WP4 – A4.3 | Policy Paper on Teaching Natural Hazards in Schools

Acknowledgement

This paper has received funding from the European Commission under the Grant Agreement — PROJECT NUMBER – 2023-1-FR01-KA220-SCH-000158276, ERASMUS+ Strategic Partnership project "CRISEPAC: Climate Change and Natural Hazards in Europe: Pedagogy for Active Adaptation".

Disclaimer

The European Commission support for the production of this publication does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

Copyright notice

© 2023 - 2025 CRISEPAC Consortium

Co-funded by the European Union

Abstract

Europe faces an accelerating climate crisis, where extreme weather events are becoming increasingly frequent and intense. While the EU has robust civil protection mechanisms, a critical gap persists at the level of citizen preparedness, particularly within education systems. This Policy Paper presents the findings and recommendations of the CRISEPAC project, an Erasmus+ initiative designed to bridge this gap.

By establishing a multidisciplinary network of actors across France, Belgium, Portugal, Greece, and Latvia, the project developed a global solution for risk education: a comprehensive and innovative educational model, involving a set of tools such as; the teachers' training campaign (MOOC), materials to be used in a classroom context (risk booklets, digital educational game, interactive pedagogical tools), engaging all actors involved in the educational sector; professionals, students and families. These interventions proved highly effective, involving over 250 educators and 3,000 students in 4 countries, demonstrating that targeted training can successfully empower teachers to address risk prevention, while raising relevant awareness of students and their families. In addition to the aforementioned, the project established a pan-European network, involving experts, civil protection specialists, researchers and educators all over Europe, creating a long-term collaborative community that supports the exchange of best practices and the continuous advancement of risk education across Europe.

This Policy Paper synthesises these proven results into robust, actionable recommendations for National Policymakers, Municipalities, and School Leaders. It argues that institutionalising natural hazard education, through curriculum integration and teacher training, is not merely an educational priority, but a cost-effective strategy, offering an immediate and deployable solution for Member States seeking to become resilient and to translate climate commitments into educational structures.

1. Introduction

The CRISEPAC project - *Climate Change and Natural Hazards in Europe: Pedagogy for Active Adaptation* (2023-1-FR01-KA220-SCH-000158276), funded by the ERASMUS+ programme of the EU, responds to a critical educational gap in Europe: the lack of systematic teaching about natural hazards and climate adaptation in schools. Partners from France, Belgium, Portugal, Greece and Latvia have developed practical tools, teacher training resources, and policy guidelines to integrate risk prevention into formal and non-formal education.

The primary objectives of the project were to create a training and support campaign for education actors to train them in natural risks, build innovative educational tools combining thematic transversalities to train children in natural risks, and make the local issues of climate change understood and strengthen the role of populations in risk prevention through teaching and adult education.

The CRISEPAC project operates within and builds upon a strong and urgent EU policy framework. The European Green Deal identifies education and training as key enablers for a successful and just green transition. This was solidified by the 2022 Council Recommendation on learning for the green transition and sustainable development[1], which formally calls on all Member States to make environmental sustainability a priority in their education systems, critically, to provide targeted support and training for teachers to deliver this new curriculum. Simultaneously, the EU Civil Protection Mechanism emphasizes the need to move beyond disaster response and build a robust culture of prevention and preparedness. CRISEPAC is a direct answer to these interconnected mandates, providing a practical model for implementing EU policy.

This Policy Paper summarises the project's findings and methodology, offering a strategic roadmap for policymakers, municipalities, and education leaders. It argues that equipping young citizens with risk literacy and preparedness skills is essential to strengthening Europe's long-term climate resilience. The document presents lessons learned from pilot activities, best practices, and a roadmap for the institutionalisation of natural hazard education across EU member states.

This Policy Paper has been developed on behalf of the CRISEPAC partnership, by:

- Athens Lifelong Learning Institute (lead author) – GR,
- Ecocène – FR,
- Eurogeo – BE,
- Casa do Professor – PT, and
- Gulbene Municipality – LV,

and functions as a freely accessible, scientific reference document mainly addressed to:

- education professionals, including school directors and teachers who aspire to integrate natural hazard prevention in their teaching curricula,
- policymakers active on a national and European level, who have the authority to set the high-level agenda, mandate the integration of risk prevention into national curricula, and maintain the responsibility for teachers' professional development, and

[1] Council Recommendation of 16 June 2022 on learning for the green transition and sustainable development 2022/C 243/01, Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2022_243_R_0001

- municipalities and local authorities which act as the essential bridge, connecting schools to their local context.

