NEC directive

- The NEC network in Italy: new developments and projects, Alessandra De Marco, Italy
- NECD – what to expect from the second round of reporting 2022/2023, Salar Valinia, Sweden (not available)

The NEC network in Italy: new developments and projects

Alessandra De Marco ENEA

Giancarlo Papitto   CUFA

Michela Rogora   CNR

And all the institution involved….

Article 9 - Setting the National network

According to the Guidelines*, **first step** is

→ identifying the biogeographical regions

In Italy we have 3 of them:

❑ Alpine

❑ Continental

❑ Mediterranean

* Ecosystem monitoring under Article 9 and Annex V of
Directive 2016/2284 (NECD) , Draft Guidance – Version 1

According to the Guidelines*, **second step** is

→ identifying the main habitats

Italian vegetation types

Italy is characterized by high level of functional biodiversity and wide variety of environmental, landscape and climatic conditions that make difficult the selection of representative monitoring sites
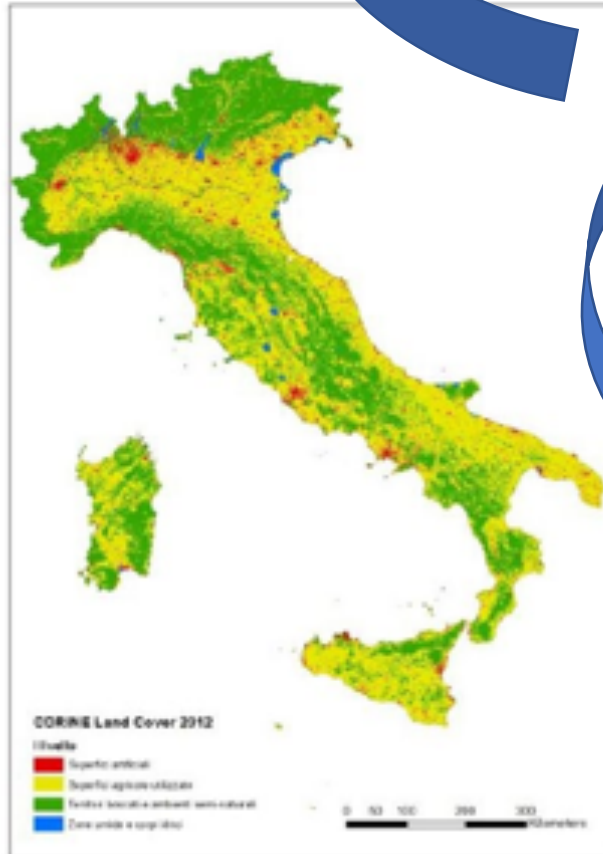
Forests & shrubs (36%)
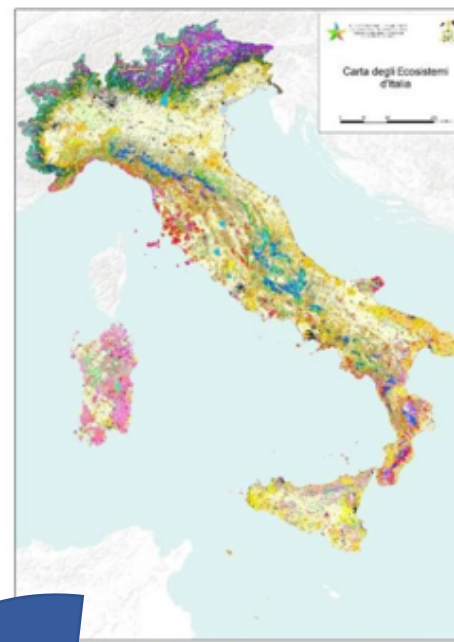

Figura 10 Carta degli Ecosistemi d'Italia
Fonte: Blasi et al. (2014)

Figura 26 Superficie forestale italiana ripartita in bosco e altre terre boscate
Fonte: elaborazione su INFC (2015)

CORINE Land Cover 2012

Figura 2 Uso del suolo per classi di primo livello CORINE Land Cover - CLC (2012)

