



Environmental Sustainability and Green Entrepreneurship
Competence-Building in Kindergartens

Policy Recommendation Report



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Introduction

This document summarizes the lessons learned from the GreenGUARDens project and is primarily aimed for policy making bodies such as educational ministry staff, municipalities, teacher training bodies, and kindergarten management. The policy recommendations were shaped through a collaborative effort involving diverse stakeholders from various countries, each bringing unique expertise and perspectives to the table. Below is a brief overview of the participants who contributed:

- Cyprus: Kindergarten teachers and principals from local schools, educational centre staff, and ministry representatives.
- Germany: Kindergarten teachers and professionals working to promote sustainability practices in early childhood education.
- Italy: Educators specializing in inclusive education for deaf students, early childhood educators, and representatives from cultural organizations focusing on sustainability and social themes.
- Romania: School headmasters, representatives from educational resource and assistance centres, school inspectorates, support teachers from mainstream schools, and educational methodists.
- Serbia: Representatives from kindergarten teacher associations, kindergarten teachers and management, college professors and students specializing in early childhood education, and representatives from regional social policy and gender equality organizations.

The participants' collective input emphasized:

- The importance of inclusive and sustainable education.
- Practical, engaging methods like storytelling, hands-on activities, and collaborative projects.
- The value of partnerships and community involvement in fostering sustainability awareness and green entrepreneurship.

Their diverse backgrounds enriched the policy recommendations, ensuring they address a wide range of needs and contexts in early childhood education.

Policy recommendations

1. Integrating Environmental Sustainability into Preschool Curricula

Integrating environmental sustainability into preschool curricula is crucial for fostering ecological awareness and eco-friendly habits in young children. Early education plays a pivotal role in shaping pro-environmental attitudes, behaviors, and a sense of responsibility toward nature, given the receptivity of preschoolers to new ideas and experiences. The policy recommendation to incorporate sustainability topics into preschool education has received overwhelming support from stakeholders, who unanimously highlighted its importance for early education.

Key Benefits and Approaches:

- **Early Formation of Attitudes and Behaviors:** Introducing environmental sustainability at the preschool level helps instill a lifelong sense of responsibility toward protecting the environment. Engaging activities like nature walks, recycling games, and simple experiments (e.g., water conservation or plant growth) encourage children to adopt eco-friendly habits and understand the impact of their actions on the environment.
- **Skill Development:** Introducing these topics helps children build basic skills related to environmental protection, such as planting and caring for greenery, recycling, and conserving resources. These foundational skills contribute to a deeper understanding of sustainability and its relevance to their daily lives.
- **Experiential and Hands-On Learning:** Practical, interdisciplinary approaches such as school gardening, visits to parks, and the use of eco-friendly materials in projects (e.g., reusable items) provide children with direct connections to nature. These activities help them develop a deeper appreciation for the environment while fostering skills like teamwork and problem-solving.

Spending more time outdoors further enhances physical health, motor skills, and immune system development.

- **Curriculum Integration and Adaptation:** Environmental sustainability topics should be tailored to preschoolers' comprehension levels and seamlessly incorporated into existing activities. By making these concepts accessible and engaging, educators can lay a strong foundation for environmental education that supports cognitive and social development.
- **Long-Term Benefits for Society:** Early exposure to sustainability topics not only cultivates environmentally conscious citizens but also contributes to long-term societal benefits, including pollution reduction, sustainable practices, and the mitigation of climate change impacts.

Challenges and Recommendations:

Despite the clear benefits, practical challenges remain. Many kindergartens express willingness to adopt sustainability topics but face constraints such as limited budgets and insufficient training for teachers. Addressing these gaps is essential for successful implementation:

- **Budget Allocation:** Increased funding should be directed toward purchasing eco-friendly materials, creating green spaces, and supporting outdoor activities in kindergartens.
- **Teacher Training:** Professional development programs must be established to equip educators with the knowledge and skills required to integrate sustainability topics effectively into preschool activities.
- **Community Engagement:** Collaboration with parents, local governments, and NGOs can provide additional resources, expertise, and support for sustainable practices in schools.

