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SMART CITIZEN EDUCATION
FOR A GREEN FUTURE

What is Education for Sustainable Development (ESD)?

What tools and strategies can be used to support its promotion?

Loukas Katikas – PhD in Geospatial Sciences

"If the essence of community life is based on the possibility of **elucidating and integrating the best features of the individuals** that constitute it, it is necessary that **education, as an instrument of socialization and critical attitude, adopts valid answers to the challenges that humanity is raising**".
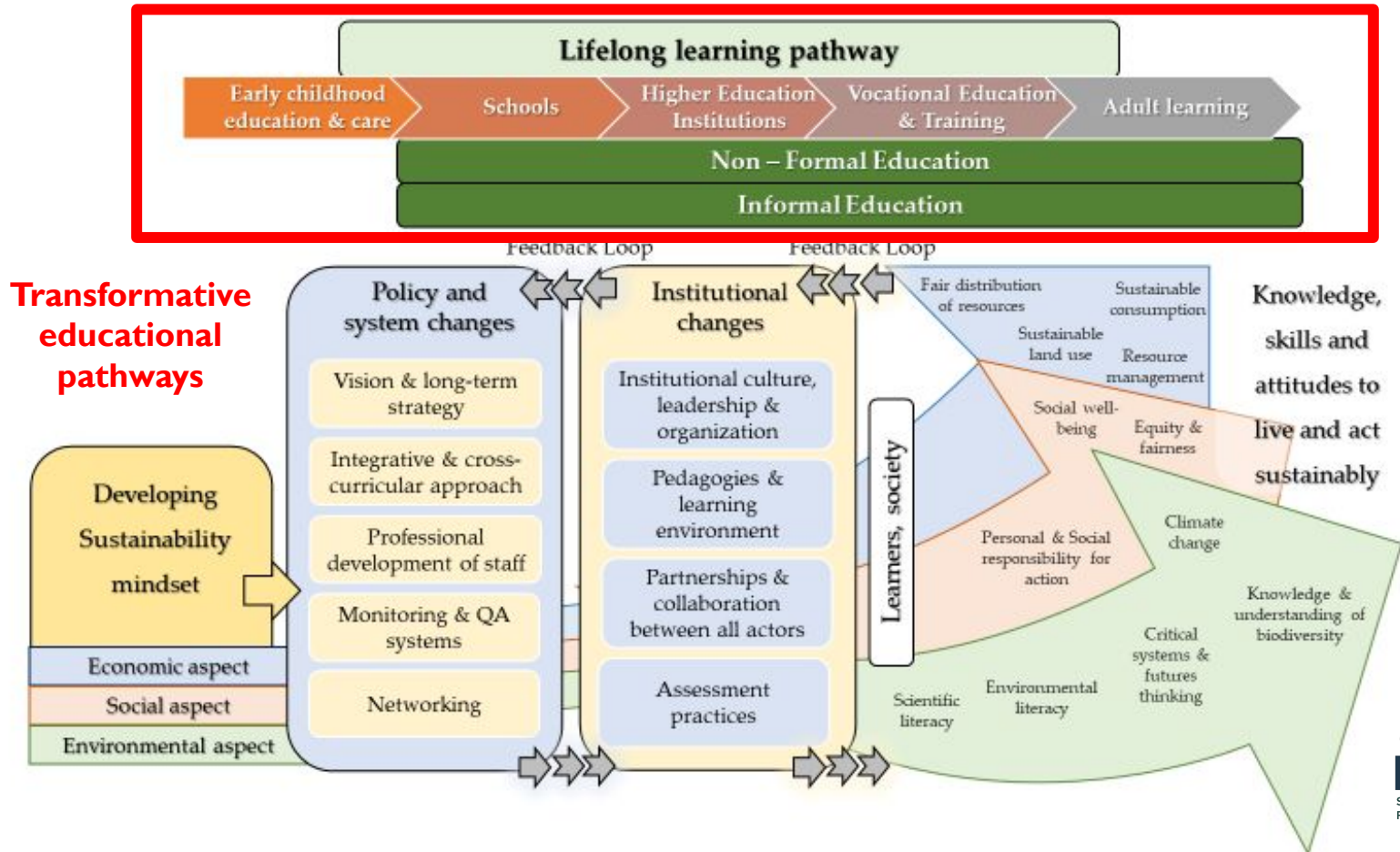
(Novo, 2009)

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What is ESD? (Definition)

Education for Sustainable Development (ESD) **is an integral element of the ambitious SDGs**, and in particular of Target 4.7. ESD **aims to develop competences that empower individuals to reflect on their own actions**, taking into account their current and future social, cultural, economic, and environmental impacts from both a local and a global perspective (link to Global Citizenship).