- Ecosistemi forestali (17 tipi)
- Ecosistemi arbustivi (8 tipi)
- Ecosistemi erbacei (8 tipi)
- Ecosistemi psammofili (3 tipi)
- Ecosistemi igrofili dolcicoli (4 tipi)
- Ecosistemi aloigrofili costieri (3 tipi)
- Ecosistemi salmastri (3 tipi)
- Ecosistemi casmofitici (3 tipi)
- Aree agricole (10 tipi)
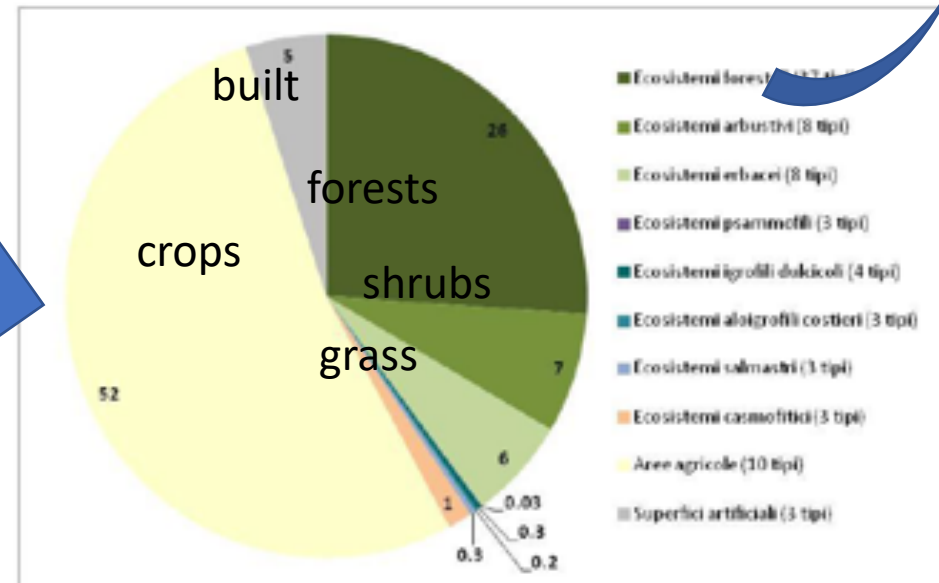- Superfici artificiali (3 tipi)

built
forests
crops
shrubs
grass

Figura H1 Percentuali di copertura dei tipi di ecosistemi.
Fonte: Blasi et al. (2014)

Actual condition of NECD monitoring network

In Italy, the Ministry for Environment, Land and Sea – General Directorate for Environment Assessment (Department Sustainable Development), is responsible for the NECD enforcement and
for setting a National Network to monitor air pollution impacts in collaboration with research institutions and local administrations.

Biogeographical Regions
- Alpine
- Continental
- Mediterranean

- Freshwater Sites
- Forest Sites
- Castel Porziano Site (three forest sites)

IT01/IT02/IT03/IT04 · TRE1 · VEN1 · PIE1 · INTERREG · EMI1 · LAZ1 · ABR1 · CAL1

Impacts of air pollution on human and ecosystem health, and implications for the National Emission Ceilings Directive: Insights from Italy

Alessandra De Marco, Chiara Proietti, Alessandro Anav, Luisella Ciancarella, Ilaria D'Elia, Silvano Fares, Maria Francesca Fornasier, Lina Fusaro, Maurizio Gualtieri, Fausto Manes, Aldo Marchetto, Mihaela Mircea, Elena Paoletti, Antonio Piersanti, Michela Rogora, Luca Salvati, Elisabetta Salvatori, Augusto Screpanti, Giovanni Vialetto, Marcello Vitale, Cristina Leonardi

Rete NEC Italia
Monitoraggio degli Ecosistemi Terrestri
Lo stato delle foreste italiane

Rete di Livello II del programma ICP Forests - CON ECO.FOR.
Rapporto su 20 anni di studi degli ecosistemi forestali

A cura di:
Giancarlo Papitto, Valerio Quatrini, Claudia Cindolo, Cristiana Cocciufa

O$_3$ Italian network

Nome	Codice
Passo Lavazè	TRE1
Pian Cansiglio	VEN1
Val Sessera	PIE1
Carrega forest	EMI1
Acquapendente	LAZ1
Selva Piana	ABR1

CONECOFOR ICP forests level II

SMART4ACTION

Castelporziano	CPZ1
Castelporziano	CPZ2
Castelporziano	CPZ2

ICP forests level I

In Italy
no targeted monitoring
under the WFD
for acidification

Long-term
data available
(ICP WATERS)

Pristine sites
(acidification and N
enrichment as the main
pressures)

