

Micro-credentials in Construction

Report on Stakeholders Focus Groups



Project Information

Project number	101132905
Project name	Micro credentials in Construction Sector
Project acronym	Green Circle
Call	ERASMUS-EDU-2023-PI-FORWARD
Торіс	ERASMUS-EDU-2023-PI-FORWARD-LOT2
Type of action	ERASMUS-LS
Granting Authority	EACEA/A/02
Copyright	This work is licensed under CC BY-NC 4.0
Project starting date:	1 December 2024
Project end date	30 Nov 2026
Project duration:	36 months
Project Website:	https://green-circle.eu/

Partners



- 1. TECMINHO ASSOCIAÇÃO UNIVERSIDADE EMPRESA PARA O DESENVOLVIMENTO (PORTUGAL)
- 2. ACP SYNERGASIA ENERGON POLITON ACTIVE CITIZENS PARTNERSHIP (GREECE)
- 3. PONTYDYSGU SL (SPAIN)

4. CICCOPN - CENTRO DE FORMAÇÃO PROFISSIONAL DA INDÚSTRIA DA CONSTRUÇÃO CIVIL E OBRAS PÚBLICAS DO NORTE (PORTUGAL)

- 5. CASAIS ENGENHARIA E CONSTRUÇÃO SA (PORTUGAL)
- 6. UNIR UNIVERSIDAD INTERNACIONAL DE LA RIOJA (SPAIN)
- 7. ARANSA ARANSA CONSTRUCCION Y OBRA CIVIL SA (SPAIN)
- 8. VBB NORD VEREIN ZUR BERUFSFÖRDERUNG DER BAUWIRTSCHAFT NORD EV (GERMANY)

9. **PEDMEDE** - PANELLINIA ENOSI DIPLOMATOUCHON MICHANIKON ERGOLIPTON DIMOSION ERGON - PANHELLENIC ASSOCIATION OF ENGINEERS CONTRACTORS OF PUBLIC WORKS (**GREECE**)

10. BNB - BAUINDUSTRIEVERBAND NIEDERSACHSEN-BREMEN E.V. (GERMANY)

11. DUTH - DEMOCRITUS UNIVERSITY OF THRACE (GREECE)

1. Introduction

The Green Circle micro-credentials (MCs) in the Construction Sector project's partners conducted two focus groups with relevant stakeholders in each project partner country: Spain, Portugal, Greece, and Germany. The participants included representatives from construction companies, VET and trainers, accreditation bodies, industry associations, academic institutions, as well as young professionals and policy makers.

2. Participants

Stakeholders from various sectors within the construction industry were invited to share their perspectives to develop a strategy for establishing a micro-credentials ecosystem. They are grouped by sector. A detailed description of them can be found in the annexes 1 to 4.

CONSTRUCTION COMPANIES AND ASSOCIATIONS

- Grupo Casais (project partner) (Portugal): Blufab (Portugal), Casais engenharia e construção (Portugal)
- GEMEK (Greece)
- FLUOR (Greece)
- Panhellenic Association of Engineers Contractors of Public Works (Project Partner; Greece)
- 6 German road construction companies (Germany)
- ARANSA construcción y obra civil S.A Logroño, Spain, (Project partner; Spain)
- IMEL Electricidad Inteligente (Spain)
- ARIC Asociación Riojana para la Innovación Constructiva (Spain)
- Thrace NG (Greece)
- AECEF Association of European Civil Engineering Faculties

VET/ TRAINERS

- CENFIC Centro de Formação Profissional da Indústria da Construção Civil e Obras Públicas (Portugal)
- CICCOPN Centro de Formação Profissional da Indústria da Construção Civil e Obras Públicas do Norte (Project partner; Portugal)
- U STUDIES Lifelong learning Centre (Greece)
- I-SKILLS A.E. (Greece)
- LIFELONG LEARNING CENTRE EUROERGASIAKI S.A. (Greece)
- SAGRADO CORAZÓN JESUITAS SCHOOL (Spain)

POLICY MAKERS

- General Secretariat for Spatial Planning and Urban Environment Ministry of Environment and Energy (Greece).
- ANQEP National Agency for Qualification and Vocational Education.