The UN General Assembly reaffirms ESD as an integral element of the Sustainable Development Goal on quality education and **a key enabler of all the other Sustainable Development Goals**.

- UN General Assembly Resolution 72/222 (2017)

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What is ESD? (Key aspects)

Transformation means

Transformative Learning in ESD

- Concentrates on reshaping perspectives and inspiring action towards sustainability. It fosters critical thinking, self-reflection, and a sense of agency in addressing real-world sustainability challenges.

Universal Design for Learning (UDL)

- Provides a framework and strategies to ensure that the learning environment is accessible, engaging, and supportive for all learners.

Whole School Approach (W

- The WSA supports schools to embed the principles of ESD for 2030, with attention to vision, curriculum, pedagogy and didactics, and school management.

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Source: Mathie, R. G. and Wals, A.E.J. (2022) Whole School Approaches to Sustainability: Exemplary Practices from around the world

How?

Sustainability challenges

EUROPEAN GREEN DEAL

1. Increasing climate ambition
2. Clean, affordable and secure energy
3. Industry for a clean and circual economy
4. Energy and resource efficient buildings
5. Sustainable and smart mobility
6. Farm to fork
7. Biodiversity and ecosystems
8. Zero-pollution, toxic free environments

Greening the curriculum

GreenComp
The European sustainability competence framework

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Ecf4clim

Institutional practices
Building management and creating sustainability on location

Pedagogy & learning
New/alternative learning processes and learning environments

Vision, ethos, leadership & coordination

Capacity building
Continued professional development of all staff

Curriculum
Design, Content, Assessment

Community connections
School-society interface

Greening schools

Eco-Schools

COOL SCHOOLS

New European Bauhaus
beautiful | sustainable | together

NATURE-BASED SOLUTIONS

Greening CPD

GEO-ACADEMY
GEO-Hub for teachers in Europe

Climademy

Erasmus+
KA1 Mobility Projects

EduSTA

SYNAPSES

Teacher Academy Project
TEACHING SUSTAINABILITY

Greening communities

NBS EduWORLD

Eco² Schools as New European Bauhaus Labs

CLEVER Cities

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Network Nature

CONEXUS

GO GREEN ROUTES

REGREEN
NATURE-BASED SOLUTIONS

Initiatives for ESD

Nature-based Solutions (NbS)

GreenComp
The European sustainability competence framework

GreenComp GreenSCENT Competence Framework

New European Bauhaus (NEB)

Nature-based Solutions (Definition)

Knowledge building for sustainable urban transformation

Air quality

Biodiversity enhancement

Place regeneration

Health and well-being

Green space management

New economic opportunities and green jobs

Participatory planning and governance

Water management

Social justice and social cohesion

Natural and climate hazards

Climate resilience

Solutions that are **inspired and supported by nature**, which are **cost-effective,** simultaneously **provide environmental, social and economic benefits** and help build resilience.

Nature-based solutions must therefore **benefit biodiversity** and support the delivery of a range of ecosystem services.

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Nature-based Solutions (Examples)

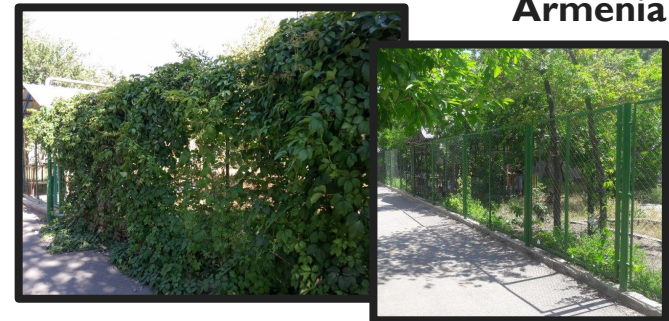**Reconstruction of schoolyards in schools in Paris**