**NEC
sites**

Medium/high
deposition
of pollutants

High/moderate
sensitivity to
acidification/N dep

Biogeographical Regions
- Alpine
- Continental
- Mediterranean

- Freshwater Sites
- Forest Sites
- Castel Porziano Site (three forest sites)
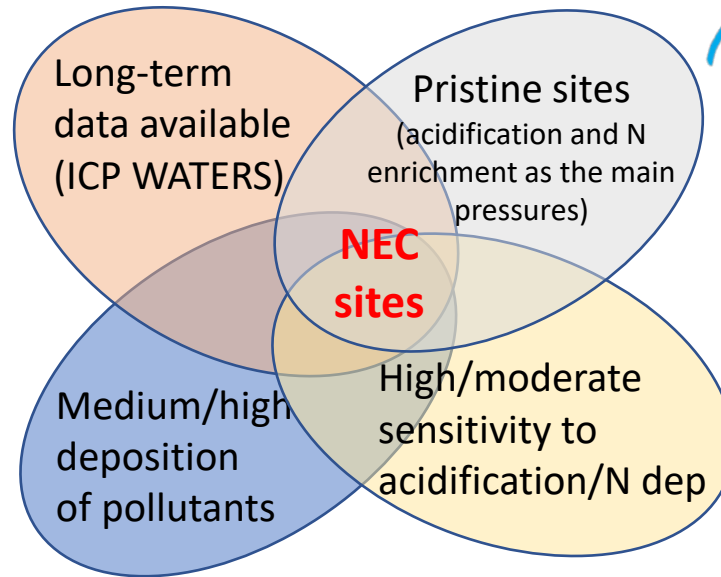
- 4 ICP WATERS sites (1 subalpine lake, 1 stream, 2 alpine lakes) + 6 additional sites (high altitude alpine lakes) located in a **highly impacted area** (North of the Po Plain)

- Small headwater catchments, not affected by management such as fertiliser use and with **atmospheric pollution** as the main pressure

- **Time series**: long-term chemical data (since the 1980s) + biological data from previous EU projects

- Variable degree of **sensitivity** to acidification/N enrichment; sites still affected by medium-high **N deposition** (10-20 kg N ha^{-1} y^{-1})

Selection of sites performed following the provisions in Technical specifications for NEC Article 10 (4a) data requirement on location of the monitoring sites and the associated indicators

Critical issues:

- funding based on old projects (SMART4Action, MOTTLES, other funds)
- all ecosystem type are represented? (high biodiversity level in Italy)
- are relevant species protected?
- low number of sites (high quality sites selection; for water distance from anthropogenic pollutant sources)

Solutions:

- A new project funded LIFE MODERn NEC
- Open eye to agriculture sector (highly relevant for Italy), analyzing data already collected related to ozone impacts on crops
- More relevance to typical Mediterranean species by selection of the new monitoring sites in Mediterranean environment
- Add a selection of Level I ICP Forest sites for natural ecosystem, and a selection of WFD sites for freshwater monitoring

Rete di monitoraggio forestale estensiva di Livello I

New Monitoring system to Detect the Effects of Reduced pollutants emissions resulting from NEC Directive adoption
LIFE MODERn(NEC)
LIFE20GIE/IT/000091

PROJECT LOCATION:

several sites across Italy (ICP Forests lev. II/ ICP Waters)

BUDGET INFO:

Total amount: € 3.414.809

% EC Co-funding: € 1.877.109 (54.97%)

