

**WE-EEN**



*WE –EEN  
Wizard of the  
Environment:  
the Enterprise  
Europe Network*

## **Directive 2008/98/EC on waste (Waste Framework Directive)**

**The Directive introduces the "polluter pays principle" and the "extended producer responsibility".**

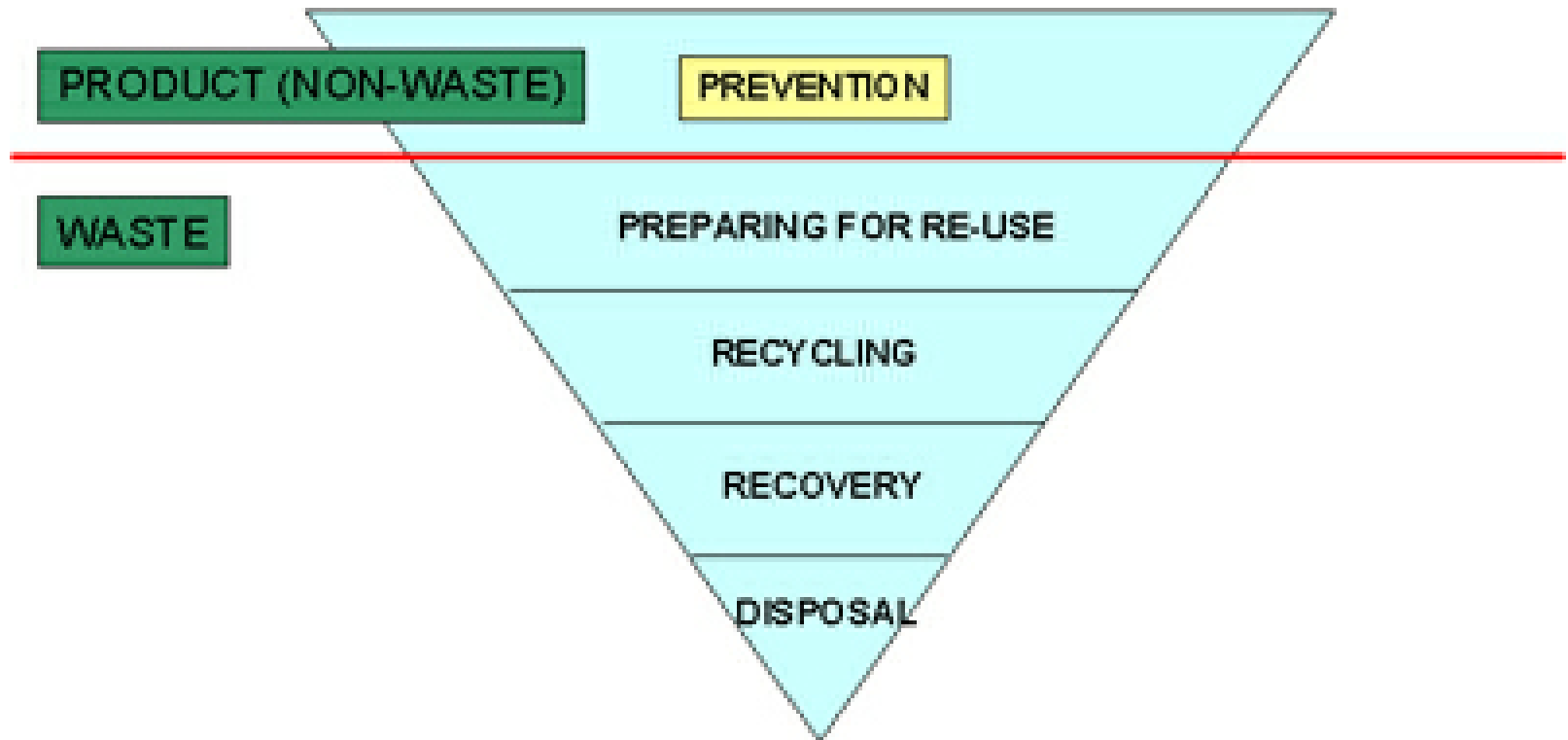
**The Directive includes two new recycling and recovery targets to be achieved by 2020: 50% preparing for re-use and recycling of certain waste materials from households and other origins similar to households, and 70% preparing for re-use, recycling and other recovery of construction and demolition waste.**