2. Defining the Issue: Educational Gap & Current Landscape[2]

Europe is facing an accelerating climate crisis. The increasing frequency and intensity of extreme weather events, from devastating floods and wildfires to severe storms, are no longer distant threats but the current reality. Between 1980 and 2024, extreme weather events cost the EU an estimated €822 billion in asset losses. Notably, a quarter of this total—over €208 billion—was incurred in just the last four years (2021–2024). Scientific projections indicate this trend will worsen; for example, under a +2°C scenario, the number of people exposed to annual river flooding in Europe is expected to climb to 338,000[3].

According to UNICEF: "*The planet is warming at an alarming rate: 2024 marked the first year the average global temperatures surpassed 1.5 degrees, the tipping point that scientists say will cause severe weather, rising sea levels and the destruction of ecosystems. At the same time, educational challenges such as widespread differences in the quality of and access to schools, poor outcomes and a lack of preparedness for the demands of 21st-century work are putting the future of hundreds of millions of children and young people in jeopardy*."[4]

This crisis is not just environmental; it is educational. As the World Bank states, "*Education is critical for achieving effective, sustained climate action*. […] *Investments in education can play a huge role in building climate resilience and advancing climate mitigation and adaptation. […] Education, whether formal, non-formal or informal, is key to climate change mitigation and adaptation efforts.*"[5] Similarly, UNICEF states: "*A well-educated population is better equipped to understand the complexities of climate science, develop innovative solutions to deal with extreme weather and advocate for sustainable policies."*[6]

While the EU has robust policies for climate protection and disaster response, a critical gap remains: proactive, citizen-level prevention and preparedness. This significant gap is defined by a critical disconnect between the urgency of the problem and the confidence of those on the front lines of education. The problem is not a lack of will, but a lack of preparation, creating a confidence gap. Teachers recognise the importance of the topic, but as UNESCO found in a global survey[7], less than 40% of the 58,000 teachers surveyed from 144 countries were confident enough to teach it, and only about one-third felt they could explain its local effects.

---

[2] European Environment Agency, 2025., *Economic losses from weather- and climate-related extremes in Europe.,* Available at: https://www.eea.europa.eu/en/analysis/indicators/economic-losses-from-climate-related

[3] European Environment Agency., *Responding to climate change impacts on human health in Europe: focus on floods, droughts and water quality: EEA Report 3/2024.,* Available at: https://www.preventionweb.net/media/96294/download

[4] UNICEF., 2024., *Climate-proofing education: How tackling the climate and education crises together could safeguard the planet and a generation of children*., Available at: https://www.unicef.org/eu/blog/climate-proofing-education

[5] World Bank., *EDUCATION AND CLIMATE CHANGE.,* Available at: https://thedocs.worldbank.org/en/doc/523b6ac03f2c643f93b9c043d48eddc1-0200022022/related/WB-education-and-climate-11-08-22-e-version.pdf

[6] UNICEF., 2024., *Climate-proofing education: How tackling the climate and education crises together could safeguard the planet and a generation of children*., Available at: https://www.unicef.org/eu/blog/climate-proofing-education

[7] UNESCO., *Education and climate change: Learning to act for people and planet.,* Available at: https://www.unesco.org/en/climate-change/education

This condition directly impacts the preparedness state of younger people. A survey conducted in 2022 by Plan International[8], involving 2000 young people, found that while 95% of them were worried about climate change, 36% of them highlighted the importance of inclusive and accessible education of good quality as a priority for addressing climate change; but only about one-quarter of young women and one-third of young men felt their education had prepared them to address it.

Responding to this urgent need, UNESCO identifies that: "*Young people are a significant voice and face of the climate change movement, […] and the need for climate change education of high quality (UNESCO, 2022). Formal education on climate change can equip young people with the tools to understand the long-lasting impact of past behaviours and advocate for policy change at the local, national and global levels (COY17 and YOUNGO, 2022).*"[9]

Despite the existence of monitoring systems and risk management frameworks, several critical gaps persist, including; the fragmented information sharing and governance between institutions and territories that can frequently limit coordinated and effective responses; the insufficient integration of climate change projections into local and regional planning and decision-making processes; The uneven levels of preparedness, capacity, and resources among municipalities and sectors; The limited public awareness and understanding of risks and adaptation measures, reducing overall community resilience; and the cross-border interdependencies that are insufficiently addressed by current policies and governance mechanisms.

These challenges underline the need for a shared and coherent assessment of natural hazards, a harmonized approach to climate adaptation, and stronger dialogue between scientific experts, public authorities, and local communities. CRISEPAC directly responds to these needs by generating common knowledge, shared tools, and evidence-based recommendations to support resilient and coordinated territorial governance.