DURATION:
Start date: 01/10/2021
End date: 30/09/2025
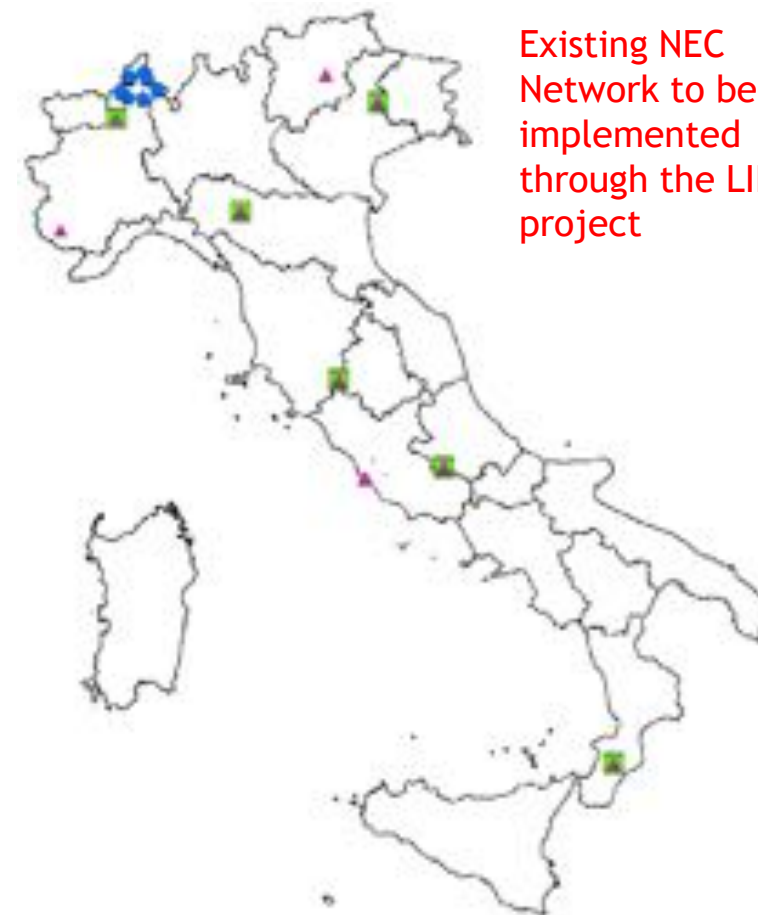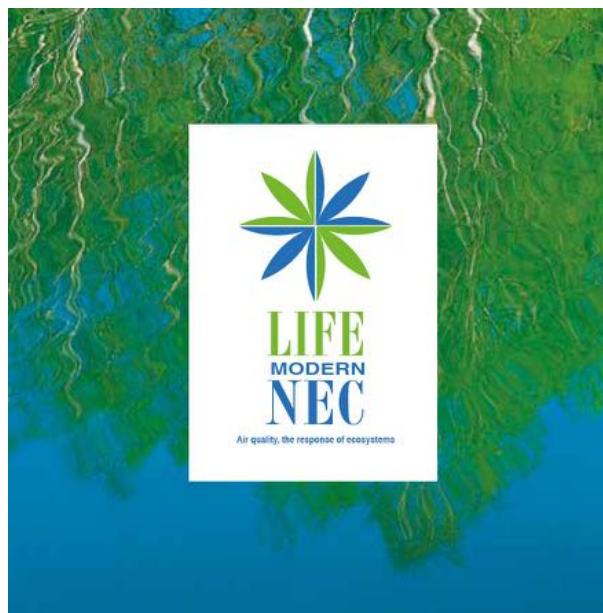
Existing NEC Network to be implemented through the LIFE project

PROJECT'S partners:

Coordinating Beneficiary: Arma dei Carabinieri – Comando Unità Forestali, Ambientali e Agroalimentari - CUFA

Associated Beneficiaries: CNR, CREA, ENEA, Legambiente, Terradata environmetrics, UniCamerino, UniFirenze

LIFE MODERN NEC

Qualità dell'aria, la risposta degli ecosistemi

LIFE20 GIE/IT/000091
Realizzato con il contributo dello
strumento finanziario LIFE dell'EU

Project actions and activities

1) Select at least **4 new sites in forest environment and 6 new freshwater sites** to be included in the Italian NEC network;

2) Increase the **set of indicators** for the study of air pollution impacts on ecosystems;

3) **test** new and existing indicators in the selected monitoring sites;

4) **train**, through seminars and field activities, the operators in charge of monitoring the sites;

5) **establish** a permanent working group composed of the project partners and a representative of the Ministry of Ecological Transition to update the NEC Italy network and evaluate its effectiveness;

6) promote a **national awareness campaign** aimed at the public and the

various stakeholders on the need to adopt concrete measures and individual behaviors to help improve air quality.

Monitoring activities of LIFE MODERn NEC


Visibility monitoring site (Sabaudia, Latina)

Testing new indicators: The metodology IMPROVE for Visibility

In US the National Park Service (NPS) keeps track of the visibility conditions in NPS areas and works with air regulatory agencies and partners to improve visibility.

In eastern parks, the average distance a visitor can see has improved from 50 miles in 2000 to **70 miles** in 2015 and very clear days, now regularly occur.
In western parks, the average distance a visitor can see has improved from 90 miles to **120 miles** over the same period.