2. Integrating Entrepreneurial Skills into Preschool Curricula

Introducing entrepreneurial skills in preschool curricula fosters creativity, problem-solving, and critical thinking, providing young children with a strong foundation for future challenges. Early education is an ideal stage to develop these skills through age-appropriate, playful, and interactive activities. While there is general support for this policy, the need for careful adaptation to preschoolers' developmental levels is emphasized to ensure its effectiveness and suitability.

Key Benefits and Approaches:

- **Developmental Suitability and Foundational Skills:** Entrepreneurial skills should be introduced in simplified forms suitable for preschoolers. Activities such as games, storytelling, and role-playing can help children learn creativity, teamwork, problem-solving, and resource management. For example, children could engage in role-playing trades, setting up classroom bazaars to sell crafts, or creating toys from recycled materials, fostering entrepreneurial thinking in a playful and engaging manner.
- **Early Skill Development:** Integrating entrepreneurial activities helps children develop independence, creativity, and decision-making skills. By managing small tasks or participating in team activities, children gain a sense of responsibility and an understanding of basic resource allocation and collaboration. These foundational skills prepare them for more complex entrepreneurial concepts in higher grades.
- **Practical and Play-Based Learning:** Interactive exercises, such as managing pretend stores, basic resource management games, or collaborative projects like building structures with eco-friendly materials, provide hands-on experiences that mirror entrepreneurial scenarios. These activities can also encourage sustainability-related problem-solving, linking entrepreneurial skills to environmental awareness.

- **Connection to Personal Growth and Innovation:** Developing entrepreneurial skills contributes to children's personal growth by enhancing their creativity and adaptability. These traits are crucial for future professional integration and for fostering a generation of innovative thinkers capable of addressing complex challenges.

Challenges and Recommendations:

While the benefits of introducing entrepreneurial skills are recognized, respondents highlighted potential challenges and suggested solutions:

- **Complexity and Developmental Readiness:** Some believe entrepreneurial concepts may be too advanced for preschoolers. To address this, the focus should remain on general aspects like creativity, teamwork, and problem-solving rather than advanced entrepreneurial topics.
- **Training for Educators:** Teachers must be equipped with the skills and resources to introduce entrepreneurial concepts effectively. Training programs can provide strategies for integrating these topics into preschool activities while maintaining a focus on play-based learning.
- **Limited Resources:** Schools may face budgetary or logistical constraints in implementing entrepreneurial activities. Support from local governments, NGOs, and businesses can help provide the necessary materials and resources.
- **Integration with Other Topics:** Linking entrepreneurial activities with environmental sustainability and other core subjects can create a holistic learning experience. For instance, combining lessons on recycling with resource management games can help children connect entrepreneurial skills to broader societal challenges.

3. Integrating Outdoor Learning Environments into Early Childhood Education

Outdoor learning environments provide young children with dynamic, hands-on opportunities to explore and connect with nature, fostering their curiosity, creativity, and environmental consciousness. This policy recommendation has received unanimous support from stakeholders, who recognize the developmental, health, and educational benefits of outdoor learning. It is particularly impactful in regions with favorable climates, such as Cyprus, where year-round outdoor activities are feasible.

Key Benefits and Approaches:

- **Necessity and Universality:** Outdoor learning is seen as an essential component of early childhood education. Many stakeholders suggest it should be a compulsory part of curricula, with some proposing that outdoor activities constitute a significant portion (e.g., 50%) of instructional time. By moving beyond traditional classroom settings, children gain a richer understanding of the environment through real-time experiences.
- **Developmental and Health Benefits:** Outdoor activities provide a wide range of benefits for children's physical, cognitive, and social development, including:
 - **Creativity and Curiosity:** Experiencing nature firsthand encourages exploration and stimulates direct learning experiences.
 - **Physical and Health Advantages:** Spending time outside enhances immunity, promotes a healthy lifestyle, and supports motor skill development.
 - **Practical Skills:** Activities such as gardening and exploring open spaces help children develop spatial-temporal orientation, resource management, and organizational abilities.
- **Connection with Nature:** Outdoor learning fosters a strong connection with the natural environment. By seeing, feeling, and interacting with nature, children

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develop a deeper appreciation for their surroundings, reinforcing their sensitivity to environmental issues and their understanding of how certain behaviors impact the planet.