The CRISEPAC project was funded by Erasmus+ to address this specific gap. As the World Bank notes, "*Mainstreaming climate education will change mindsets and behaviors on climate—not just for students but also for their parents, communities and governments. This will also help foster better preparedness and resilience to climate shocks among entire populations*."[10] CRISEPAC aims to turn this principle into practice, by promoting understanding of local climate challenges, developing innovative tools for children (ages 9–12), and creating a comprehensive training campaign to finally equip teachers and education professionals with the confidence and resources they need.

---

[8] UNESCO., *Education and climate change: Learning to act for people and planet.,* Available at: https://www.unesco.org/en/climate-change/education

[9] UNESCO., *Education and climate change: Learning to act for people and planet.,* Available at: https://www.unesco.org/en/climate-change/education

[10] World Bank., *EDUCATION AND CLIMATE CHANGE.,* Available at: https://thedocs.worldbank.org/en/doc/523b6ac03f2c643f93b9c043d48eddc1-0200022022/related/WB-education-and-climate-11-08-22-e-version.pdf

3. Legitimacy of the Consortium

The CRISEPAC consortium brings together a complementary set of actors whose expertise, mandates, and territorial roles make it uniquely positioned to address natural hazard risks and climate adaptation challenges in the cross-border context.

The partnership is comprised of; scientific and technical partners, who provide robust data analysis, hazard modelling, and climate projections, ensuring that project outputs are evidence-based and aligned with the latest scientific knowledge; Local and regional authorities who contribute to institutional legitimacy, have access to territorial data, and the capacity to translate project outcomes into planning instruments, emergency management protocols, and long-term development strategies; Civil society and educational organisations playing a key role in public engagement, awareness-raising, and capacity-building, transforming technical information into accessible tools and actions for communities and; Cross-border partners who ensure that the project addresses shared vulnerabilities, interconnected systems, and the necessity of coordinated, transnational responses to climate-related risks.

Through this collaboration, the consortium was able to: conduct rigorous and integrated assessments of natural hazards, develop shared methodologies and operational tools, promote alignment of strategies across borders, strengthen local and regional governance capacities, and disseminate results effectively to both decision-makers and communities.

This combination of scientific credibility, institutional authority, community engagement, and cross-border cooperation provides a strong and legitimate foundation for the development of relevant, actionable, and widely transferable policy recommendations.

4. The CRISEPAC Methodology

The CRISEPAC project consists of a series of interconnected Work Packages, representing a logical progression from building a foundation, to practical application and finally, long-term policy integration.

The initial project stages focused on the development of the educational materials, including the development of a central online educational platform to host all project resources and the creation of a MOOC (Massive Open Online Course) to provide accessible, scalable training on climate change and natural risks. This was supported by the contribution of experts, who significantly facilitated risk mapping, in order to better visualize European vulnerability.

Building on this foundation, the project subsequently created a series of practical and innovative classroom tools. This work was guided by a state-of-the-art review of existing resources to avoid duplication and identify gaps. In order to make abstract risk concepts more interactive for students and to bridge school and home preparedness, the partnership developed two risk booklets, available in all project languages, addressed to students, teachers and families, as well as a digital game, designed for classroom use. These tools were introduced during a training programme, in which hundreds of teachers across Europe were familiarized with the project's main ideas and resources. The training focused on how to use these new pedagogical tools to transform abstract risk concepts into interactive classroom exercises and effectively engage families in preparedness efforts.

Throughout this development process, the partnership applied a rigorous inclusive design approach. All educational materials were crafted to be gender-neutral and accessible to

learners with diverse needs, ensuring that these critical survival skills are equally available to every child, regardless of their background or ability.

The last project phase was designed to ensure long-term impact, dissemination, and sustainability. This set of activities moved the project from theory to practice by establishing a multidisciplinary network of professionals (educators, scientists, and planners) to share best practices. Local focus groups were established in each partner country, allowing for the co-creation and adaptation of the tools with teachers. The tools were then tested through cycles of conferences and workshops in schools. This entire process culminates in the creation of this Policy Paper, which provides a tangible reference framework for the institutionalization of natural hazard education across Europe.

5. The CRISEPAC Pedagogical Tools (see ANNEX)

The efficacy of the CRISEPAC framework is rooted in its suite of specialized pedagogical tools, designed to translate complex climate data into actionable knowledge for young learners. These tools move beyond traditional passive learning, employing active methodologies that bridge the gap between theoretical risk and domestic reality. By providing a structured yet flexible toolkit, CRISEPAC ensures that climate adaptation becomes a tangible competency rather than an abstract concept.

5.1 The Risk Booklets: Bridging School and Home

The foundational component of the toolkit is the series of two Risk Booklets, available in all partner languages and English, which serve as the primary cognitive bridge between the classroom and the household. Unlike standard educational materials, these booklets have a dual use. In the school environment, they provide scientifically grounded information on specific hazards such as floods, forest fires, and extreme weather events tailored to the cognitive development of primary and lower secondary students.