Unfortunately, the clarity of park views is still affected by air pollution in virtually all national parks across the country.
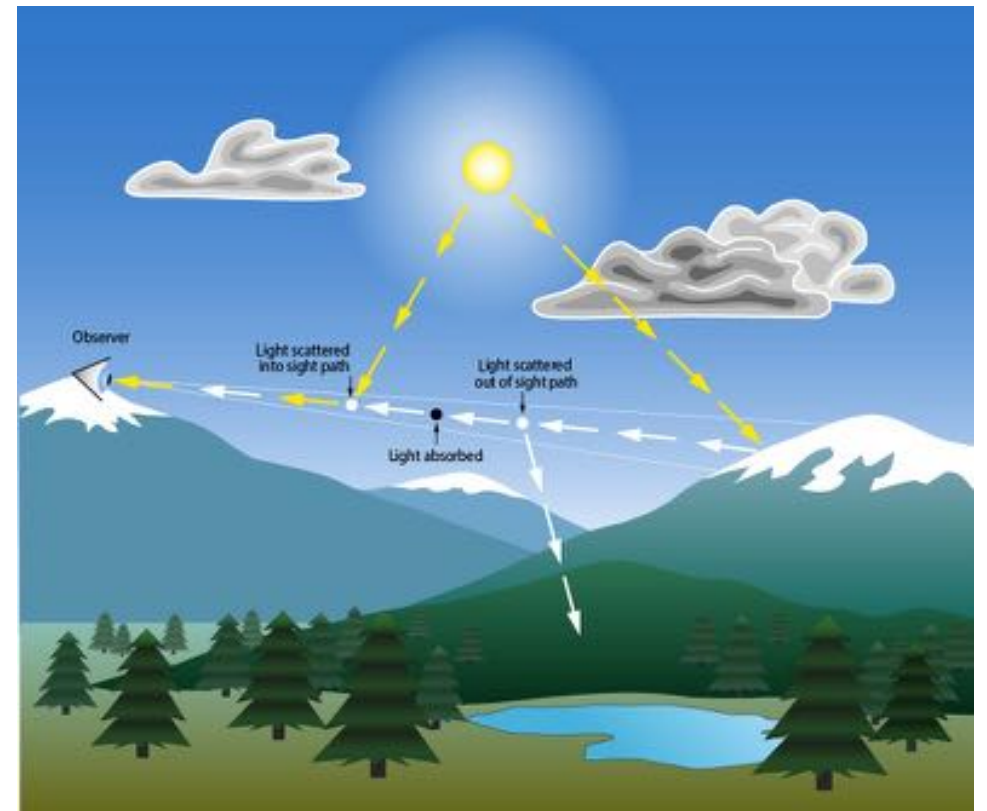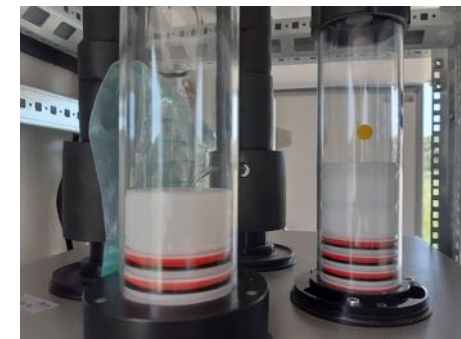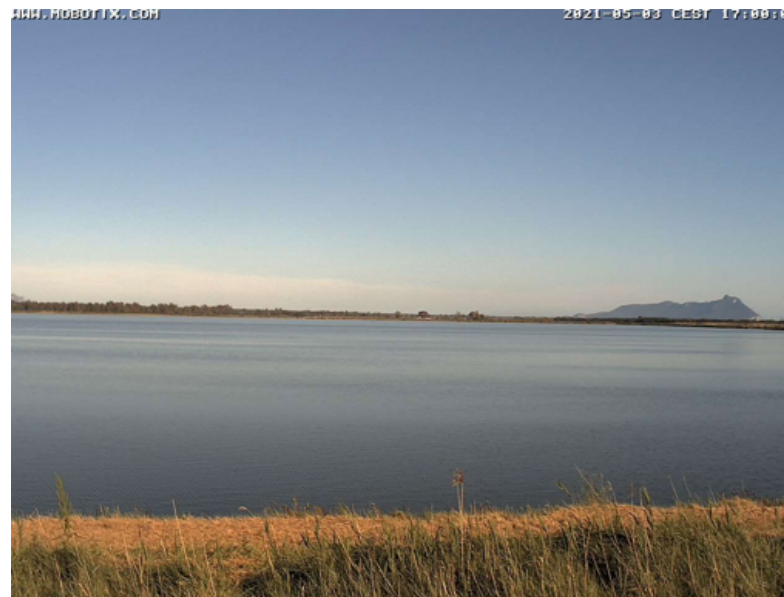

