HERAmbiente
Società del Gruppo Hera

AI 5.0 Platform for circular economy optimization in the ESIA process

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ZERO IMPACT DOESN'T EXIST!
ENVIRONMENTAL and SOCIAL SUSTAINABILITY DOES!

THE HERAMBIENTE GROUP

Established on July 1°, 2009, in order to concentrate the **Hera Group's extensive plant equipment** in a new company capable of better seizing the business development perspectives. Herambiente is the **leader in Italy in the waste treatment and recovery of energy and material sectors.**

1.1 billion €
revenue

> 2,000
employees

7.9 MILLION TONNES/YEAR
of waste treated

93 WASTE TREATMENT PLANTS
- Matter recycling
- Energy recovery
- Final waste disposal (landfills)

2024 data

OUR VISION

Giving value to the environment is our priority

We turn waste into a resource for people, for the environment, and for companies.

HOW DO WE DO IT?

OUR ASSETS TO EXPLOIT ALL WASTE DELIVERED BY THE CITIZENS

- MTB PLANTS
- COMPOSTING/STABILISATION PLANTS
- WASTE-TO-ENERGY PLANTS
- LANDFILLS

OUR ASSETS TO MANAGE INDUSTRIAL WASTE

- STORAGE PLATFORMS
- PHYSICOCHEMICAL PLANTS
- INERTISATION AND INDUSTRIAL SLUDGE TREATMENT PLANTS

We **continuously monitor** the operational and environmental performance of our facilities

CONTINUOS MONITORING

We manage 16 waste-to-energy lines this means about **3.2 million data points** on emissions each year!

- Discharges
- Waste produced & incoming
- Groundwater quality
- Atmospheric emissions
- Noise levels
- Air quality

BIG ENVIRONMENTAL DATA

In the era of **big data**, **IoT**, and **artificial intelligence**, we must ask ourselves:

- How can we further enhance this wealth of data to promote **environmental sustainability** and the **circular economy**?
- How can we share it effectively with agencies and **administrations**?
- How can we communicate it **clearly and transparently** to local communities?

THE PROJECT

Selection and recovery plant of Castiglione delle Stiviere (MN)

Waste-to-energy plant of Padua (PD)

Landfill of Serravalle Pistoiese (PT)

Waste co-incineration plant of Pozzilli (IS)

THE METHODOLOGY& THE PLATFORM

A1 — PERMITTING 5.0 MODEL

A2 — DCGIS METHODOLOGY FOR IMPACT ASSESSMENT

A3 — PLANNING OF STRATEGIC/ OPERATIONAL IMPROVEMENT (OKR PLANS)

A4 — EXECUTION OF THE ACTIONS FORSEEN BY THE OKR PLAN

A5 — DYNAMIC MEASUREMENT AND PREVENTIVE/ PREDICTIVE MONITORING SYSTEM (ML-BCA)

CONTEXT CHARACTERIZATION

Elements of environmental vulnerability and territorial stressors in a radius of 1,500 meters

PLANT PROFILING

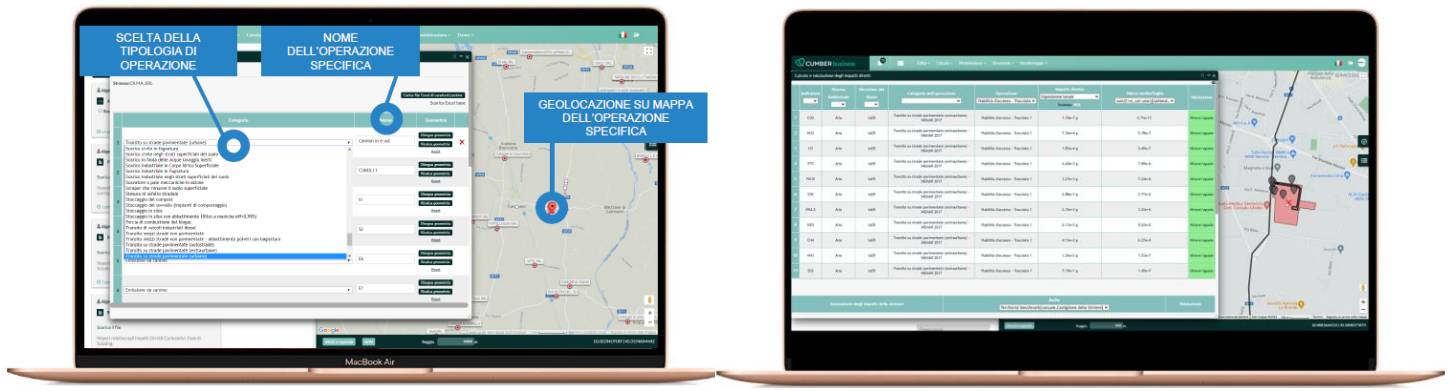
Georeferenced characterization of key operations carried out

