

INTEGRATED APPROACH TOWARDS INDOOR WELL-BEING IN SCHOOLS

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A NEW WINDOW ON IAQ IN SCHOOLS:

the potential of indoor air quality learning pathway on the employability of VET students

ONLINE
WEBINAR
13th JUNE
2024

PROJECT
PARTNERS



SCHOOLS
INVOLVED



WEBINAR
WITH



GREENTECH

is an association of
COMPANIES
RESEARCH CENTRES and
TRAINING INSTITUTIONS
that share skills,
ideas and resources
to promote research &
innovation in the energy
and sustainable
development sectors

The Emilia-Romagna Region High Technology Network.

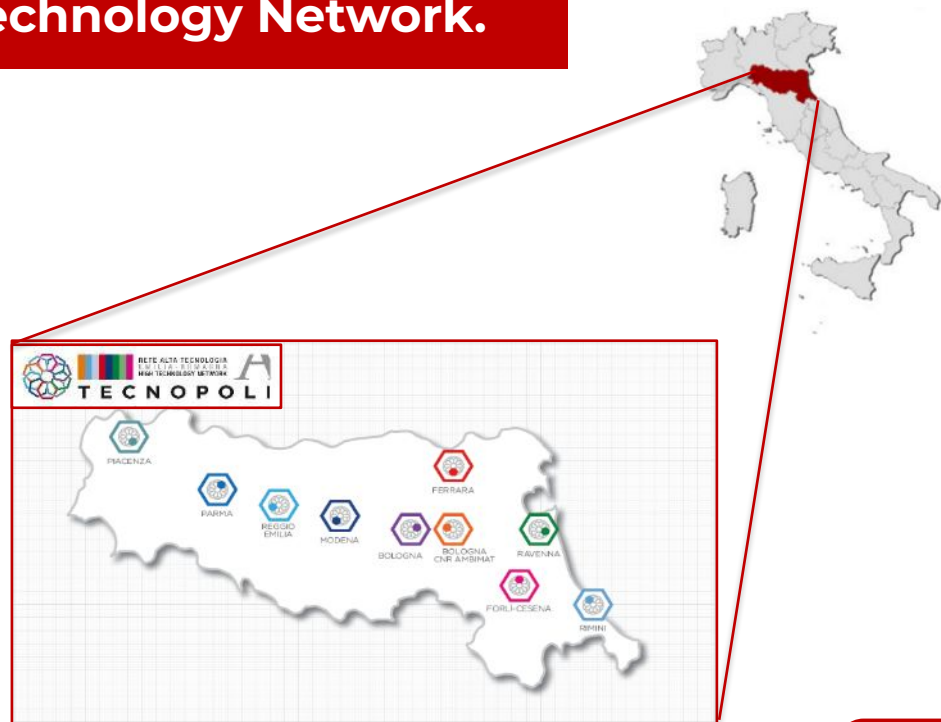
The HTN is composed of:

- **89 Industrial research laboratories**
- **15 Innovation centres**
- **10 Technopoles**
- **9 Regional Clusters**
- Big Data Association
- Muner Association
- Incubators