School Garden supplies the school canteen in school in Athens

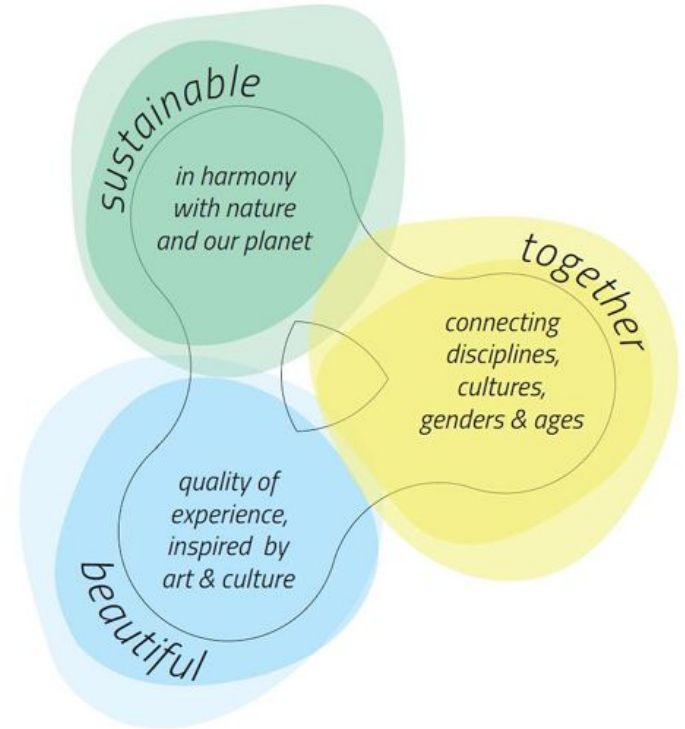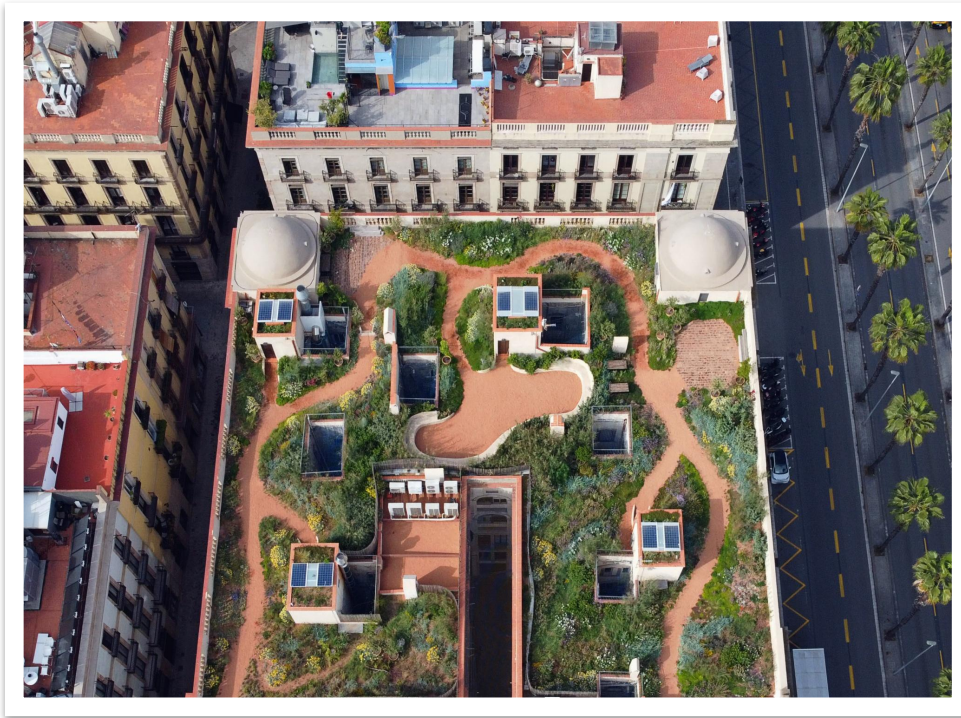**SuDS (Sustainable drainage systems) in schools in London**