The strategic value of the Risk Booklets lies in their "take-home" design. Each booklet includes interactive sections that require students to engage with their parents or guardians to assess their own home's vulnerability. This intergenerational knowledge transfer transforms the student into a "resilience ambassador," prompting families to discuss emergency contacts, evacuation routes, and the location of utility shut-offs. By facilitating these domestic conversations, the booklets extend the reach of the school curriculum into the heart of the community, fostering a culture of preparedness that begins at the family unit.

5.2 The "Resilient House" Game: Gamified Risk Assessment

This tool utilizes gamification to simulate critical decision-making in a safe, controlled environment. The game challenges students to identify structural vulnerabilities within a virtual model of a typical residence and apply mitigation strategies to protect it from various natural hazards.

By engaging in this simulated environment, students develop critical thinking and problem-solving skills. They learn to prioritize interventions based on limited resources, a key principle of climate adaptation. The "Resilient House" serves as a powerful mnemonic device, ensuring that the technical requirements of risk reduction (such as securing heavy furniture or waterproofing entry points) are internalized through play and repetition rather than rote memorization.

5.3 The MOOC: Empowering Educators

Recognizing that the success of any pedagogical tool depends on the proficiency of the instructor, the partnership developed a comprehensive Massive Open Online Course (MOOC) specifically for educators. This digital training platform provides teachers with both the theoretical background of climate science and the practical pedagogical strategies required to implement the CRISEPAC tools effectively.

The MOOC is structured to accommodate the demanding schedules of professional educators, offering modular, self-paced learning. It covers essential topics including risk communication, the psychology of disaster preparedness in children, and technical guidance on building resilient societies. By institutionalizing this training, CRISEPAC ensures that teachers are not merely delivering content, but are empowered facilitators capable of managing the emotional and technical complexities of climate education.

5.4 The Storymaps

These digital tools combine interactive geography with multimedia storytelling, using maps, photos, and videos, to help students explore the "where" and "why" of natural hazards. By navigating these narratives, learners move beyond abstract theory and begin to understand the real-world impact of climate change on the European landscape.

The three primary storymaps focus on the most pressing hazards facing the continent: an introductory map provides a broader view of the continent, explaining the wider scientific context. It allows students to see how shifting climate patterns are fundamentally changing the frequency and intensity of natural risks across diverse European regions. A second map tracking the increasing threat of forest fires, which are spreading from the Mediterranean to Central and Northern Europe, including case studies from partner countries and a third one focused on the most common and costly disasters in the EU, explaining the differences between river, flash, and coastal floods. In the classroom, these storymaps act as a digital laboratory. Students can "zoom in" on their own countries or neighboring regions to identify local vulnerabilities and historical events.

5.5 Digital Integration and Scalability

All CRISEPAC tools are designed for maximum accessibility and scalability. Available in multiple languages and offered as Open Educational Resources (OER), these tools can be seamlessly integrated into diverse European educational contexts. The digital nature of the MOOC and the downloadable formats of the booklets ensure that even schools in remote regions have access to high-quality, scientifically validated climate adaptation training. This digital-first approach ensures that the CRISEPAC model remains a living resource, capable of being updated as climate science and regional hazard profiles evolve.

6. National Implementation - Case Studies

Ecocène, the coordinator of the project, led the national implementation through a series of pilot case studies conducted in primary and lower secondary schools in France. These activities aimed to test the project's educational tools in real classroom environments and to assess their relevance, usability, and impact within the national education context. The project collaborated with schools located in both urban and semi-rural areas, involving

students aged 9 to 13. The implementation focused on natural hazards and climate-related risks most relevant at the national level, such as heatwaves, floods, wildfires, and extreme weather events. This local focus allowed teachers to directly link the learning activities to students' lived experiences and regional risk profiles.

Teachers were engaged in a dedicated training session facilitated by Ecocène, during which they were introduced to the CRISEPAC risk booklets and the digital educational game "*Resilient House*" . Following the training, teachers integrated these tools into their educational curricula, regarding subjects such as science, geography, and civic education. Classroom activities included group discussions on local risks, interactive gameplay sessions to simulate preparedness scenarios, and project-based tasks in which students developed simple family emergency plans.

To strengthen the connection between school and home preparedness, students were encouraged to use the risk booklets with their families. Take-home activities prompted discussions on household safety measures, emergency contacts, and environmentally responsible behaviors. Teachers reported that these activities fostered meaningful exchanges between students and parents, increasing awareness beyond the classroom.

Evaluation was provided through teachers' questionnaires, student feedback, and focus group discussions. Results showed high levels of student engagement and improved understanding of risk concepts, particularly regarding prevention and preparedness. Teachers highlighted the clarity, age-appropriateness, and adaptability of the materials, as well as their effectiveness in supporting participatory and inclusive learning approaches.