# Waste legislation

The Waste Framework Directive, revised in 2008, streamlines waste legislation, incorporating rules on a number of issues such as the management of hazardous waste and waste oils. Other pieces of EU waste legislation:

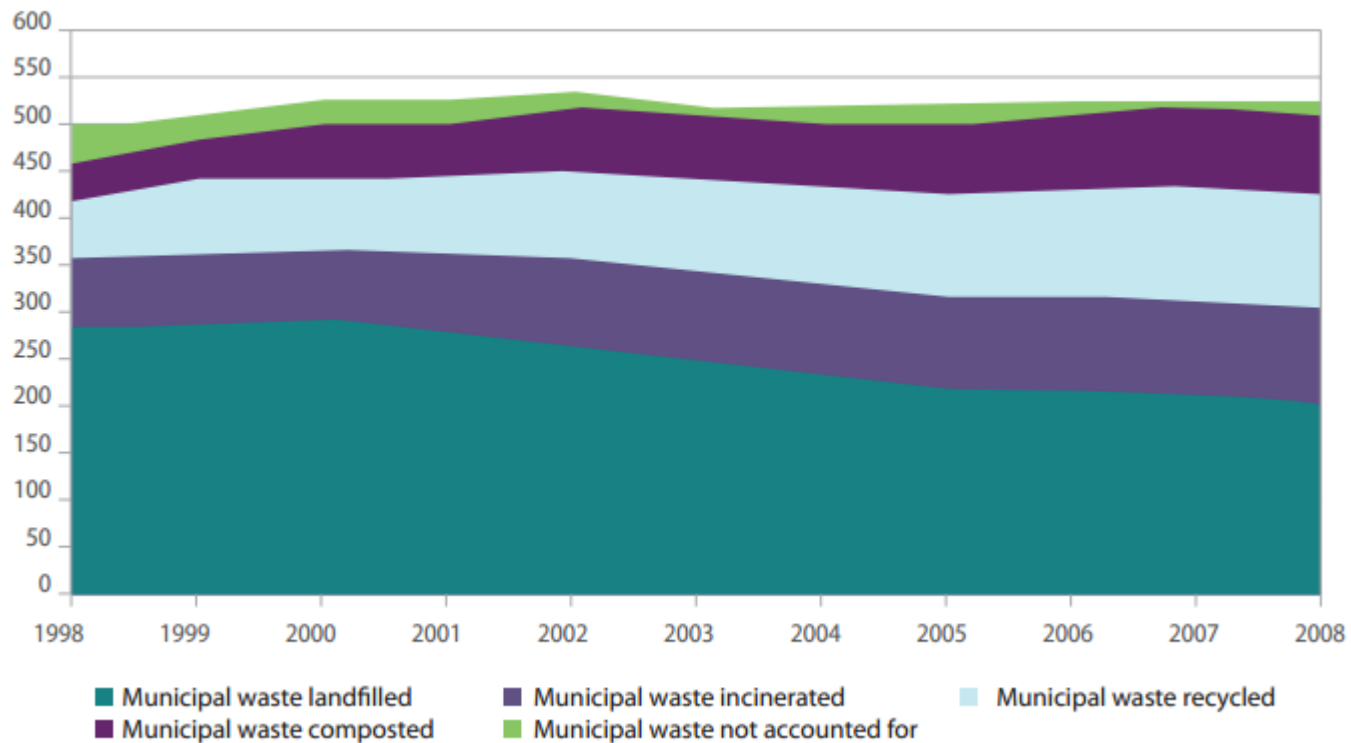
- The Regulation on waste shipments aims to ensure the safe shipment of all types of waste;
- The Packaging and Packaging Waste Directive sets standards for the design of packaging and specific targets for the recycling and recovery of waste packaging;
- The EU's Landfill Directive and the Waste Incineration Directive set standards and limits for the release of pollution into the air or into groundwater;
- Waste Electrical and Electronic Equipment (WEEE) legislation lays down collection, recycling and recovery targets for electrical goods;