ACCREDITATION BODIES

• Technical Chamber of Greece (Greece)

EDUCATIONAL SECTOR

- TECMINHO Associação Universidade Empresa para o Desenvolvimento (Project Partner; *Portugal*)
- Democritus University of Thrace Department of Civil Engineering (Project partner; Greece)
- Training and Lifelong Learning Centre of Democritus University of Thrace (Greece)
- PONTYDYSGU SL (Project partner; Spain)
- UNIR Universidad Internacional de La Rioja (Project partner; Spain)
- ACP Synergasia Energon Politon Active Citizens Partnership (Project partner; *Greece*)

The stakeholder percentages by sector are shown in Figure 1 and the percentages by country are shown in Figure 2.

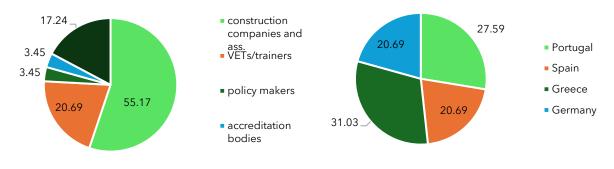


Figure 1. Stakeholders by sector. Figure 2. Stakeholders by country.

3. Summary of Focus Group 1

The focus group 1 sessions were held in September and October 2024, in remote mode. Their aim was to explain MCs, their current development, and to gather feedback on their introduction in the construction sector as a pilot project. The ultimate goal is to expand their use to other sectors as a means to develop the green skills needed to meet EU sustainability goals. The purpose of the event was to enhance the strategy for developing a MCs ecosystem focused on green skills in the construction sector. During the consultation, stakeholders received a comprehensive overview of the current MCs' framework at a national level emphasising its significance and potential to advance green skills. After the presentation, participants engaged in discussions and addressed a number of questions, offering valuable insights and diverse viewpoints to help refine the strategy for incorporating MCs into the development of green skills within the construction sector. The consultation highlighted the crucial role of stakeholder engagement in shaping an effective and adaptable micro-credentials ecosystem that aligns with the sector's evolving needs.

During the first focus group the stakeholders were asked each of the following five questions, prepared in advance by the project team. Below is a summary of the answers given.

Q1: How does training and accreditation work in the construction sector and does it include short courses and micro-credentials?

The discussion highlighted that training and accreditation are primarily centred around specialised courses and training cycles, rather than MCs in Spain. Currently, the use of micro-credentials in the Spanish construction sector is limited in terms of quantity, depth, and thematic continuity. However, industry stakeholders strongly believe in the potential of this type of training, given the sector's ongoing technological, regulatory, and certification changes.

In Greece, the discussion revealed that training and accreditation in the construction sector are mostly tied to traditional qualifications and lengthy programs, with limited incorporation of short courses and MCs. The current system lacks the flexibility and modern approach necessary to meet evolving industry demands, particularly in areas such as sustainability and technological advancements.

Portuguese stakeholders suggested that MCs should focus on construction practices that reduce the carbon footprint and on methods to measure these reductions. They should be short, specialised, and not introductory. Shorter training programs will be key to achieving results and supporting the construction sector's evolution—still very traditional in its practices—toward an ecological transition.

The discussion also emphasised that the German construction sector already offers a variety of qualifications, including MCs. These range from driving licences to specific training certificates and form the foundation for a professional career in construction.

Q2: How could training and accreditation in the construction sector in your country be improved and would this include micro credentials?

Although companies in the sector frequently express specific technical training needs driven by various projects, regulatory changes, and market developments—such as training in BIM,

energy-efficient buildings, and green construction—many of the necessary topics are not included in current curricula. These curricula are generally rigid and lack the flexibility required to keep pace with modern demands.

At present, training is primarily focused on knowledge mandated by regulations, consisting mainly of introductory courses that have little connection with each other and lack thematic continuity. In this context, there is a need for more comprehensive courses with better integration and connectivity, following an adaptable thematic line. This would help the workforce enhance its skills, broaden job opportunities, ease integration into companies, and improve adaptability to diverse tasks.

MCs present a promising opportunity because they can quickly adapt to emerging trends, such as sustainable construction, green certifications, and new technologies and techniques applied to the sector. They enable the design of intensive, short, and focused courses. It is essential to tailor these courses to different skill levels and characteristics of workers within the sector, while also regulating the availability of micro-credentials.