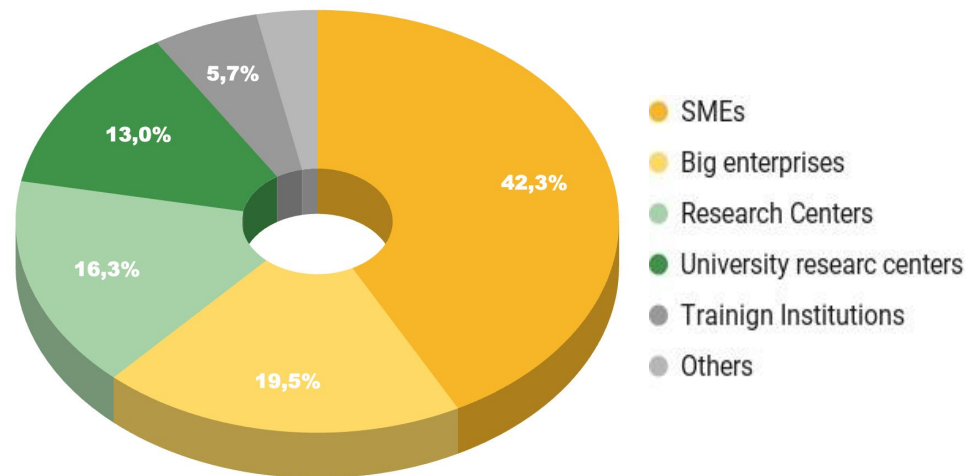
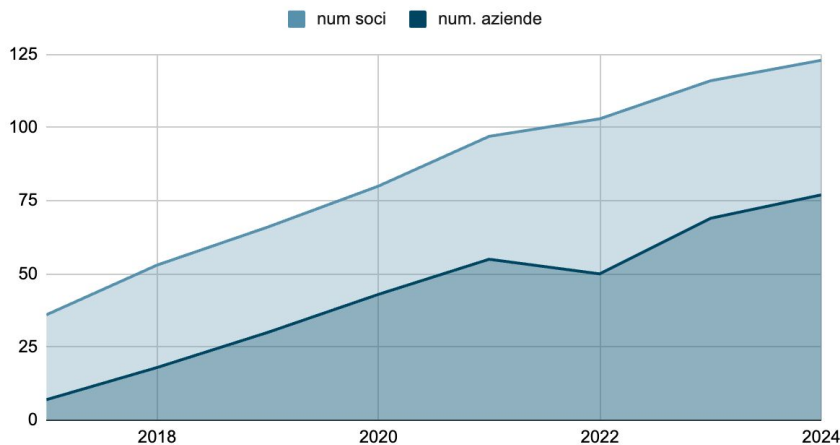
Coordinated by **ART-ER**

Attractiveness Research Territory

the Emilia-Romagna Joint Stock Consortium born with the purpose of fostering the region's sustainable growth by **developing innovation and knowledge**, attractiveness and internationalisation of the territory.



Greentech: 123 members, 62% companies



Member's whole list: greentech.clust-er.it

Value Chain

LOW CARBON ECONOMY

Biofuels - e-fuels - hydrogen
energy storage

Smart, integrated energy networks

Industry decarbonization

Carbon capture utilization and storage



CLIMATE, ENVIRONMENT ECOSYSTEM SERVICES

Anthropogenic impacts on ecosystems
and health

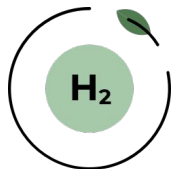
Climate change mitigation and
adaptation

Ecosystems, biodiversity and
ecosystem services

Circular Economy and raw materials

Working Groups

BRING TOGETHER MEMBERS WITH DIFFERENT EXPERIENCE AND
EXPERTISE TO COLLABORATE FOR KNOWLEDGE VALORISATION



HYDROGEN
POWERtoGAS



AIR
QUALITY



CIRCULAR ECONOMY
Sharing Economy & Energy



WATER
RESOURCE

SUSTAINABLE AGRIVOLTAIC
MARINE RENEWABLE ENERGY
INTERNATIONALIZATION
TRAINING AND COMPETENCES

What do we do?



 **ONE-TO-ONE MEETINGS WITH MEMBERS**

 **THEMATIC WORKING TABLES**

 **NEW CONTACTS WITH COMPANIES / ENTITIES**

 **NEW MEMBERS ENGAGEMENT**

 **ORGANIZATION OF WORKSHOP - WEBINARS**

 **PARTICIPATION IN THE DEFINITION OF REGIONAL STRATEGIES**

 **INTERNATIONAL PROMOTIONAL MISSIONS**

 **INTERNET SITE**

 **LINKEDIN PAGE**

 **NEWSLETTER**

 **YOUTUBE CHANNEL**

Members Working Group:

IAQ - Indoor Air Quality



“PERCORSO ARIA” 2019

A **dissemination pathway** to inform, raise awareness, and activate citizens, local governments, and policy makers on the indoor air quality

PURPOSE:

To increase awareness and knowledge about the need for good indoor air quality

WHAT IS MEANT BY INDOOR ENVIRONMENT? ISO definition 16000-1

- Houses
- Workplaces in buildings that are not subject to hygiene and safety controls with regard to air pollutants
- Offices, stores, public buildings, hospitals, schools, kindergartens, sports halls, libraries, restaurants and bars, theaters, cinemas and other function rooms
- Vehicle cabs

WHY?

90% of our time is spent indoors

Indoor air can contain substances that are harmful to **health** and **well-being**

The pollution characteristics of indoor air are very **different** from those of **outdoor air**

Clean air in indoor environments **improves the quality of life** and helps **reduce the risk** of occurrence of various diseases or infections

The implementation of **standards and actions** that improve indoor air quality **is lacking** in our daily lives



WHAT DID WE DO?