# Directive 2008/98/EC on waste (Waste Framework Directive)



# Waste hierarchy

Trends in municipal waste treatment in the EU



Source: Eurostat

# Types of wastes

**Non Hazardous waste: refuse, garbage, sludge, municipal trash.**

**Hazardous waste: solvents acid, heavy metals, pesticides, and chemical sludges**

**Radioactive: high and low-level radioactive waste**

**Mixed waste: Radioactive organic liquids, radioactive heavy metals.**

# Characteristics of wastes

**Corrosive:** these are wastes that include acids or bases that are capable of corroding metal containers, e.g. tanks

**Ignitability:** this is waste that can create fires under certain conditions, e.g. waste oils and solvents

**Reactive:** these are unstable in nature, they cause explosions, toxic fumes when heated.

**Toxicity:** waste which are harmful or fatal when ingested or absorbed.

# Waste facilities in Europe

Overview of waste treatment facilities according to [EUROSTAT 2010]

<b>Incineration with energy recovery (R1)</b>	<b>Other incineration (D10)</b>	<b>Recycling (R2-11)</b>	<b>Landfilling (D1, D3-5, D12)</b>	<b>Land treatment release into water (D2, D6, D7)</b>	<b>Total</b>
5,170	3,897	50,682	10,286	154	70,189

Note: latest data from 2006



# Environmental Impact Assessment Stages

- Screening: regulatory authority to identify the need of EIA
- Scoping: identified key issues from a board range of potential concerns
- Assessing: direct, indirect, secondary, cumulative, short and long term, permanent, temporary, positive, and negative
- Mitigation: reduce the undesirable impacts of a proposed action
- Monitoring: environmental compliance with local regulations/effectiveness of the mitigation measures
- Reporting: preparation of reporting
- Reviewing: reviewing before approval

# Scoping of the Environmental Impact on Waste Management facilities

Potential issues	Impacts on the environment
<b>Population</b>	Perceived and actual public health risks
<b>Transport</b>	Traffic generated during construction, operation and restoration
<b>Noise and vibration</b>	Increased noise levels during construction, traffic noise including reversing alarms
<b>Ecology</b>	Loss of habitat and protected species from restoration of minerals workings
<b>Land and soils</b>	Land contamination, temporary loss of agricultural land
<b>Water</b>	Leakage from landfill – pollution of surface or groundwaters
<b>Air and climate</b>	Landfill gas, odour, dust and particulates, pollutants from incomplete combustion
<b>Cultural heritage</b>	Loss of heritage features
<b>Landscape</b>	Change or loss of valued landscape

# Factors Influencing Waste Management Options

Economic Factors

Social Aspect

Environmental  
Considerations

**Waste Management  
Options**

Existing Waste  
Management

Technology

Politics and  
Legislation

# Sustainability Indicators for Waste Management

	Short term	Long term
<b>Economic Aspects</b>	Investment cost, net operation, total net cost per collected ton, net annual total cost	Long term viability of collection and sorting operations and final disposal
<b>Environmental Aspects</b>	Quantity, quality of material recovered, local and regional health effects, residues, pollution, noise, landfill usage, natural resources used	Global impact: bio-diversity, global warming, acid rain: landscape, electricity consumption, waste produced, water usage
<b>Social Aspects</b>	Public acceptance, participation, employment	Welfare, natural resources availability
<b>Technical Aspects</b>	Scale, flexibility, market potential	Potential for future development

# **ELITE Ambiente: waste recovery facility of Grisignano di Zocco**

**Elite Ambiente is a firm that has been working in the waste recovery field since 1985. Their main activities are :**

- **Waste recovery**
- **Decontamination of contaminated sites**
- **Decontamination of site containing asbestos**