Only in Germany, which has a developed micro-credential system, regular industrial training is at a strong level, particularly for young people. However, there is a need to improve training for lateral entrants, such as refugees, and elder workers by offering targeted, shorter courses. These could help bridge existing skills gaps and facilitate their integration into the labour market.

Q3: What are the challenges for implementing micro credentials in the construction sector?

The challenges for implementing MCs in the construction sector in Spain include overcoming bureaucratic hurdles within public administration and creating training schedules that accommodate workers' needs. There is also a need to offer a diverse range of topics with sufficient depth to meet the evolving demands of the industry. Effective implementation would require combining technical training with practical, hands-on activities, involving both instructors from educational institutions and professionals from companies. Additionally, subsidising MCs programmes and ensuring regular updates every five years would be crucial to keeping the training relevant and accessible.

In Portugal, one anticipated issue for implementing MCs in the construction sector is likely to be low acceptance and resistance to change, as the sector is known for its traditional working methods. There is also a lack of a widespread culture of lifelong learning in this field. Another challenge will be determining how to measure the effectiveness of MCs over time. The most significant obstacle in implementing MCs is defining who will be responsible for awarding and accrediting them. While there is potential for MCs in construction, current training tends to focus on comprehensive programs that range from basic to advanced skills and lead to certification. MCs could serve as a way to specialise skills, differentiating themselves from more extensive training programs. Their successful implementation will depend on the level of recognition they receive, particularly from companies. There could be a parallel between UFCD (Short-term Training Units) and MCs if they are linked to the Portuguese Qualifications Catalogue (CNQ). If the CNQ includes MCs, they would gain recognition at both the national and European levels. The CNQ could act as a catalyst for the adoption of MCs. Since ANQEP (the entity that coordinates the CNQ) would play a key role in guiding how MCs are developed and designed, it must be involved as a stakeholder in their creation. The implementation of MCs in Greece's construction sector faces several challenges rooted in institutional, cultural, and practical barriers. One major issue is the lack of a standardised framework for recognizing and accrediting MCs, leading to inconsistencies in skill validation and limited cross-border recognition due to the absence of a European standard. Additionally, there is limited industry engagement, as construction companies remain sceptical of MCs, favouring traditional accreditation methods. For MCs to gain acceptance, they need to align with industry needs and receive endorsement from employers. Another challenge is the mismatch between current training programs and market demands; emerging areas like green building and energy efficiency are insufficiently covered, and there is a gap in training for non-engineer personnel, such as technicians and on-site workers. Furthermore, the lack of formal recognition by state bodies diminishes the value of MCs in the job market, making it difficult for professionals to validate their skills. Insufficient funding mechanisms also pose a problem, as there is inadequate financial support for workers and employers to invest in these programs. The prevailing perception of training as a cost rather than an investment further hampers adoption. Cultural resistance to change, stemming from a reliance on traditional certification and apprenticeship models, adds to the difficulty of introducing more flexible systems like MCs. Lastly, effective implementation requires continuous feedback from the industry to ensure training remains relevant, but establishing such feedback loops has proven challenging. To address these challenges, Greece needs to develop a national MCs framework, strengthen collaboration with industry, secure government recognition and funding, and shift cultural perceptions to support the adoption of MCs. Without these steps, their implementation in the construction sector will remain limited.

In Germany's construction sector, a range of qualifications, including MCs, already exists, spanning from driving licences to specialised training certificates essential for professional careers. While regular industrial training is robust, particularly for young people, there is a need to enhance training for lateral entrants, such as refugees, through targeted, shorter courses to bridge skills gaps and promote labour market integration. Introducing MCs poses challenges, as many skilled workers still favour traditional qualifications. However, it will be essential to identify the specific qualifications required by companies and assess applicants based on their MCs. Additionally, there is a need to rethink sustainable practices within the construction industry.

Q4: How could micro credentials support the identification and promotion of green skills and practices?

In Spain, MCs could aid in identifying and promoting green skills and practices by developing a training curriculum that incorporates in-depth green topics tailored to various organisational levels and roles within the construction sector. Additionally, they could enhance understanding of contemporary concepts, regulations, and technologies related to sustainability in the construction industry. The recommendations emphasise that MCs can serve as a valuable resource for improving, promoting, and diversifying the workforce in the construction sector. The organisation, depth, and regular updating of topics, along with supportive regulatory frameworks, are essential for structuring and enhancing the value of training. This indicates a favourable outlook for the current and future growth of MCs.