Good Visibility Day   Bad Visibility Day
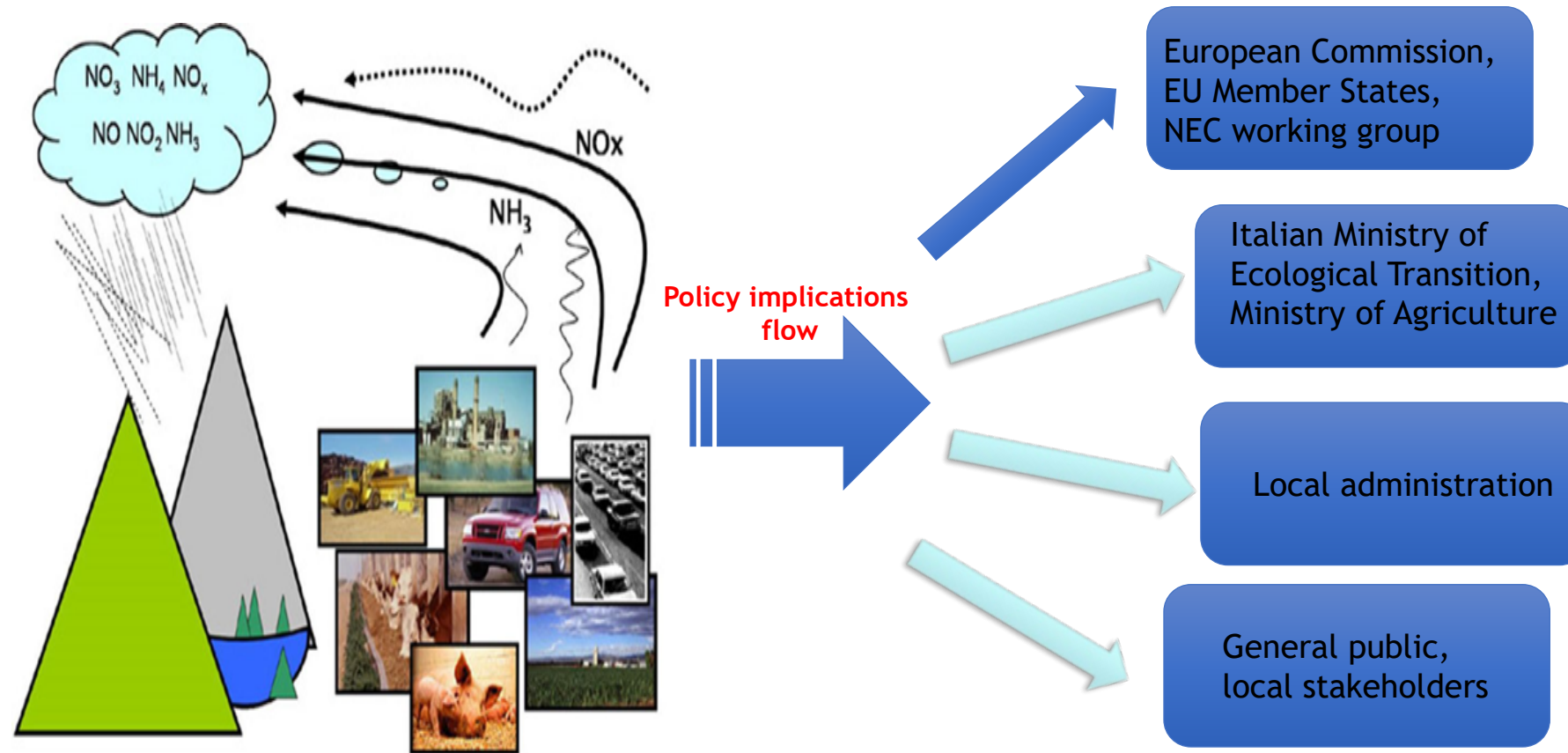