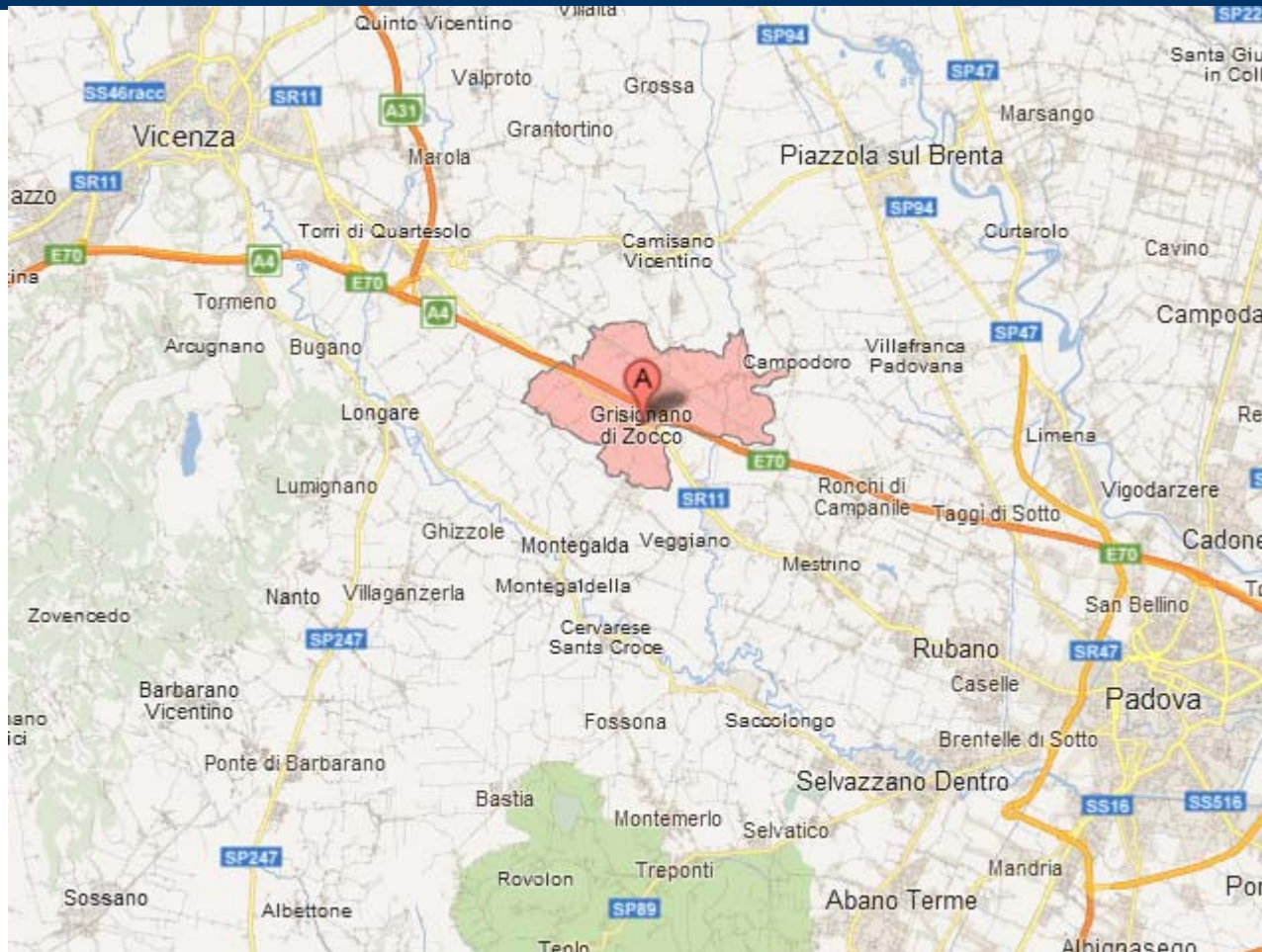
# **ELITE Ambiente: waste recovery facility of Grisignano di Zocco**