- **Sensory Stimulation and Multi-Modal Learning:** Outdoor environments offer multi-sensory experiences that are difficult to replicate indoors. Intuitive, hands-on activities such as observing plants grow, feeling different textures, and listening to natural sounds improve engagement and enhance conceptual understanding.
- **Broad Applicability Across Age Groups:** While particularly impactful for preschoolers, outdoor learning benefits children of all ages. It promotes holistic development by integrating physical, emotional, and cognitive growth, making it a versatile and essential component of education.

Practical Implementation:

- **Incorporating Natural Spaces:** Schools can use gardens, parks, and open spaces as extensions of the classroom. Activities like gardening, nature walks, and environmental observations can be integrated into the curriculum to connect children with the living world.
- **Year-Round Outdoor Learning:** Outdoor activities should not be limited to favourable weather. Engaging children in rainy or snowy conditions allows them to observe seasonal changes and understand the dynamics of the natural environment.
- **Teacher Training and Resources:** Educators must be trained to plan and execute outdoor learning activities effectively, ensuring safety and maximizing educational outcomes. Schools may require support to create or enhance outdoor learning spaces.
- **Community Engagement:** Collaboration with parents, local governments, and environmental organizations can provide resources, funding, and expertise for outdoor initiatives.

4. Implementing Multi-Year Projects for Continuity and Routine in Early Childhood Education

Multi-year projects are essential for fostering sustainability in education, providing continuity, structure, and opportunities for long-term skill development. By allowing children to engage deeply with topics over extended periods, these projects offer a stable framework that encourages reflection, progressive growth, and the practical application of concepts. This approach is particularly beneficial for embedding environmental education and green entrepreneurship in early childhood education, where consistency and incremental learning are crucial.

Key Benefits and Approaches:

- **Routine and Continuity:** Multi-year projects provide a predictable and stable environment that supports preschoolers' overall development. A structured routine fosters comfort, security, and a sense of progression, which are vital for young learners to thrive.
- **Skill Development:** Long-term projects serve as a foundation for developing critical skills, including:
 - Organizational and Problem-Solving Skills: Planning, managing tasks, and addressing challenges within a project framework.
 - Teamwork and Communication: Collaborative activities encourage social sensitivity and empathy, including for disadvantaged groups.
 - Practical Competencies: Gradual acquisition of essential practices like environmental protection and resource management.
- **Progressive Growth and Mastery:** Continuity enables incremental learning, where children build on previously acquired skills and knowledge. For example, projects such as growing vegetables, composting, or maintaining a school

garden allow children to witness and contribute to the progression of natural processes, fostering responsibility and achievement.

- **Monitoring and Assessment:** Multi-year projects allow educators to monitor children's development more effectively, tracking milestones over time and ensuring that learning outcomes are met comprehensively.
- **Adaptability and Engagement:** While multi-year projects offer consistency, activities within these frameworks should be dynamic and tailored to the evolving interests and developmental levels of each group of children. Teachers play a critical role in adapting projects to maintain engagement and relevance, ensuring that children remain enthusiastic and invested in the activities.
- **Connection to Sustainability and Green Entrepreneurship:** These projects are particularly valuable for environmental education and green entrepreneurship. Hands-on, ongoing initiatives like gardening, recycling, or green product creation provide children with practical experiences that link theory with practice, nurturing eco-friendly habits and innovative thinking.

Challenges and Recommendations:

- **Potential for Monotony:** A long-term focus on a single topic may become uninteresting for some children. To address this, educators should diversify activities within the overarching theme, introducing new, engaging elements regularly.
- **Teacher's Role:** Teachers must actively observe and respond to children's interests, facilitating activities that align with their curiosity and developmental stage. This requires creativity, flexibility, and continuous professional development to design diverse and age-appropriate activities.
- **Resources and Support:** Multi-year projects require consistent funding, materials, and institutional support. Schools should collaborate with local governments, NGOs, and parents to ensure resources are available.

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5. Facilitating Exchange Activities with Other Preschools

Exchange activities between preschools offer invaluable opportunities for collaboration, cultural exchange, and shared learning. By connecting children and educators across different regions or countries, these activities broaden perspectives, encourage innovation, and promote best practices in sustainability and inclusivity. This policy has received unanimous support, emphasizing its benefits for early childhood education.