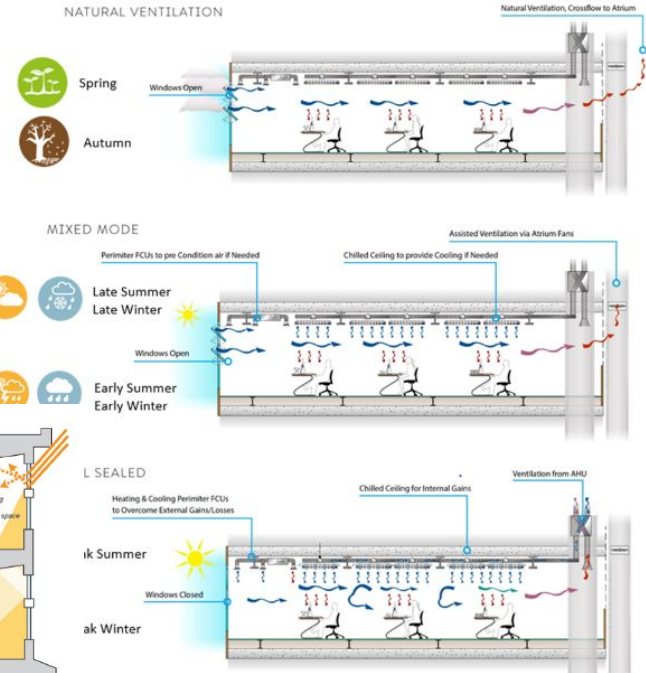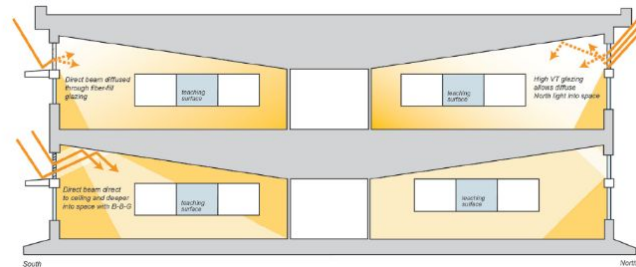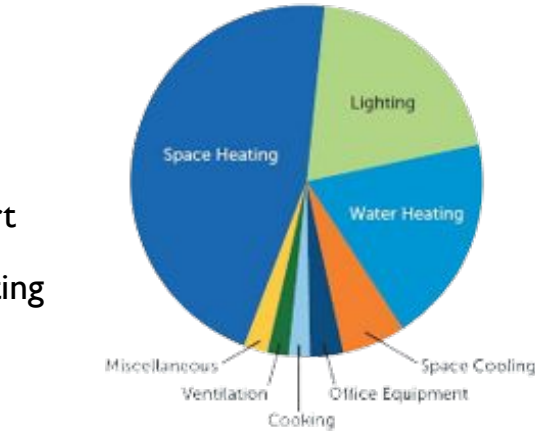**Green Wall in school in Armenia**

New European Bauhaus (NEB)

The New European Bauhaus initiative calls on all of us to **imagine and build together a sustainable and inclusive future that is beautiful for our eyes, minds, and souls.**

