 Bricklayers and concrete masons	Companies from the construction sector
7	BZB	25/03/2023	8 Bricklayers and master concrete builders	Companies from the construction sector
8	IIPLE	13/04/2023	6 Civil engineer Architect Expert in professional training design Civil engineer Trainer in construction sector Technician in the construction field	Design and structural engineering VET regional body Applied research (energy savings and sustainable environmental control technologies for the building environment) Environmental control and testing laboratory Management of building practices and building renovation works Energy efficiency Environmental sustainability Safety at work, Urban and land planning



As can be seen in the previous table, **8 National Interaction Round Tables** were organized within A2.2, which means that the assumed indicator of a minimum of 6 such events (respectively minimum 1 per country) was exceeded. This is a positive aspect, because it was possible to involve a large and varied number of stakeholders, covering most of the areas of interest in the field targeted by the project (constructions and sustainable construction materials).

PP FGS Familia was the only Partner that organized the National Interaction Round Table online, because they wanted the involvement of as many stakeholders as possible, from all areas of interest connected with the concept of sustainability in the field of construction, and some of them are based outside of Romania (such as Carbon Crusher).

Join Zoom Meeting (10:00-12:00)

<https://us02web.zoom.us/j/88298163907?pwd=Z1hOSFVhU2pLUEpsdWdLWkNLdktFQT09>

Meeting ID: 882 9816 3907

Passcode: 460084

All other events of the Partners were held face-to-face.

Each of the partners has chosen the most appropriate ways to run the events, so that the intended results are achieved.

Some of the partners (FGS FAMILIA, CCIS, PEDMEDE and IIPLE) chose the option of conducting discussions, based on the list of topics that were agreed at the partnership level and included in the methodology developed for WP2 by PEDMEDE (the coordinator of this activity) and the drafting of conclusions and recommendations, which were agreed at the end by the participants.

The BZB partner approached the topics based on a questionnaire, which was completed during the 3 events they organized, and at the end of them, conclusions and recommendations accepted and agreed by the participants were drawn up.

Finally, the K&S partner held discussions on the targeted topics, which he alternated with the use of the SLIDO poll for opinion gathering tool, structured in two parts, respectively 1st part related to the Status of sustainable construction, and 2nd part that aimed to provide an answer to the level of awareness, availability and the need of trainings and knowledge sharing on SCM (Sustainable Construction Materials). At the end of the event, conclusions and recommendations accepted and agreed by the participants were drawn up.

The most relevant topics covered in the National Interactions Round Tables were:

- Introduction and project presentation.
- The impact of the requirements imposed by the sustainable development on the use of conventional construction materials - carbon, energy and ecological imprint.
- Using durable/sustainable construction materials, with emphasis on secondary/recycled ones - technological aspects and trends.
- The stage of the transition to sustainable approaches to the construction materials - European legislation versus national legislation (degree of harmonization).



- Implementation of European/national instruments for sustainable construction and their impact at branch/company.
- Barriers, needs, opportunities and challenges (technical, legal, financial and institutional).
- Existing training programs and programs for strengthening the response capacity regarding the sustainable approach of the building materials.

Some **relevant conclusions** that resulted from discussions, are:

- The degree of knowledge of how to calculate the carbon footprint in the construction and building materials market is very low. There is controversy regarding how to calculate the carbon footprint. All the material producers present at the debate mentioned that within their companies there is an active concern about this topic.
- Material producers (due to legislative constraints) have concerns about the recycling of materials (both through the recovery of waste resulting from their own production process, but also that from final customers) and the reintroduction of waste into the production process.
- At the European level, there is a significant legislative package regarding construction materials, which is taken over or in the process of being taken over and implemented in the national legislation. Actors on the construction market are aware of the European and national regulatory norms regarding construction materials and in this sense, they make efforts to align with the new normative requirements.
- The main barriers, needs and challenges mentioned by the participants are: the high costs of high-performance and environmentally friendly materials; lack of appropriate technologies for recycling and re-introduction into the waste production process; the inconsistencies between the legislative framework and the provisions of the standards and the technical regulations regarding construction materials; poor education of the target audience regarding the circular economy and energy efficiency; the lack of specialists in the concept and design phase of constructions who know and apply the principles of the circular economy and the energy efficiency of constructions; the lack of qualified personnel in the construction execution phase, who know environmentally friendly materials and execution principles for increased energy efficiency of buildings.
- There are extremely few training programs in initial education, both at high school and at higher education level, dedicated to the field of energy efficiency and circular economy. In addition, there are no continuing professional training programs dedicated to this field. Most building material manufacturers have their own training programs and training centers.
- The adoption of recycled and secondary raw materials in construction is still in its early stages in many European countries and there are not many local examples or case studies in this field.