DIRECT IMPACT ASSESSMENT

Specific and cumulative on Environmental resources

INDIRECT IMPACT ASSESSMENT

Specific and cumulative on Ecosystems and Human communities



THE PROJECT: CASE STUDY

AREA
39,055 sqm

CHIMNEY HEIGHT
43 meter

TYPE OF WASTE
WDF waste derived fuel
93,500 tonnes/year

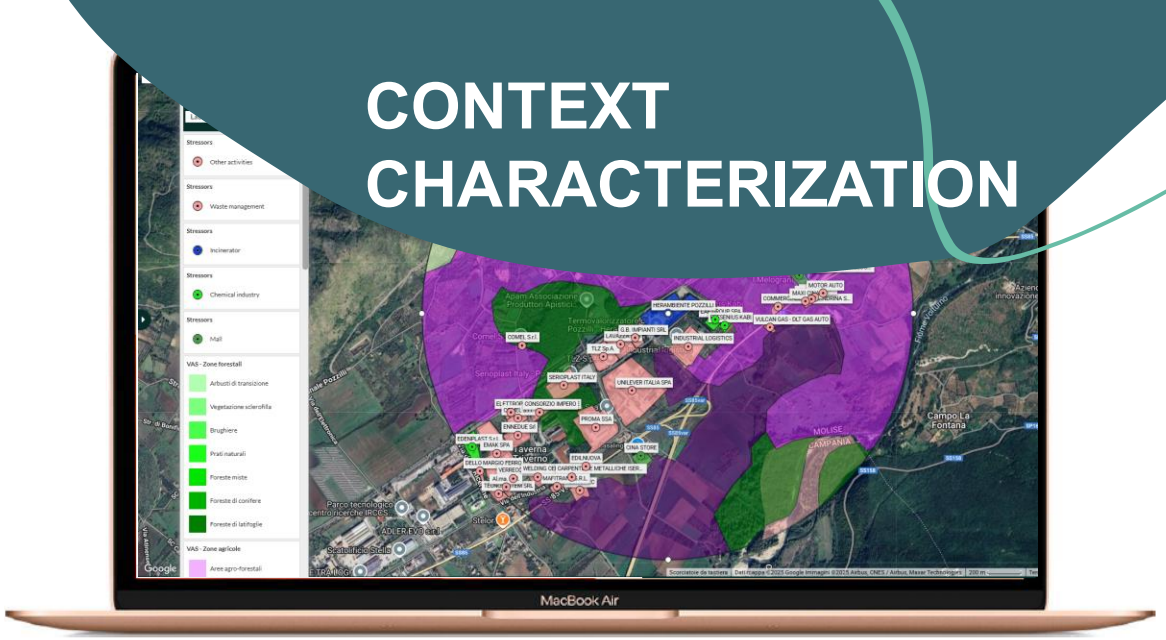
RATED ELECTRIC POWER
11,5 MW

ELECTRICITY PRODUCED
80,000 MWh/year

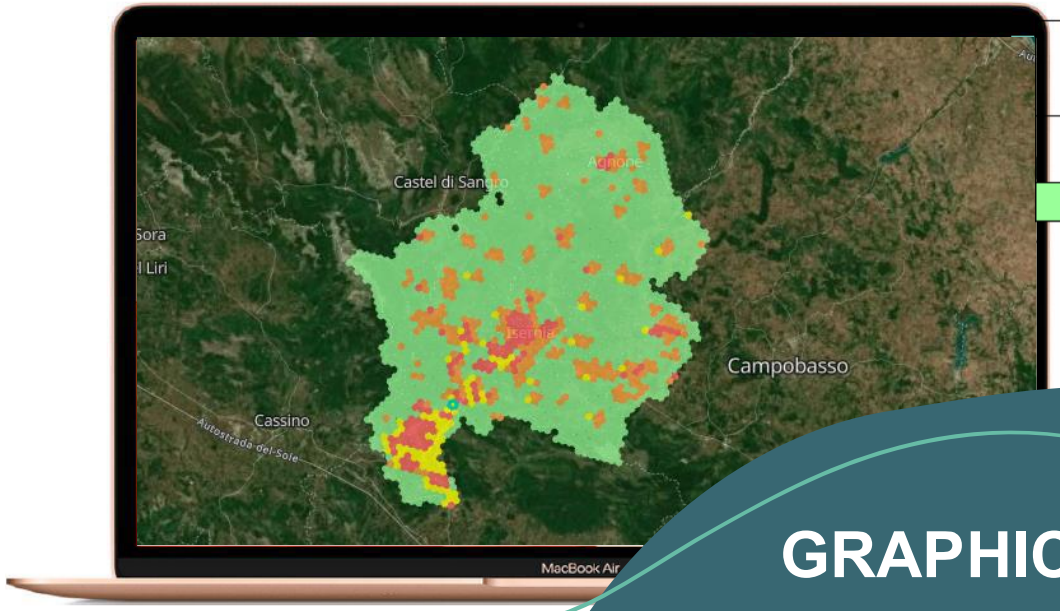
… which corresponds to the average annual consumption of **31,000 households** (population of the Province of **Isernia**).

THE PROJECT: MAIN RESULTS

CONTEXT CHARACTERIZATION



PLANT PROFILING



Vulnerabilità del contesto (Popolazione)		Pressione del contesto (PM10)		Pressione del termovalorizzatore (PM10)	
ε0		σ0		σ1	
X			X	X	

GRAPHIC OUTPUT

LESSON LEARNT

Zero impact doesn’t exist!
But environmental and social sustainability, DOES!

The monitoring data is crucial

Territorial context matters

Sharing data enhances assessments

AI models are key

Clear representation is important

Transparency fosters trust

NEXT STEPS

WHAT HAS BEEN DONE

- Platform implemented at 4 industrial sites
- Contextual information collected
- Main environmental and social pressures identified

WHAT TO DO

- Development of the AI-based module
- Increased environmental data sharing (companies & authorities)
- Growing use of the Platform for land-use planning & regulation

We are the circular engine company

www.herambiente.it

HERAmbiente