Percorso Aria La qualità dell'aria negli ambienti chiusi

Un percorso divulgativo
per informare, sensibilizzare
e attivare cittadini, enti locali
e decisori politici.

**CLUST-ER
GREENTECH**
ENERGIA E SOSTENIBILITÀ





EVENTO DIVULGATIVO

CAMBIAMO ARIA

COSA C'È DA SAPERE SULLA
QUALITÀ DELL'ARIA INDOOR



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**CLUST-ER
CREATE**
TALENTI E INNOVAZIONI

tecn
scienza

OCM 






The Indoor Air Quality in Schools

2021



Logos of companies and research entities from 2021:

- befreest LIFE FORWARD
- OCMCLIMA SPECIALISTI DELL'ARIA DAL 1988
- TURTECORA POLLUTION CHECK
- IS analytica
- U-SERIES
- L.A.V.
- SIRAM VEOLIA
- ENEA
- LEAP Laboratorio Energia e Ambiente Piacenza
- certimac ENEA CNR Consiglio Nazionale delle Ricerche
- cidrea CENTRO INTERDEPARTAMENTALE PER L'ENERGIA E L'AMBIENTE
- UNIVERSITÀ DI PARMA
- PROAMBIENTE innovation & environment
- CIRI EDILIZIA E COSTRUZIONI
- CIRI FONTI RINNOVABILI, AMBIENTE, MARE ED ENERGIA - FRAME

2022



Logos of companies and research entities from 2022:

- CLUST-ER BUILD EDILIZIA E COSTRUZIONI
- CLUST-ER GREENTECH BUILD EDILIZIA E COSTRUZIONI
- Air Quality in Schools Strategic Guidelines for an Integrated Approach towards indoor well-being.
- SMARTDOMOTICS easy living
- POLLUTION 3i ANALYTICAL EQUIPMENT

CLUST-ER HEALTH SALUTE E BENESSERE

CLUST-ER CREATE CULTURA E CREATIVITÀ

IAQ Working Group

COMPANIES and **RESEARCH ENTITIES** that have knowledge, expertise and solutions in the field of Indoor Air Quality and have been promoting awareness and dissemination actions on this issue since 2019.