**Elite Ambiente has the NACE code 2007  
38.32 (Recovery of sorted materials)**

**The firm has obtained:**

- **ISO 9001 certification in 2005**
- **ISO 14001 certification in 1997**
- **EMAS registration in 1997 (first italian firm registered in the ecology field)**

# ELITE Ambiente: waste recovery facility of Grisignano di Zocco



## **ELITE Ambiente: waste recovery facility of Grisignano di Zocco**

**The Grisignano di Zocco facility has been acquired in 2003.**

**In 2004 the waste recovery activity was started in the old part of the site.**

**In 2005 the new part of the site was built and Elite Ambiente obtained a full authorization to waste recovery.**



# ELITE Ambiente: waste recovery facility of Grisignano di Zocco

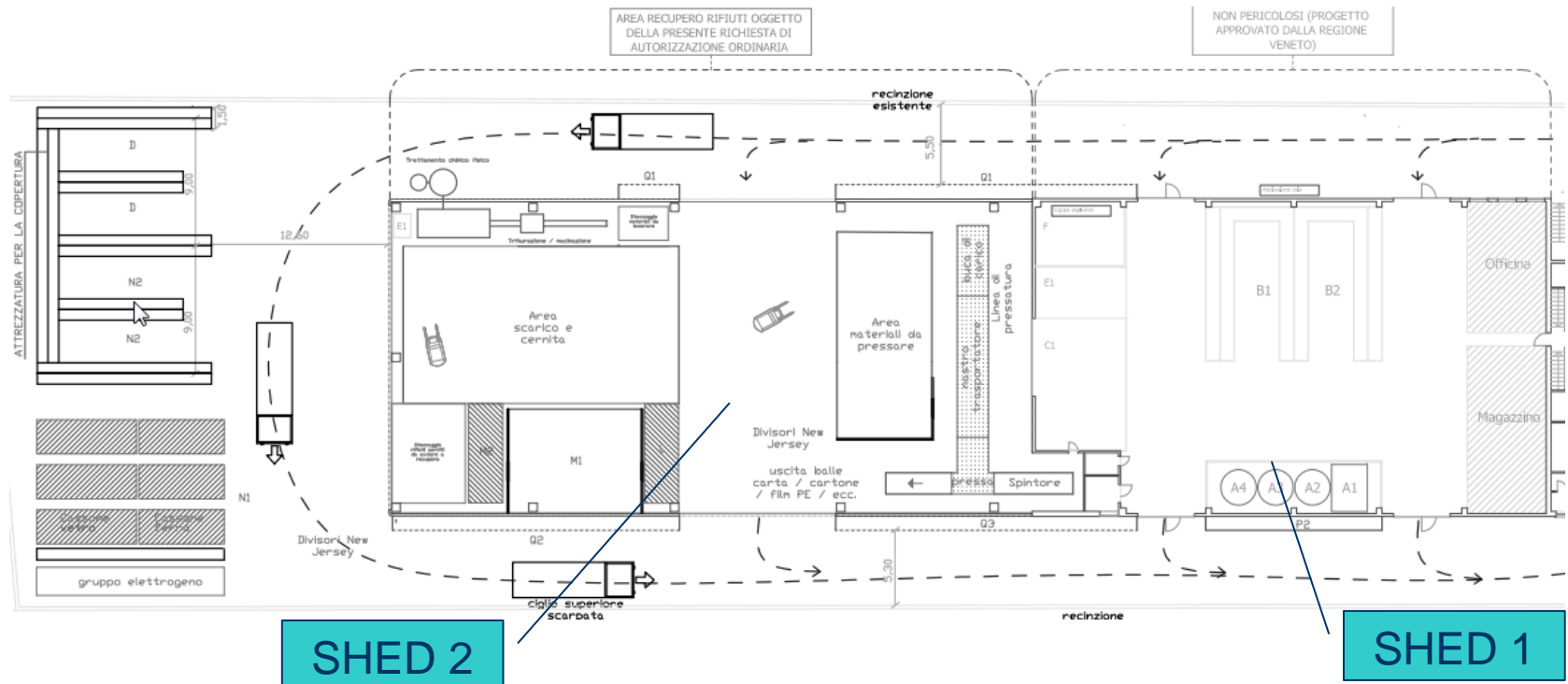
Aerial photo of the site.

the site is divided in shed 1 e shed 2.