The findings from these national activities were used to refine the project tools and contributed directly to the project's policy recommendations. Ecocène's implementation demonstrates how the CRISEPAC resources can be effectively embedded within everyday teaching practice and adapted to national curricula, offering a practical and scalable model for wider adoption at both national and European levels.

EUROGEO, a partner representing a transnational network, implemented activities both in France and Greece. In Paris (France), two face-to-face workshops were conducted involving 17 teachers (13 pre-service and 4 in-service), while in Mytilene (Greece), two workshops were held with the participation of 14 teachers (12 in-service, 1 pre-service, and 1 educator). During these sessions, interactive teaching methodologies were employed, including hands-on activities, presentations of fundamental concepts, discussions, digital game use, and case studies. The educational tools developed within the project—such as the Storymaps, Risk Booklet 1 and Booklet 2, and the CRISEPAC multimedia game—were integrated into the training. In addition, the MOOC platform and all its modules were presented. Following the workshops, participating teachers implemented the project tools in their schools, reaching approximately 147 students in Lesvos and 67 students in France. After the completion of the workshops, brief online synchronous sessions were delivered to help the teachers use the project tools in their classrooms.

The evaluation of the tools and workshops conducted within the CRISEPAC project received positive feedback from participating teachers and experts. Using a 4-point scale, where 3 and 4 grades indicate high satisfaction, respondents consistently rated the tools and workshops between 3 and 4, reflecting their usefulness, relevance, and effectiveness in supporting educational objectives. This favorable assessment underscores the success of the project in

providing valuable resources and engaging training sessions, while also highlighting areas for potential improvement to enhance future implementations. Overall, the feedback affirms that the tools and workshops have made a meaningful impact on participants' teaching practices and understanding of the project's themes.
The dissemination of the CRISEPAC project has been effectively carried out through EUROGEO's dedicated channels, including the EUROGEO newsletter and official website. By featuring detailed articles, updates, and success stories related to CRISEPAC, these platforms have played a crucial role in raising awareness among educators, policymakers, and the wider community. The newsletter provided regular insights into the project's progress and outcomes, while the website served as a comprehensive resource hub, ensuring that key information and results reached a broad audience. This strategic dissemination has contributed significantly to promoting the project's objectives and fostering wider engagement within the European educational and geographical communities.

In Portugal, Casa do Professor implemented a comprehensive programme of teacher training, dissemination and stakeholder engagement to support the national deployment of CRISEPAC resources. A three-day training initiative reached 25 teachers from Vila Nova de Famalicão through a blended format combining one face-to-face workshop with two online sessions, ensuring structured and practical engagement with all project outputs, including the MOOC, Storymaps, booklets, pedagogical tools and the educational game. Evaluation data collected from participants demonstrated consistently high levels of satisfaction across all indicators, with no score below 3 on a 1–4 scale. Participants reported significant improvements in their knowledge and awareness of natural and environmental risks, strong perceived usefulness of the training content for their pedagogical practice, and clear intention to integrate the CRISEPAC resources into their teaching. The tools most valued for classroom implementation were the booklets, the interactive game and the MOOC, reflecting a preference for practical, ready-to-use and student-centred materials. Teachers also highlighted the clarity, accessibility and visual quality of the pedagogical resources and emphasised the need for fully localised versions to maximise applicability.

A national dissemination event held in Braga engaged 23 participants and enabled the comprehensive presentation of all CRISEPAC outputs. Evaluation results reinforced the positive reception of the tools, with particularly high relevance attributed to interactive and hands-on materials. Participants anticipated a strong impact on their professional practice, including improvement of pedagogical strategies, integration of risk-related content into regular classroom activities, contribution to a school culture of crisis preparedness, and potential use of the resources for peer training.

Two national focus groups brought together educators, researchers, civil protection agents, firefighters, health professionals and representatives of local authorities. These sessions enabled in-depth discussion on risk education needs in Portugal, the importance of continuous rather than sporadic interventions in schools, and the necessity of stronger coordination between institutions at the municipal and national level. Stakeholders recognised the value of CRISEPAC resources in supporting intersectoral collaboration, developing flexible educational materials for different age groups and contexts, and promoting a more integrated approach to crisis preparedness. In parallel, Casa do Professor established a national network of approximately 30 experts and organisations working across education, civil protection, environment, climate action, health and local governance. This network significantly enhanced the project’s outreach and long-term sustainability,

creating favourable conditions for future collaboration, wider dissemination and potential scaling of risk education initiatives.