In the case of Portugal, the Casais group internally defines micro-skills and associated behaviours, which can facilitate their connection to the MCs necessary for developing specific skills. These micro-credentials should encompass the green competencies relevant to various

roles within the company. A significant challenge for MCs is demonstrating their value, particularly in terms of how green skills can be integrated into job functions and their practical application. MCs can provide short, specialised courses aimed at essential green skills, such as energy-efficient building techniques, sustainable materials, and waste reduction strategies. These programs would equip workers and professionals with the knowledge necessary to adhere to new environmental regulations and green building standards. As the construction industry increasingly embraces green technologies, MCs can offer targeted training on innovations like renewable energy systems, low-carbon materials, and smart energy management, thus addressing knowledge gaps and preparing professionals to implement these technologies.

Greek stakeholders believe that the inherent flexibility and modularity of MCs could allow for quick adaptation to changing green building requirements, making them more responsive than traditional degree programs. They could be frequently updated to reflect advancements in sustainability practices and energy efficiency. Additionally, MCs could be stackable, enabling professionals to build a comprehensive portfolio of green skills over time. For instance, a worker might first earn a credential in energy-efficient insulation, then another in renewable energy systems installation, ultimately creating a valuable skill set for sustainable construction projects. Aligned with Greece's and the EU's environmental policies, such as the European Green Deal, MCs could promote the adoption of environmentally friendly construction methods, helping the sector meet sustainability targets and contribute to reducing carbon emissions. As demand for green construction practices grows due to government regulations and market expectations, MCs would ensure that the workforce is prepared to meet these challenges. Beyond technical skills, they could also encompass projects that comply with sustainability criteria and environmental performance standards.

In Germany, MCs can significantly promote green skills by motivating professionals to choose environmentally friendly building materials and processes. Emphasising the careful selection of materials ensures their reusability and helps minimise environmental impacts. Additionally, there are plans to establish a systematic approach for documenting employee qualifications within companies. This matrix-based system will allow for the identification of existing workforce skills and enable targeted further training. Implementing MCs could enhance this process by providing a structured framework for tracking qualifications and ensuring clarity in skills development.

Q5: How could the use of micro credentials help promote a more diverse workforce?

Spanish stakeholders believe that MCs should be open to anyone, regardless of their educational background or prior qualifications, making them valuable for unemployed individuals or those looking to shift into new industries. Companies can utilise MCs as a tool for evaluating and attracting talent. Unlike existing basic certifications, MCs offer more in-depth and updatable knowledge tailored to specific interests within the construction sector. This approach fosters a more specialised workforce, which can reduce training time and enhance productivity. Furthermore, creating MCs that progressively elevate or broaden the workforce's specialisation can serve as a distinguishing factor in personnel selection.

The Portuguese construction sector is experiencing rapidly evolving needs, necessitating mechanisms for training the workforce effectively. MCs can enhance less attractive roles in this field, potentially increasing demand for qualified professionals with diverse skills. With a current

shortage of skilled labour in the industry, MCs can help specialise workers in critical areas related to new construction methods, green building practices, and innovative strategies. Additionally, these credentials could contribute to a more diverse and rapidly trained workforce, establishing a solid foundation for the development of future MCs.

Greek stakeholders suggest that MCs should provide short, focused, and accessible training, enabling individuals who lack access to traditional degree programs to enter the workforce. By offering education in smaller, more affordable units, MCs will enhance skill-building opportunities, particularly for lower-income individuals, allowing them to improve their employability without accumulating significant debt. These credentials can offer learning flexibility, enabling individuals to train at their own pace and on their own schedules. This flexibility is especially crucial for working adults, caregivers (often women), or those with family responsibilities who may struggle to commit to full-time courses. Furthermore, MCs might allow recognition of informal and non-traditional learning experiences, allowing individuals who have developed skills through work or self-study to validate their competencies and transition into formal employment. MCs promote lifelong learning by enabling continuous skill acquisition and knowledge updates, which is particularly beneficial for underrepresented workers facing barriers to career advancement due to a lack of formal qualifications. MCs offer a pathway to upskill and progress into higher-level positions without requiring lengthy absences from work for study.

German stakeholders emphasised the importance of advancing training and accreditation in the construction sector to address both current and future demands, especially concerning sustainable practices and the inclusion of lateral entrants.