# ELITE Ambiente: waste recovery facility of Grisignano di Zocco

## Lay-out



# ELITE Ambiente: waste recovery facility of Grisignano di Zocco

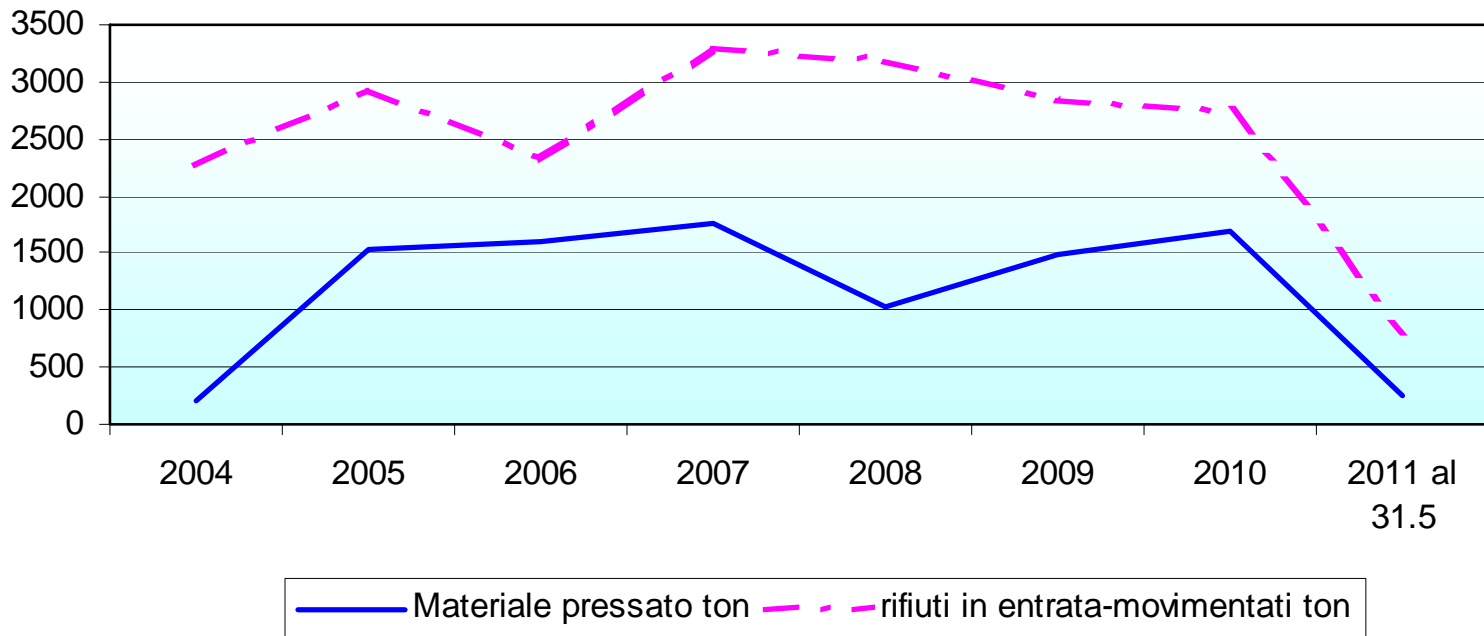
## Photos



# ELITE Ambiente: waste recovery facility of Grisignano di Zocco

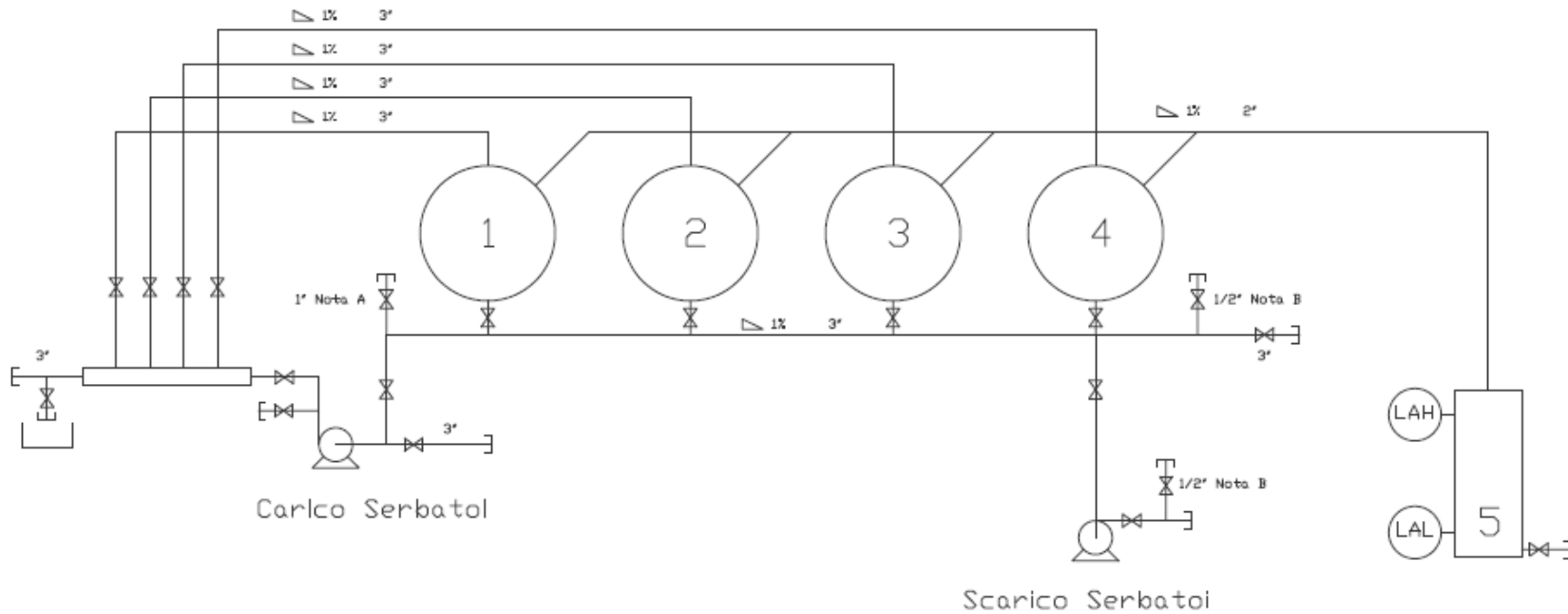
## Waste entering the plant

Rifiuti e Materiale pressato (ton) - Grisignano di Zocco



# ELITE Ambiente: waste recovery facility of Grisignano di Zocco

## Liquid waste storage



Nota A: valvolina rompivuoto da 1", rivolta verso l'alto  
Nota B: valvolina prelievo campioni da 1/2", rivolta verso il basso  
Nota C: Serbatoi da 1 mc, con allarme visivo e sonoro di presenza