Overall, the Portuguese activities confirmed the high usability, relevance and impact potential of the CRISEPAC resources. Evidence from training, dissemination and stakeholder consultation demonstrated that the materials effectively support teachers, respond to local and national needs, and contribute to strengthening crisis preparedness and environmental risk awareness within schools. Ensuring full availability in Portuguese remains essential to maximise adoption and long-term integration into educational practice.

Gulbene Municipality, the project partner from Latvia, delivered a teacher training campaign which engaged 18 educators from 7 schools covering Gulbene and Salacgrīva Counties. Participants' feedback shows a significantly positive assessment of the materials developed within the project. The teachers' oral evaluation revealed very positive feedback on the second booklet and the digital game. Participants mentioned that the project tools can and will be easily integrated in their everyday teaching curriculum and practices. Educators have already transferred their newly acquired knowledge to their students, by delivering a total of 33 workshops in subjects such as Geography, Drama, Arts etc. A total of 457 students participated in the workshops, testing the materials and approaches developed within the project.

In Latvia 6 meetings were organised, involving teachers and field experts to discuss on several topics related to the civil defence. Those meetings revealed the significance of including the subjects of prevention and crisis preparedness into the educational curricula. In December 2025, the project results were presented to the Gulbene municipality community educators, involving 32 participants. Teachers' reflections reveal the project's relevance and impact on the wider European society and in the field of education.

In Greece, the Athens Lifelong Learning Institute delivered a successful training campaign engaging 77 unique teachers in a blended learning format over three days, substantially exceeding the target of 20 participants per national context. The training utilized interactive methods, covered local risk contexts, and integrated various CRISEPAC educational tools, such as the MOOC, storymaps, the digital game and booklets. The project's outcomes were well-received, confirming the high quality and relevance of the developed resources. This positive reception validates the effectiveness of the resources and training in addressing the identified need for scientifically sound, innovative, and easily accessible tools to teach the younger generation about natural hazard prevention and climate change adaptation.

ALLI also contributed to the establishment of the pan-European network of actors, by delivering a series of meetings both with educators and experts. In June 2025, ALLI delivered two meetings in two consecutive days, engaging more than 15 educators in interactive sessions introducing the project, its produced outcomes and its main subjects. The Institute also engaged with more than 10 Greek experts, over 4 meetings, where they were familiarized with CRISEPAC and its tools, which they tested and evaluated positively. In line with the project's strategy to disseminate results, the Athens Lifelong Learning Institute successfully hosted a local educational meeting and dissemination event in Athens in April 2025. This event engaged a substantial group of attendees, primarily composed of dedicated educators. Engaging these professionals directly ensures that the pedagogical tools and training campaigns, especially those related to risk education and climate adaptation, are effectively integrated into the school system, reaching the target group of 9 to 12 year old students. This

direct engagement with primary school staff is vital for strengthening local preparedness and civic engagement as intended by the project.

The CRISEPAC project has delivered a validated, high-impact model for integrating natural hazard and climate change education into European school systems. Its methodology, which successfully transitioned from robust resource development (MOOC, platform, risk mapping), through the creation of practical, tools for students (digital game, risk booklets), to intensive teacher training (e.g., engaging more than 250 teachers all over Europe), has been overwhelmingly confirmed by positive evaluation data across the implementation countries. The key to this success lies in the project's commitment to inclusivity and intersectoral collaboration, demonstrated by the establishment of multidisciplinary networks and local focus groups involving educators, scientists, and civil protection agents. The CRISEPAC resources and framework constitute a tangible, tested blueprint for the institutionalization of risk education, offering a critical pathway to foster an active culture of preparedness and resilience among Europe's younger generations, fulfilling an urgent social and pedagogical need.

7. Project Results - IMPACT

The CRISEPAC project moved beyond theory to practical implementation, exceeding initial expectations both in terms of numbers and quality. Pilot activities in all five partner countries demonstrated effective, replicable models for natural hazard education.

The primary objective of the project, addressing the teacher confidence and knowledge gap was mainly achieved through the project's MOOC (Massive Open Online Course) and the Teachers' Training campaigns, which reached over 250 educators all over Europe. All project results were evaluated by the project's beneficiaries, through relevant evaluation forms. The significantly positive results provide a clear, proven model that directly justifies the policy recommendations to promote further teacher professional development and allocate school time for capacity building.

The project's tools (ANNEX), including the "*Resilient House*" game, the Story Maps, the two Risk Booklets, the Educational Platform and the Pedagogical Tools were all successfully deployed in workshops and conferences, implemented in schools all over Europe, that reached over 3,000 students in over 65 schools. These activities confirmed that complex, abstract risk concepts can be translated into engaging, interactive, and age-appropriate exercises. This success provides the evidence that these tools are ready to be used in a classroom context and form the basis for our recommendation to integrate risk prevention directly into national curricula and school safety protocols.