Key Benefits and Approaches:

- **Promotion of Good Practices:** Sharing experiences and practices between preschools fosters the adoption of innovative and effective educational methods. For example, kindergartens can share successful sustainability projects, inclusive teaching strategies, and creative learning activities, driving collective improvement.
- **Skill Development:** Exchange activities create opportunities for growth at multiple levels:
 - **For Children:** Participating in joint projects, shared field trips, or virtual exchanges enhances communication, collaboration, and socialization skills. It helps children develop empathy, teamwork, and an appreciation for diversity.
 - **For Educators:** Exposure to diverse practices and challenges provides professional development opportunities, inspiring teachers to refine their methods and adapt new strategies.
- **Openness to Diversity:** Exchanging activities promotes openness to new ideas and cultural diversity. Children gain insights into different lifestyles, traditions, and perspectives, fostering inclusivity and broadening their worldviews.

Educators benefit from enriched teaching experiences that challenge conventional approaches.

- **Collaborative Growth:** Partnerships between preschools encourage collaborative problem-solving and shared growth. Joint initiatives, such as sustainability projects or creative challenges, build connections between institutions, enhance social interaction, and reinforce shared values like environmental consciousness and inclusivity.
- **Broad Educational Benefits:** These interactions create fresh perspectives for children and teachers alike. Exploring new spaces, whether through visits or virtual platforms, enriches the educational environment by introducing novel ideas, environments, and experiences.

Practical Implementation:

- **Virtual Exchanges:** Use digital platforms to connect classrooms across regions or countries. Activities could include sharing videos of projects, participating in joint virtual storytelling sessions, or collaborating on challenges like recycling initiatives.
- **Field Trips and Joint Projects:** Organize shared field trips or outdoor learning activities, where children from different schools come together to explore nature, engage in sustainability challenges, or participate in creative workshops.
- **Teacher Collaboration:** Facilitate workshops, peer-learning sessions, or professional exchange programs for educators to share methodologies, classroom experiences, and innovative practices.
- **Community Engagement:** Encourage collaboration between local governments, NGOs, and parent groups to support logistical and financial aspects of these exchange activities, ensuring their feasibility and sustainability.

Challenges and Recommendations:

- **Logistical and Financial Barriers:** Organizing physical exchanges, such as visits and joint trips, may require additional resources. Schools should leverage community partnerships and seek funding opportunities to support these activities.
- **Ensuring Relevance and Engagement:** To maintain interest, activities should be meaningful and tailored to the participating groups. Educators should work together to design programs that align with the shared goals of the exchange.
- **Technological Infrastructure:** Virtual exchanges require reliable digital tools and platforms. Ensuring access to appropriate technology and training for teachers is essential for successful implementation.

6. Networking with Parents, Kindergartens, and Children in Early Childhood Education

Building strong networks among parents, kindergartens, and children is essential for fostering a harmonious and effective early education environment. This collaborative approach ensures continuity of learning, promotes shared responsibility, and strengthens the foundation for sustainable practices. Stakeholders unanimously support this policy recommendation, emphasizing its role in enhancing child development and reinforcing environmental consciousness as a family value.

Key Benefits and Approaches:

- **Importance of Collaboration:** A robust network between parents and kindergartens is vital for the holistic development of preschoolers. Both family and kindergartens play complementary roles in shaping children's values,

behaviours, and skills. Collaboration ensures that educational goals are consistently supported in both environments.

- **Positive Relationships and Communication:** Networking facilitates open, positive relationships between families and educational institutions. Regular communication builds trust, fosters mutual understanding, and creates a shared sense of responsibility for the child’s development.
- **Continuity of Educational Efforts:** Parents and kindergartens working together ensure that educational interventions in the classroom are reinforced at home. For instance, if children learn about waste separation in kindergarten, parents continuing the practice at home ensures the learning cycle remains consistent and effective.
- **Skill Development and Social Growth:** Networking promotes inter-knowledge, communication, and acceptance among all parties, benefiting children’s social and emotional growth. Intergenerational workshops and collaborative activities provide opportunities for parents and children to learn and grow together, fostering a shared commitment to sustainable practices.
- **Exchange of Ideas and Best Practices:** Strong networks allow for the sharing of ideas, resources, and best practices. Parents can contribute valuable insights, and kindergartens can introduce families to innovative educational approaches, enriching the overall learning experience for both children and families.
- **Community Engagement:** Collaboration extends beyond the classroom to include local communities. Networking initiatives can strengthen ties with local organizations, businesses, and environmental groups, providing additional resources and opportunities for children and families to engage in meaningful activities.