4. Summary of Focus Group 2

The second Focus Group sessions were held at the beginning of November 2024, in remote mode. They were organised in the same way as the first ones. The presentation began with a summary of insights extracted from the first Focus Group, addressing the use of MCs in the construction sector is limited or, even, unavailable in terms of quantity, depth, and thematic continuity in Spain, Greece, and Portugal. Moreover, stakeholders from Portugal, Spain, and Greece, strongly believe in MCs potential. They acknowledge the Green Circle project, and similar initiatives may facilitate the creation of a MCs ecosystem of green skills in the construction sector. Germany is a step ahead, since MCs have already been implemented in industry sectors, including construction. Then, the structure of the MCs strategy, and its respective components were shown. Stakeholders were requested to provide their point of view to complement the project's strategy and framework. A new set of questions was posed to identify the priority learner groups (e.g., operators, technicians, engineers, etc.) and determine which skills, including green skills, were most needed.

During the focus group 2 sessions, the stakeholders were asked each of the following three questions. A summary of the answers is given below.

Q1: What do you think the priority learners' group (engineers, technicians, operators....) and the most needed MC courses are?

The priority learner groups identified for the construction sector include operators, engineers, architects, quantity surveyors, and engineers, emphasising the need for training in specific areas.

Key courses required include:

- Safety training focused on occupational risk prevention
- Construction skills covering masonry, plumbing, and carpentry, structural reinforcement application and techniques.
- Sustainability topics such as recycling and the circular economy.
- Green energy practices, for example; energy efficiency, energy certification and the installation of photovoltaic systems,
- Modelling and 3d technologies
- Waterproofing installation
- Water management,
- Application of innovative construction materials,
- Digital and technical skills.
- Green skills in construction.

Q2: Which are the specific skills most needed in the sector/ your company/group?

The teams indicated several critical skills that are increasingly necessary in the construction sector, emphasising the importance of precision and sustainability in various applications. A primary focus is on the need for technicians and operators who can accurately apply materials, particularly insulation and waterproofing, to prevent waste and ensure project quality.

Additionally, proficiency in structural reinforcement techniques is highlighted, as renovations and strengthening of existing buildings become more common.

The demand for green construction practices is also high, with a call for skills that promote energy efficiency and environmentally friendly material choices. This includes knowledge of sustainable water management techniques, which are essential for infrastructure projects prioritising water conservation. The ability to detect leaks and implement water-saving systems is increasingly valuable.

Another skill named was the advanced use of innovative construction materials, such as geosynthetics, which is becoming more prevalent, necessitating specialised skills for their application and maintenance.

The discussion also points to a gap in practical certification skills within the sector, advocating for training that combines theoretical knowledge with hands-on experience. This is particularly relevant for roles involving thermal insulation, waterproofing, and structural reinforcement.

Lastly, underscores the importance of staying updated with evolving skills due to technological and regulatory changes. Key areas of knowledge include energy efficiency, passive house design, and concepts related to the circular economy, besides modular construction techniques.

Q3: Which green skills are the most needed?

The discussion on essential green skills highlights the critical need for a foundational understanding of sustainability, the circular economy, and energy efficiency within the construction sector.

Key skills identified for future development include

- > Green design, passive architecture, and the selection of sustainable materials.
- Enhancing the flexibility of building interiors, improving the durability of structures, and ensuring the installation of efficient equipment.
- The application of eco-friendly construction material, incorporation of recycled materials, and training of technicians and installers to ensure proper handling and installation.
- > Energy efficiency and the protection of building integrity.
- Water management skills, for example; leak detection and conservation technologies, are increasingly prioritised, the adoption of advanced systems necessitates specialised training to effectively manage water resources and reduce waste.

Overall, the integration of these green skills is vital for advancing sustainability in the construction industry.

5. Main findings

The synthesised results of the two focus groups addressing the questions are shown below. The construction sector's training is predominantly based on traditional qualifications and lengthy programs, with minimal integration of short courses and MCs, which have focused on specialisation courses rather than MCs, and are currently limited in quantity and thematic continuity. In Portugal, Spain and Greece, low acceptance and resistance to change in the traditional construction sector pose significant challenges for MCs implementation. Notwithstanding, industry stakeholders recognise the potential of MCs due to ongoing changes in technology, regulations, and certifications. Moreover, there is a need for comprehensive courses that offer higher integration and connectivity, enhancing labour skills and job opportunities since the construction sector's training system lacks the flexibility and modernity to address evolving industry needs, particularly sustainability and technological advancements.