The project's Risk Booklets were designed to bridge the gap between school and home. This was a major dissemination success, reaching more than 3000 students all over Europe and their families. This high uptake confirms a strong community demand for accessible information and proves that schools are the most effective hub for building community resilience. This finding directly supports the recommendations for municipalities to promote and disseminate educational tools and establish school-community connections.

Finally, the project's methodology, which relied on multidisciplinary networks of educators, scientists, and civil protection planners in each country, was itself a key finding. This co-creation process ensured that the tools are not only pedagogically sound but also scientifically accurate, locally relevant, and trusted by all stakeholders. This successful model

provides a clear blueprint for the policy recommendation to facilitate multi-stakeholder partnerships.

8. Policy Recommendations

Aspiring to bridge this critical gap between the climate ambitions of the EU, the urgent climate reality of today and the need for relevant education, the CRISEPAC partnership has resulted in the following policy recommendations, involving stakeholders from multiple fields and levels of action. These recommendations are based on the proven and scalable model, developed and implemented in the context of the CRISEPAC project.

The recommendations below form a clear roadmap for implementation across Europe, specifying who should act, how, and to what end. The systematic integration of those recommendations within national education systems across Europe requires coordinated action by multiple levels of governance.

8.1 For National & EU Policymakers

At the core of this policy agenda lies the need for national and European policymakers to integrate risk prevention and climate adaptation directly into primary and lower secondary curricula. Such integration should be guided by national working groups, tasked with adapting the CRISEPAC and other similar pedagogical tools to each country's hazard landscape. Embedding natural hazard education in educational curricula will guarantee equitable access to risk literacy for all students, regardless of regional differences or school capacity, while addressing the youth preparedness gap.

However, curriculum reform alone is insufficient, without the corresponding investment in teacher capacity. Ministries of Education and national training institutes should therefore institutionalise continuous professional development by incorporating the CRISEPAC MOOC into their official training catalogues and, crucially, transitioning to a long-term strategy where natural hazard education becomes part of pre-service teacher preparation. New generations of educators should be equipped with the necessary confidence and competence to teach climate adaptation and risk preparedness from the initial steps of their professional life. This investment will not only ensure sustainability, but will also reduce reliance on sporadic initiatives.

Another policy priority should be the establishment of formal collaboration mechanisms between key national bodies, including Ministries of Education, Civil Protection Authorities, national scientific bodies, meteorological and environmental institutes, municipal structures and universities. A coordinated yet multidisciplinary approach is essential for ensuring scientific accuracy, relevance and policy coherence.

8.2 For Municipalities & Local Authorities

The role of municipalities is also central, representing the governmental structures closest to citizens, they are uniquely positioned to support schools in tailoring risk education to local realities. Natural hazards are fundamentally local (e.g., floods, fires). Municipalities are best placed to help schools tailor the curriculum to local risks, ensuring the educational material is immediately relevant and actionable.

Municipal civil protection units should work closely with school authorities, supporting the organization and delivery of awareness-raising activities, preparedness exercises and the

dissemination of pedagogical tools to students and their families. The prioritization of this educational mission beyond the classroom context is critical for building community-wide resilience.

Local authorities must reinforce the connections between Schools and Community, serving as a bridge between local schools and municipal civil protection units, local fire and rescue services and environmental planners. Taking into consideration the wide reach of municipal channels (e.g., websites, local announcements, community centers), those communication means should actively promote and disseminate proven, free resources to families and schools. Tools like the CRISEPAC Risk Booklets are specifically designed to bridge the school-home divide. Municipalities can ensure these resources reach the entire community, substantially amplifying the project's impact and fostering household-level resilience.

8.3 For School Directors & Educational Leaders

School Directors and Educational Leaders also play a critical role in enabling the successful implementation of these policies at the institutional level. The necessary, paid time should be allocated for teacher capacity-building within the school calendar for teachers to complete essential training in climate risk and education. Expecting teachers to undertake this crucial training on their own initiative is neither a professional nor a sustainable strategy. Allocating dedicated time for training, such as the completion of the CRISEPAC MOOC, serves as a clear institutional step towards achieving this core educational priority.

Furthermore, school leaders must integrate prevention into their established school safety protocols. This means exceeding beyond basic evacuation and safety instructions, by integrating pedagogical tools directly into the school curricula and educational objectives. For example, the use of the Risk Booklets, the Storymaps, and the “Resilient House” game as an interactive component of safety lessons, transforms logistical drill into a meaningful, empowering and contextually relevant educational experience for students.

9. Implementation Plan - Sustainability

The CRISEPAC project’s tools and findings were designed for long-term integration. The sustainability of this work is not dependent on the project itself, but on a strategic implementation of its outputs, as outlined in the policy recommendations. This plan moves from ensuring immediate access to achieving systemic change.