Practical Implementation:

- **Parent Engagement Programs:** Kindergartens can organize regular meetings, workshops, and family activities to involve parents in their children's education. For example, intergenerational workshops focused on sustainability can help families adopt eco-friendly practices together.
- **Home-kindergarten Continuity:** Teachers should share the topics and practices discussed in the classroom with parents, enabling them to reinforce these lessons at home. Practical guides or regular updates on sustainability projects can ensure consistency between the two environments.
- **Collaborative Activities:** Joint initiatives, such as cleaning kindergarten yards, cultivating plants, or organizing field trips, encourage active participation from parents. These activities not only enhance the kindergarten environment but also strengthen the bond between families and the institution.
- **Digital and Physical Networking:** Schools can use technology to create digital communities where parents and educators exchange ideas, share updates, and collaborate on projects. Physical meetings, like open houses and parent-teacher conferences, further reinforce these connections.

Challenges and Recommendations:

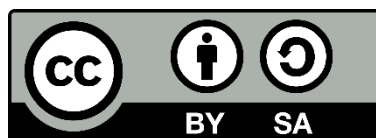
- **Engaging Reluctant Parents:** Some parents may feel disconnected or lack time to participate. Kindergartens should use flexible engagement methods, such as online workshops or after-work meetings, to accommodate diverse schedules.
- **Cultural and Social Barriers:** Differences in cultural or social backgrounds may hinder communication. Kindergartens should ensure inclusivity by providing multilingual resources and creating welcoming environments.
- **Sustaining Engagement:** Continuous efforts are needed to maintain interest and involvement. Regular updates, feedback opportunities, and recognition of parental contributions can help sustain engagement.

7. Further recommendations

The responses and insights from the Green GUARDens project demonstrate that while kindergartens in partner countries are eager to incorporate environmental sustainability and green entrepreneurship into their curricula, they face financial and systemic challenges. Below is an overview of the recommendations aimed at addressing these challenges and enhancing the integration of sustainability in early childhood education.

- **Exploiting Project Results:** Disseminate the Green GUARDens project's resources to individual schools. These free, practical materials include pedagogical sequences, guidelines, and activities that have already demonstrated their effectiveness in pilot phases. Highlight impactful tools like storytelling and role-playing to connect children with nature and reinforce eco-friendly messages. These activities enhance creativity, critical thinking, and problem-solving while fostering sustainability awareness.
- **Promoting Interactive Learning:** Use storytelling and role-playing with themes like trees, animals, and ecosystems to engage children meaningfully. These methods help instil environmental values and sustainable behaviours while being engaging and memorable.
- **Fun, Engaging Activities:** Implement waste collection games, craft projects using recyclables, and outdoor sports activities to promote environmental awareness.
- **Interactive Educational Integration:** Create dedicated "green corners" in kindergartens to teach recycling and responsible consumption interactively. Introduce lessons on ecosystems, pollution, and conservation to build children's understanding of environmental topics.
- **Collaboration with Eco-Entrepreneurs:** Partner with local eco-entrepreneurs to conduct workshops on making toys or decorations from recyclable materials. Highlight real-world examples of ecological entrepreneurship to inspire young learners.

- **Eco-Week and Eco-Fairs:** Organize joint events, such as eco weeks or fairs, involving multiple kindergartens, parents, educators, and environmental organizations. Feature activities like eco-drawing exhibitions, recycling campaigns, and sales of crafts made from recycled materials.
- **Showcasing Achievements:** Provide children opportunities to present their eco-projects to peers and the community, reinforcing their learning and sense of accomplishment.
- **Overcoming Financial Barriers:** Advocate for public and private funding to support teacher training and create sustainability-focused initiatives in schools. Encourage partnerships with local businesses, NGOs, and eco-entrepreneurs to provide resources and expertise.
- **Sustainability Education for Deaf Students:** Ensure all sustainability education materials are available in national sign language to make learning inclusive. Promote the development of accessible teaching aids for students with disabilities.
- **Targeted Teacher Training:** Introduce mandatory training programs on sustainability for educators working with students with disabilities. Equip teachers with tools and strategies to deliver inclusive and impactful environmental education.



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