The participants at the National Interaction Round Tables can be divided into 2 large groups:

- Key stakeholders - drivers of sustainable evolution in the construction industry - that aimed to exchange views, knowledge and initiate a constructive dialogue on the potential of



sustainable building materials towards mitigating climate transitions risks, with special focus on recycled/ secondary raw materials.

- VET representatives in the construction sector, that aimed to exchange views, knowledge towards skills needs and competence gaps, as well as recommendations for the sustainable building materials VET curricula.

Regarding the number of Key stakeholders/VET representatives in the construction sector, some statistics are presented below.

Partner	Country	Male	Female	TOTAL
FGS FAMILIA (PP)	Romania	9	6	15
PEDMEDE (P1 & P6)	Greece	10	-	10
CCIS (P2)	Slovenia	5	4	9
K&S SKOPJE (P3)	North Macedonia	11	5	16
BZB (P4)	Germany	28	-	28
IIPLE (P5)	Italy	3	3	6
TOTAL	All countries	66	18	84

Regarding **the number of participants to the National Interaction Round Tables**, the **planned number** was set to:

- **A minimum of 26** participants to 3 National Interaction Round Tables in **Romania, Greece, Slovenia** (1 per country) with 6 key stakeholders' minimum each (representatives from the VET and educational sector representing the construction industry, including researchers, trainers, experts, training providers and the academia).
- **A minimum of 26** participants for 3 National Interaction Round Tables in **Italy, Germany, North Macedonia** (1 per country) with 6 key stakeholders' (training-oriented stakeholders to interact in roundtables and focus to discuss on accommodating effectively training offers and innovative learning approaches in line with labor market needs and responding to the sustainable and environmental transition of the construction and building industry) minimum each.

The number of **participants to the National Interaction Round Tables**, according to the documents collected from all partners, was:

- **34 Participants** to the **3 National Interaction Round Tables** in **Romania (15), Greece (10), Slovenia (9)** – representatives from the VET and educational sector representing the construction industry, including researchers, trainers, experts, training providers and the academia.
- **50 Participants** for **5 National Interaction Round Tables** (Italy and North Macedonia with 1 event each, and Germany with 3 rounds of discussions) in **Italy (6), Germany (28), North Macedonia (16)** – training-oriented stakeholders.

All participants made an important contribution to providing essential input and recommendations for creating an up-to-date VET curriculum for the Building Matters training program.



Regarding the tangible outputs of A2.2, they were planned:

- 3 National Recommendation papers for the inventory of sustainable building materials and their potential.
- 3 National Recommendation papers for the sustainable building materials VET curricula.

The recommendations aimed to recap the conclusions reached through national interactions of key stakeholders from the construction industry, including VET representatives.

Through the WP2 implementation methodology, agreed at the partnership level at the beginning of the activities, it was established that during the National Interaction Round Tables all partners should address both the inventory of sustainable building materials and their potential and the recommendation for the sustainable building materials VET curricula.

Therefore, in the **6 reports/National Recommendation Papers** developed by the partners at the end of A2.2 implementation we can find both National Recommendation for the inventory of sustainable building materials and their potential, and National Recommendation for the sustainable building materials VET curricula.