The immediate policy goal is to guarantee widespread access to the project's validated resources. This paper will be disseminated to form national task forces that engage ministries and regional education offices. Crucially, the CRISEPAC Educational Platform, the eLearning Platform (MOOC), and all digital tools (as listed in the ANNEX) will be maintained and remain freely accessible to all educators, removing any cost barriers to adoption. The project coordinator, Ecocène will bare the responsibility for the maintenance of the project’s central repository, the educational platform, while the Athens Lifelong Learning Institute, who was responsible for the development of the MOOC, will ensure it will remain operable for at least 5 years after the project’s completion.

The project's MOOC and training workshops should be integrated into established continuous professional development catalogues for practicing teachers. This action ensures that training is no longer a one-off event but a renewable, institutionalized part of an

educator's career. Simultaneously, the multidisciplinary network of educators and experts will be maintained as a permanent community of practice.

The ultimate policy objective is to ensure risk education becomes a standard, permanent part of every child's education. The long-term strategy is to shift from in-service training and continuous professional development to pre-service initial teacher training. By providing a proven, evidence-based, and free of charge global solution (MOOC, game, booklets) , this project offers a clear, cost-effective pathway for national governments and universities to integrate risk prevention directly into their formal curricula, ensuring all new teachers graduate with the confidence and competence to teach this vital subject.

10. Conclusion

The CRISEPAC project has demonstrated that Europe can effectively equip its next generation with the skills to face an uncertain climate future. Through targeted training, digital tools, and home-school partnerships, fear can be transformed into preparedness and empowerment. This is not merely an educational priority, it is a cornerstone of Europe's resilience and sustainability.

The project's results show that when teachers are equipped with structured training opportunities, high-quality pedagogical tools and practical guidance, they gain confidence and competence to teach natural hazards effectively. Similarly, students, when engaged with the appropriate, interactive materials, can quickly acquire the awareness and practical skills required to understand local risks and respond to them appropriately. By reaching thousands of learners, households and professionals across Europe, CRISEPAC has provided clear evidence that risk education can be delivered at scale, with tangible and immediate benefits.

Nevertheless, the most significant lesson emerging from CRISEPAC is that isolated initiatives, no matter how successful, are not enough to build societal resilience. The accelerating pace and severity of climate change and natural risks requires a structural transformation in how European educational systems approach prevention, preparedness and risk literacy. This transformation demands coordinated action across multiple levels of governance, including; [a]. national and EU level policymakers, responsible for the integration of risk education into educational curricula and the promotion of teachers' continuous training and professional development, [b]. municipalities and local authorities, responsible for reinforcing the school-community links and the adaptation of learning to local conditions and hazards, and [c]. school leaders, who must institutionalise capacity-building and embed prevention within school culture.

The tools, methodologies and evidence collected by the CRISEPAC project, provide a ready-to-be-used, cost effective pathway for countries wishing to achieve all of the above. The MOOC, the educational platform, the risk booklets, the Storymaps, the digital game and the wider set of pedagogical tools, all comprise a comprehensive model that can be adopted and expanded without any restrictions. The project's multidisciplinary network provides a sustainable foundation for continued collaboration, ensuring scientific accuracy, pedagogical quality and long-term relevance. CRISEPAC has shown that with the right strategies, tools and partnerships, schools can become catalysts for change, investing in community resilience, while informing, preparing and empowering citizens.

Embedding natural hazard education into European schools' curricula is a strategic investment in societal resilience. Europe stands at a decisive moment; while the gap between climate ambition and educational practice remains wide, the path forward is clear. CRISEPAC provides the roadmap and what is currently needed is the political will to follow it.

Annex:

The Educational Materials of CRISEPAC

- CRISEPAC Educational Platform: https://www.crisepac.eu/
- CRISEPAC MOOC (eLearning Platform): https://mooc-crisepac.eu/
- Risk Booklet 1 – *Natural Risks*: https://www.crisepac.eu/_files/ugd/0a8daf_7405ae441f9f4dc19cd4a9cedf44f4ad.pdf
- Risk Booklet 2 – *Facing up to the Risks: From Understanding to Action*: https://www.crisepac.eu/_files/ugd/0a8daf_6644c39a16c84e099fd66e5a57b6acbe.pdf
- Story Map 1 – *Climate Change and Natural Hazards in Europe:* https://arcg.is/184z99
- Story Map 2 – *Wildfires in Europe:* https://arcg.is/XLyva0
- Story Map 3 – *Floods and Storms in Europe:* https://arcg.is/09Lara0
- The CRISEPAC Digital Game – *The Resilient House:* https://www.atelier-in8.com/maison_ecocene_v2/