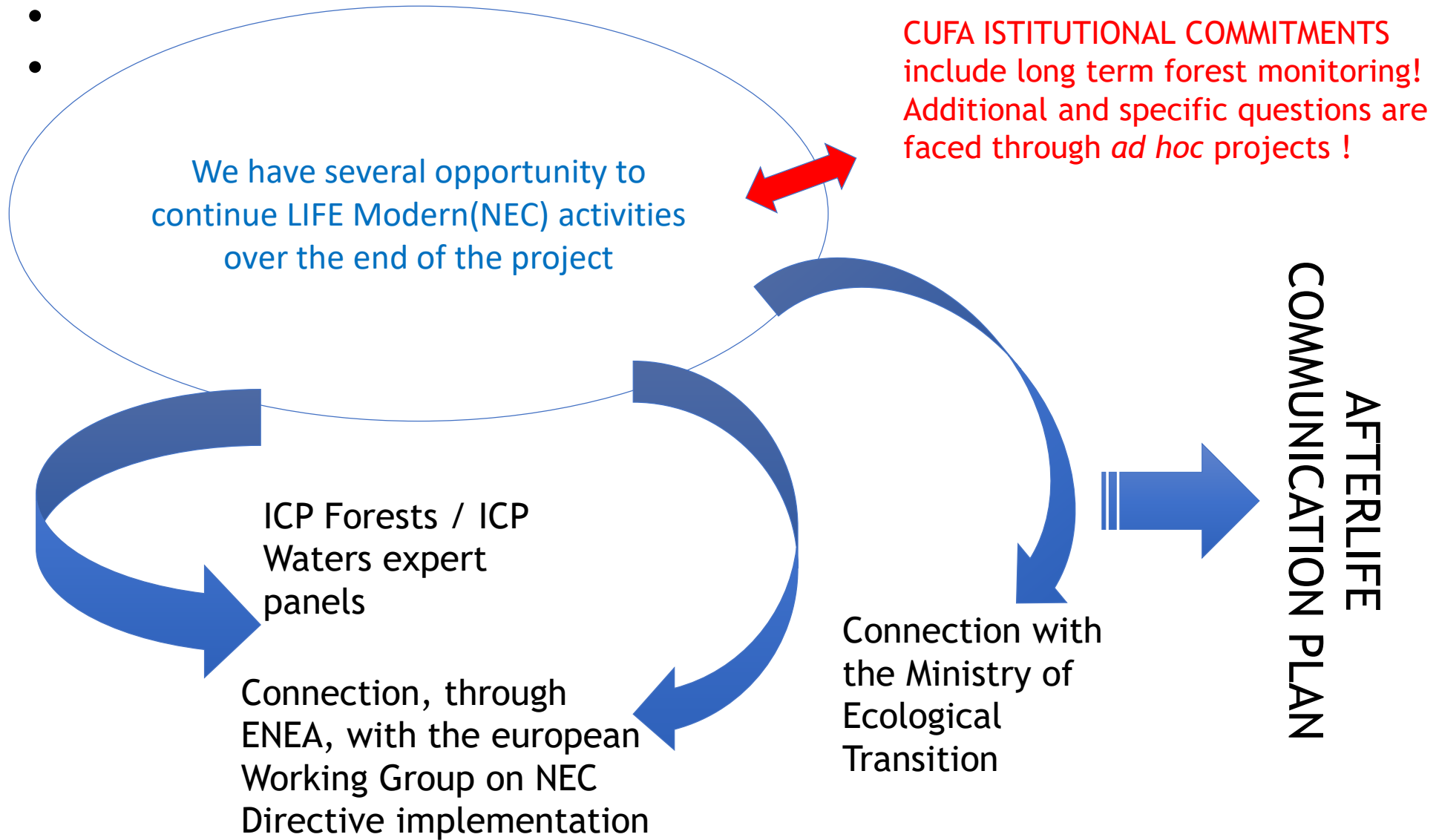
Methodology to measure «Visibility»