Some of the most **National Recommendation** for the inventory of **sustainable building materials** and their potential are:

- Promote collaboration and knowledge sharing: Collaboration and knowledge sharing among stakeholders, including architects, engineers, builders and policy makers, are essential to creating a more sustainable construction industry.
- Wide actions both educational and promotional for distinction of sustainable materials from the conventional materials, especially in terms of the market offer, so the users to clearly understand the difference between them, and the benefits of using Sustainable Construction Materials (SCM).
- Developing widespread actions for awareness raising including champagnes, promo events, printed material etc.
- Clearly identifying the benefits from using SCM.
- Supporting development of training programs for promotion of SCM.
- A specific emphasis and attention will be devoted to the role of Green Public Procurement in the construction sector and CAMs involving engineers and entrepreneurs of small and medium-sized enterprises.
- Upgrading the legal requirements for boosting the use of SCM. Adapting EU legislation not only as a recommendation but as well as a part of legal requirements.

Some of the most **National Recommendation** for the **sustainable building materials VET curricula** are:

- Integrate sustainability principles into the entire building process, which means that the training programs should not only focus on the materials used in construction, but also on sustainable design principles, energy efficient systems, waste reduction strategies and life cycle assessments life.



- Provide hands-on training opportunities, that might be translated in providing hands-on and hands-on training opportunities, such as site visits, seminars and apprenticeships, are essential to helping people develop the skills and knowledge needed to implement sustainable building practices.
- It is necessary to leverage technology and online learning, because the technology and the online learning platforms can help increase access to education programs and provide flexible learning options that can be tailored to individual student needs.
- It is very important to measure the impact of training programs. The training programs should be regularly evaluated to measure their impact and identify areas for improvement. This can help ensure that training is effective and meets the needs of students and the construction industry.
- It is necessary to expand the training offer on selective demolition, appropriate sorting, recycling of inert waste, secondary raw materials for building and construction; urban extraction and recycling and valorization of waste.
- The coverage of the training should be focused on the awareness, the benefits and the advantages of SCM.
- The training should be adjustable, innovative, interesting, quality, trustful and reliable training process, offered as easy to follow, time adjustable, available through interactive digital platforms for training and education to ease self-guided training progress, to be short enough to ensure the adjustment of time of the employed learners, to be available in different learning environments, depending on the target group (mobile apps, LMS, showrooms, gamified microlearning pieces, media production toward awareness etc.).
- It is very important to identify the most relevant sustainable materials to include in the training program, respectively the description of what they are, how they are made, and how they are different from other conventional building materials. This may be of assistance in ensuring that students have a fundamental understanding of the subject. International case studies and best practices regarding this field will help to understand practical the subject.
- It is necessary to address local issues, practices and current status of sustainable building materials and ways to promote these instead of conventional ones.
- The curricula should include technical information as sustainable building materials and especially recycled and secondary raw materials. Participants may gain a better understanding of how to use these materials by receiving technical information.
- In the training materials should be introduced accurate information including the cost, availability, effectiveness and durability of sustainable building materials, information regarding laws and regulations regarding sustainable building practices and materials, etc.
- There is a need for a training program that provides more concrete issues regarding the topic of sustainable building materials and not only general information.
- Hands-on experience and practical implementation were referred to as crucial aspects of the training design. It is significant for building professionals to gain practical knowledge regarding the practical use of sustainable building materials.



The final conclusions of the report are:

1. All the quality requirements (KPI), provided in the submitted project and in the WP2 Methodology, were respected, because all the partners organised the National Interaction Round Tables, in which participated more than 12 key stakeholders/partner, all important sectors in the construction field being represented (the VET, the educational sector, the academia, and the industry – construction sector and construction materials producers, certification bodies, producers associations and unions, etc.).
2. Moreover, based on the discussions, recommendations were developed, and were included in the reports elaborated by the partners. The recommendations developed at the national level were centralized by the partner PEDMEDE and constituted important elements in the development of the main result of WP2, respectively the Transnational toolkit for training package. By extending the duration of the implementation of WP2 it was possible to achieve a high quality of the main result (in final version), as well as its translation into the languages of the countries participating in this project. Also, the coherence of WP2 and WP3 was ensured, taking into account that the basis for starting WP3 is constituted by the final result of WP2 (the Transnational toolkit for training package).
3. When organizing the National Round Table, all the template documents provided in the WP2 Methodology (developed by PEDMEDE, and approved at the partnership level) were used.