Air Quality in Schools

Strategic Guidelines for an Integrated Approach towards indoor well-being

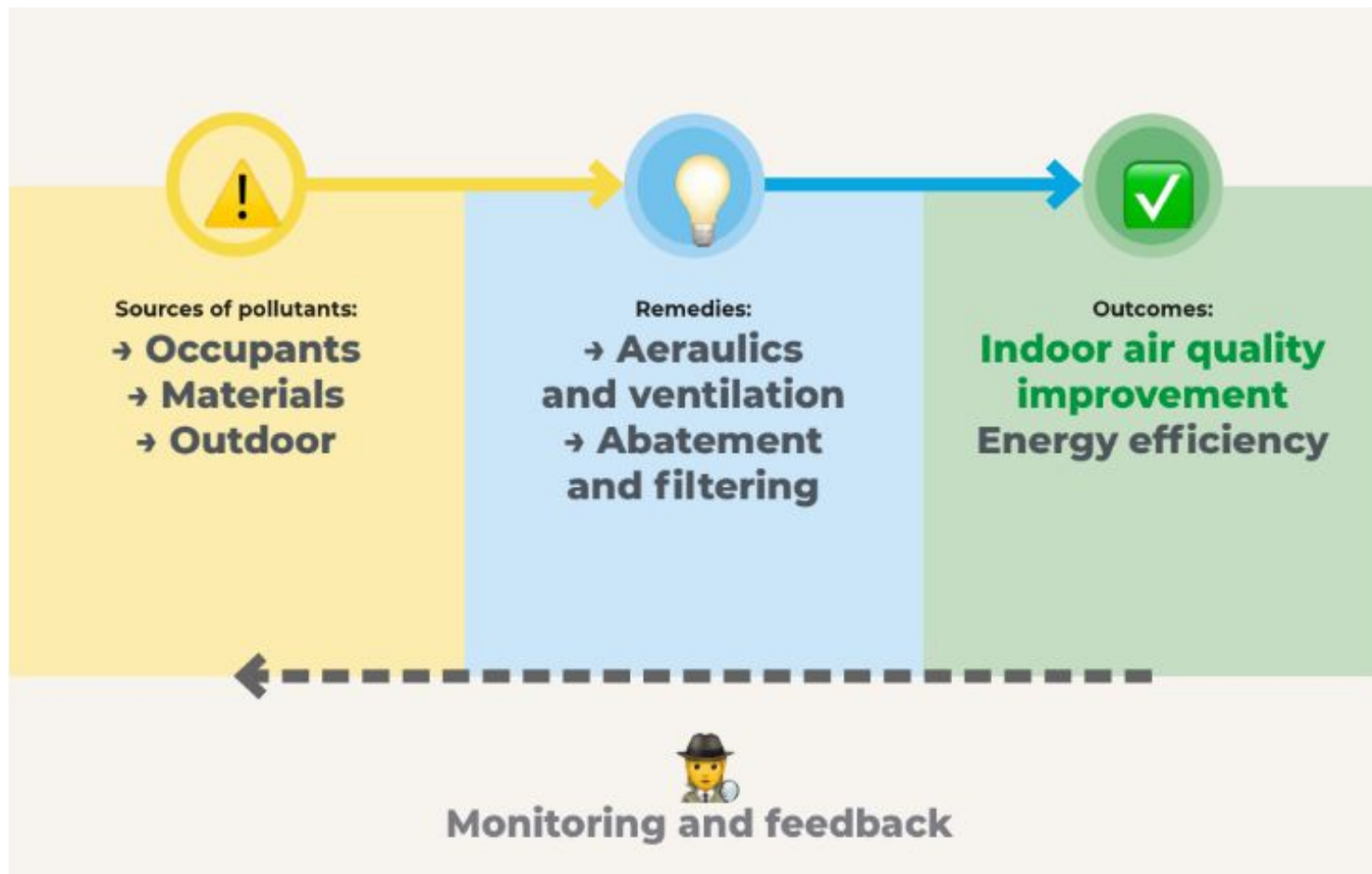
Purpose and scope

Providing **strategic and methodological guidelines** that, through an integrated approach, allow **to ensure real indoor well-being in school environments, in accordance with the necessary energy efficiency and saving measures.**

Proposing a set of **methodologies and best practices** for **construction** (low-emission materials, energy-efficient forced mechanical ventilation systems), **monitoring** (low-cost systems for indoor and outdoor air quality assessment, big data and artificial intelligence) and **remediation** (air filtration and pollutant abatement systems) that produce health benefits for occupants.

5 STEPS APPROACH

- **Background** - analysis of outdoor air quality and correlation to indoor air quality
- **Diagnosis** - analysis of equipments/installations
- **Test** - measure of the initial situation
- **Remedy** - improvement actions implementation
- **Management and Maintenance** - scheduled maintenance



RECOMMENDATIONS

- **raising awareness** among Facility Managers, HSE Managers, school managers and other potentially interested parties **on the relevance of careful IAQ management** in schools
- **spread knowledge** about the latest available **technologies and methodologies**
- promoting the **integrated use** of sensors, aeraulic systems and system management methodologies for future school building interventions
- The use of **pre-set values of air changes**, regardless of the real-time assessment of room occupancy and actual air quality **is not efficient** and often **results in wasted energy** for the treatment and heating/cooling of the incoming air

NEXT STEPS

- Registration and promotion of a **trademark** for our activities
- promotion of a programme of **technical webinars**
- *unfortunately in italian...*
- **Network** with other initiatives at local and international level
- **Supporting** our members in co-designing activities
- and much more...



Links to the available document and tools:

- **PERCORSO ARIA - La qualità dell'aria negli ambienti chiusi** (in Italian): <https://greentech.clust-er.it/wp-content/uploads/2021/07/percorso-aria-doc.pdf>
- **PERCORSO ARIA - Catalogo tecnologie e competenze** (in Italian): <https://greentech.clust-er.it/wp-content/uploads/2021/09/percorso-aria-catalogo-competenze-4.pdf>
- **VIDEO del PERCORSO ARIA** (in Italian): https://www.youtube.com/watch?v=Vfkhbnb_ws&t=3s
- **LA QUALITÀ DELL'ARIA NELLE SCUOLE – Linee Guida Di Indirizzo Strategico Per Un Approccio Integrato Verso Il Benessere Indoor** (in Italian and English): <https://greentech.clust-er.it/la-qualita-dell-aria-nelle-scuole/>

FOLLOW US



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