POLICY IMPLICATIONS of MODERn NEC

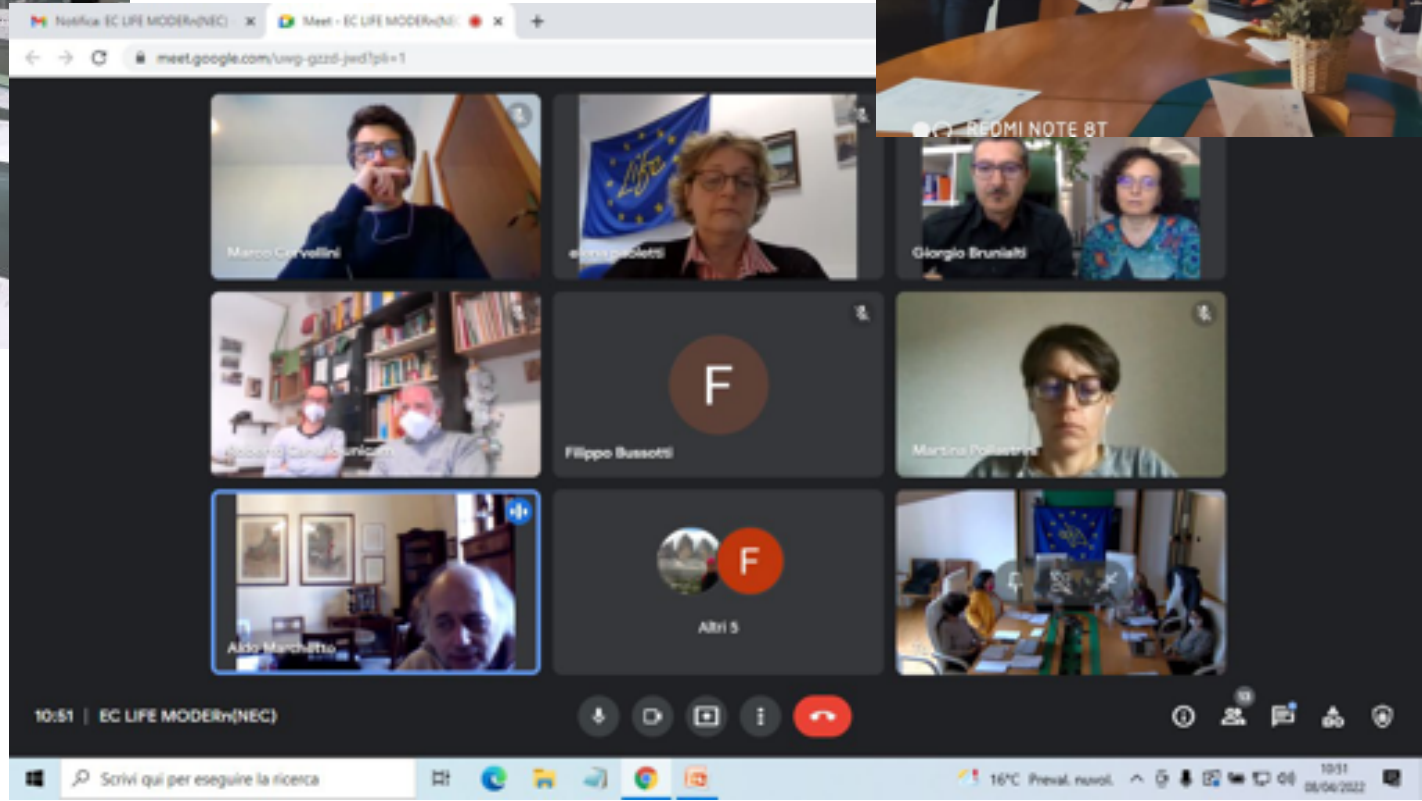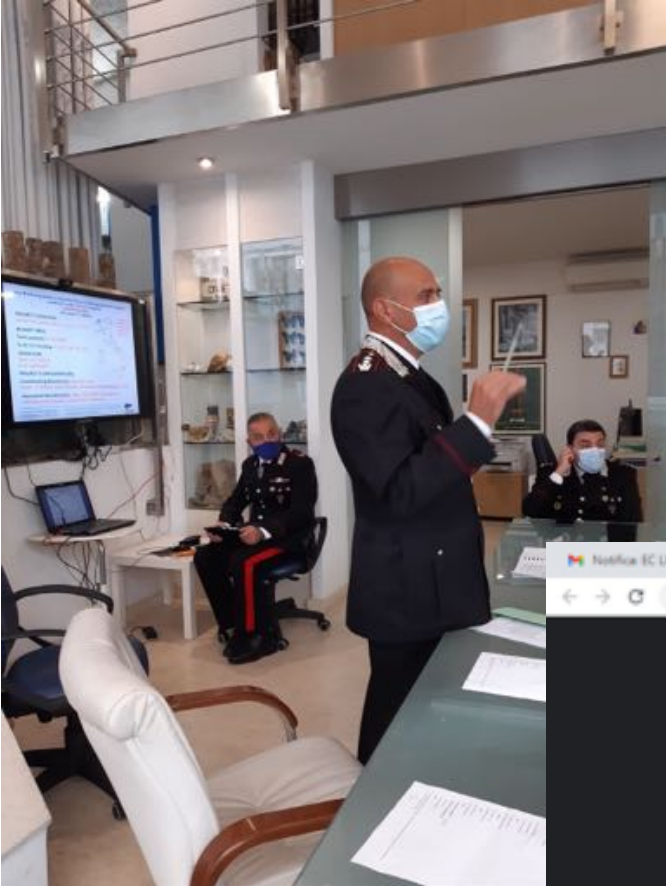- *LIFE Modern(NEC) has strong policy implications, focussing on requirements of the* EU NEC Directive *that currently existing NEC sites can poorly fulfil.*

- *We refer to* art. 9 *of the Directive, concerning the* impacts of air pollution on forest and freshwater ecosystems

CONTINUATION (REPLICATION, TRANSFER, MARKET UPTAKE)

-
-

We have several opportunity to continue LIFE Modern(NEC) activities over the end of the project

CUFA ISTITUTIONAL COMMITMENTS include long term forest monitoring! Additional and specific questions are faced through *ad hoc* projects !

ICP Forests / ICP Waters expert panels

Connection, through ENEA, with the european Working Group on NEC Directive implementation

Connection with the Ministry of Ecological Transition

AFTERLIFE COMMUNICATION PLAN

Kick-off meeting and executive commette meeting

Website of the project:

Life MODERn NEC – Qualità dell'aria, la risposta degli ecosistemi (lifemodernec.eu)

For more info please contact   alessandra.demarco@enea.it

Thank you for your attention and thanks to all project participants:

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