sustainable
in harmony with nature and our planet

together
connecting disciplines, cultures, genders & ages

beautiful
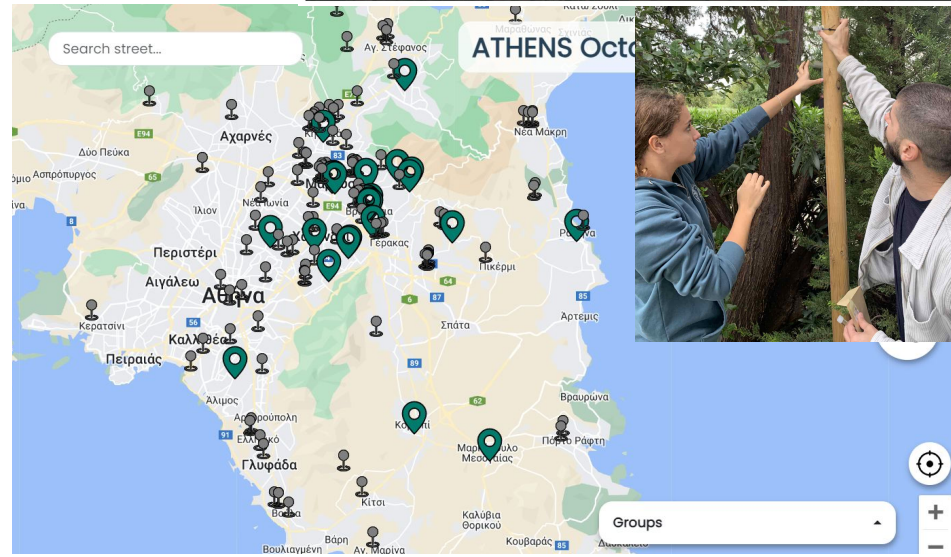quality of experience, inspired by art & culture
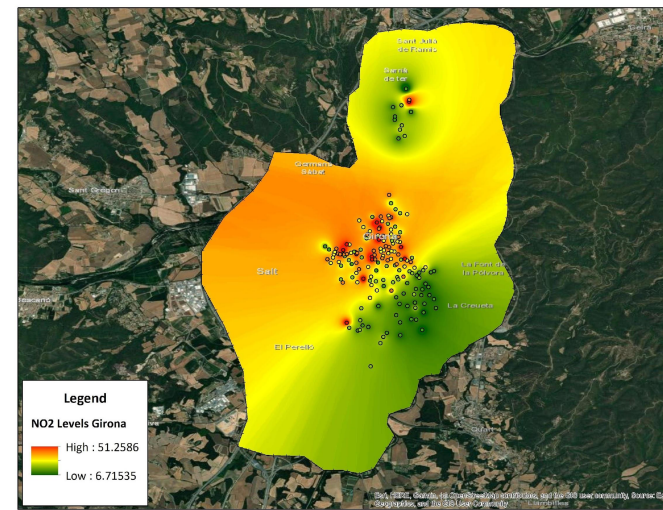
New European Bauhaus (NEB)

Based on the concept of the Living Labs and the New European Bauhaus initiatives, **NEB - LABS will work as a 'think and do tank' to co-create, prototype or even test new tools, solutions and policy recommendations** in the school settings.

- Indoor Air Quality

- Thermal & Acoustic Comfort

- Visual Comfort and Daylighting

- Building design

- Energy use, efficiency

- Outdoor areas renovation

An example (CleanAir@Schools, 7th – 9th Grades)

- Introducing the topics of **Air Pollution, Health, Sustainable Transportation, Data Collection and Analysis, GIS, Citizen Science** (Interdisciplinary)

- **150 students** participating + 6 teachers + School principals + Researchers + Parents (Collaborative, Inclusive, Individualized)

- **15 act as mentors and facilitators** to support their schoolmates (Inclusive)

- **5 trainings and workshops** (Co-design)

- **Links with the 4th Grade activity** for measuring Air Pollution with plastic rubber bands across Athens

- Project and challenge-based, experiential, hands-on, and digital (**Transformative with universal design**)

- Critical thinking, problem-solving, systems thinking. Development of sustainable paradigms

Legend
NO2 Levels Girona
High : 51.2586
Low : 6.71535

Search street...   ATHENS Oct

Groups

- Introducing the topics of **Nature-based Solutions, Urban Planning, Urban Sustainability, Engineering, Cost Analysis** (Interdisciplinary)
- Students (in groups) have to identify a problem, collaborate with externals and create a prototype, a concept or an idea
- **150 students** participating + 6 teachers + The school principal + Researchers (Collaborative, Inclusive)
- **Training with teachers** and **students** (Co-design)
- **Links with the national curriculum** under the Skills Labs concept and the Greek Env. Education Progr. (15 hours)
- Project and challenge-based, hands-on, and digital (Transformative with universal design)
- Follows the **Living Lab methodology** (Participatory,

The problem

NBS EduWORLD

The context

Green Roofs

Installation cost (EUR/m²) 77.5	**Effectiveness against Flood Risk:** I
Maintenance cost (EUR/m²) 55	**Heat Island Effect Reduction:** 1.5
Average Annual Cost by 2030 (EUR/m²) 64.09	**Environmental Co-Benefits:** I

A hands–on prototype
Create a rain garden, a vertical wall, plant native species, or construct compost bins within the school premises.

A nutritionist
A nutritionist can help with Nature-based Solutions and the benefits of locally sourced, organic foods and the impact of NBS practices like regenerative agriculture on nutrition, health, and the environment. They can also help exploring the connection between diverse diets, including plant-based diets and consuming a variety of fruits and vegetables, with NBS principles that promote biodiversity

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'Build pedagogies around the voices and lives of their students', (Freire, 1970)

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ELLINOGERMANIKI AGOGI