Companies in the sector identify specific technical training needs related to projects, regulatory changes, and market developments, including energy-efficient buildings, and green construction. Despite this, existing training primarily focuses on regulatory knowledge through introductory courses that are disconnected from one another, and do not adequately address modern demands, lacking flexibility and thematic continuity. So, a diverse range of topics with sufficient depth is necessary to meet the evolving demands of the industry, combining technical training with practical activities. In addition, companies could leverage MCs to evaluate and attract talent, providing more specialised knowledge than traditional certifications, reducing training time, and enhancing productivity in the construction sector.

Implementation challenges for MCs in the construction sector include bureaucratic hurdles, a lack of standardised frameworks, and issues with accreditation and recognition at both national and European levels. Thus, flexible and modular MCs could allow for quick adaptation to evolving green building requirements and frequent updates to reflect advancements in sustainability practices. Furthermore, MCs have the potential to improve understanding of contemporary sustainability concepts, and green skills. Nonetheless, regular updates and supportive regulatory frameworks are crucial for maximising the effectiveness and value of MCs training programs.

In summary, regulations, and technologies, thereby should diversify and strengthen the workforce in the construction industry while subsidising MC programs and ensuring regular updates, for example, every five years, are crucial for maintaining relevance and accessibility.

The German construction sector is unique in that it provides a diverse range of qualifications, including MCs, which support professional development in the field. Anyway, stakeholders recognise the need to include lateral entrants like migrants to the market labour through MCs.

Stakeholders identified priority learner groups such as operators, engineers (those related to the construction sector), and architects.

The most needed MC courses, as outlined in the response, are focused on safety to ensure worker safety and compliance with regulations, technical skills such as masonry, plumbing, and carpentry, sustainability to promote environmentally friendly practices, including energy efficiency, water management, and sustainable materials, and digital technologies for design, modelling, and project management. In essence, the construction sector requires a skilled workforce that is knowledgeable in both traditional construction and green technologies. By prioritising training in these areas, the industry can improve safety, efficiency, and sustainability.

Concerning the specific skills most needed in the sector was possible to identify principally two types, technical and green skills. The technical skill can be resumed in the following:

- Proficiency in traditional construction skills like masonry, plumbing, carpentry, and structural reinforcement.
- Expertise in modern construction techniques, including waterproofing, insulation, and the application of innovative materials like geosynthetics.
- Knowledge of digital tools and technologies for design, modelling, and project management.

Finally, green skills are a concern and interest of the construction sector, not only to comply with certifications but also to optimally apply technological innovations, reduce its carbon footprint, deliver higher quality, and make this sector more sustainable. In this context, the most needed green skills are:

- Understanding of sustainability principles, the circular economy, and energy efficiency.
- Ability to design and implement energy-efficient buildings, including passive house design and the use of renewable energy sources.
- Knowledge of sustainable material selection and waste reduction techniques.
- Proficiency in water management practices, such as leak detection and water conservation.

The partner countries Portugal, Spain and Greece show common interest in developing MCs since Germany has already implemented them. Commonalities and differences among MCs development in the construction sector among the partners were extracted from the main findings.

COMMONALITIES	COUNTRIES
Traditional practices in construction	Portugal, Spain, Greece
No MCs on skills for workers	Portugal, Spain, Greece
Need for MCs quick updating	Portugal, Spain, Greece
Need for current and future demand for MCs on sustainability	Portugal, Spain, Greece, Germany
Need for including lateral entrants (migrants)	Portugal, Spain, Greece, Germany
Need for a qualification tracking framework	Portugal, Spain, Greece, Germany
DIFFERENCES	
Low level of MC development	Portugal, Spain, Greece
High level of MCs development	Germany

Micro Credentials in Construction

Project: 101132905- ERASMUS-EDU-2023-PI-FORWARD

Work Package 2 Baseline and Enabling Framework





Co-funded by

Funded by the European Union. Views and opinions expressed are however those of the author(s) **Co-runded by** the European Union or EECEA. Neither the European Union or EECEA. Neither the European Union or the EECEA can be held responsible for them