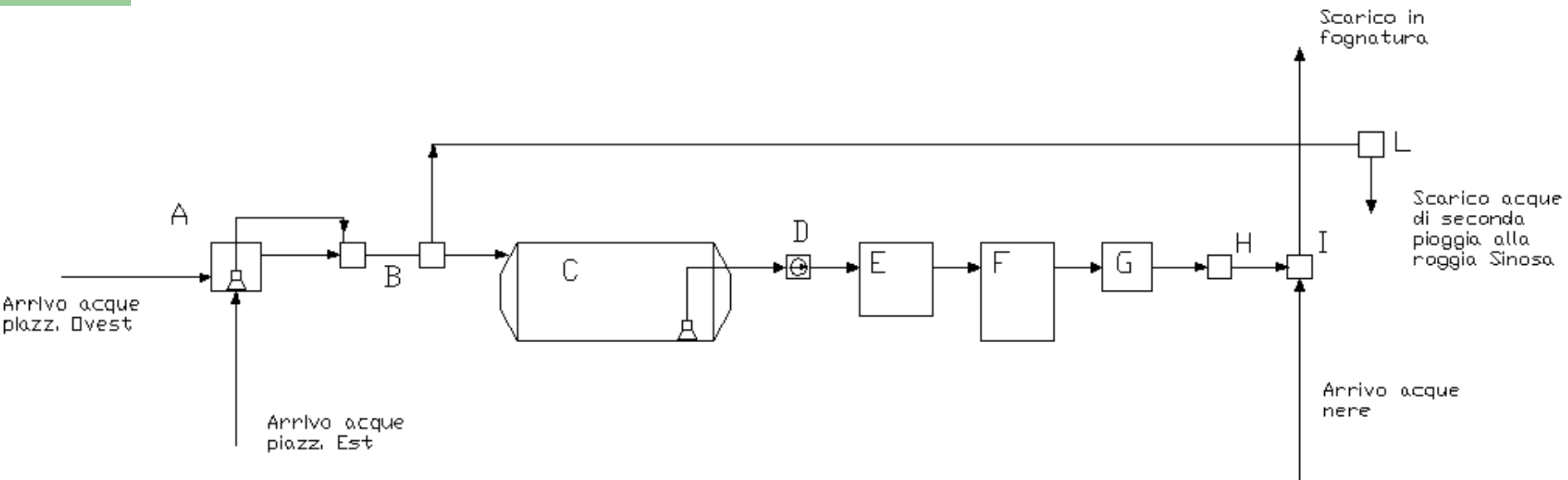
# **ELITE Ambiente: waste recovery facility of Grisignano di Zocco**

## **Emission treatment**

- **Stack 1: bag filter at the service of shed 1;**
- **Stack 2: plant of air treatment ofr the air coming from the drum filling zone. The pland is made of a carbon filter and a chemical scrubber;**
- **Stack 3: bag filter at the service of the plastica trituration plant in shed 2.**

# ELITE Ambiente: waste recovery facility of Grisignano di Zocco

## Water treatment



# ELITE Ambiente: waste recovery facility of Grisignano di Zocco

## Noise levels of the activity

TEMPO DI RIFERIMENTO: DIURNO					
PUNTO DI MISURA	DESCRIZIONE DEL PUNTO DI MISURA	SORGENTE DI RUMORE	CLASSE DI DESTINAZIONE D'USO	LIMITI D'AREA PERIODO DIURNO	VALORE MISURATO LEQ(A)
1	Confine azienda lato Nord, fronte strada via Pigafetta	Traffico veicolare su via Pigafetta Le attività all'interno dei capannoni 1 e 2 e l'impianto di aspirazione delle polveri in tale punto non vengono percepiti.	area di classe VI	70,0 dBA	61,0 dBA
2	Confine azienda lato Ovest, fronte portone capannone 1	Traffico veicolare su via Pigafetta Attività all'interno dei capannoni 1 e 2 e l'impianto di aspirazione delle polveri	area di classe VI	70,0 dBA	78,0 dBA
3	Confine azienda lato Ovest, fronte portone chiuso capannone 2	Attività all'interno dei capannoni 1 e 2 e l'impianto di aspirazione delle polveri	area di classe VI	70,0 dBA	69,5 dBA
4	Confine azienda lato Sud, fronte portone chiuso capannone 2	Attività all'interno dei capannoni 1 e 2	area di classe VI	70,0 dBA	66,5 dBA
5	Confine azienda lato Est, fronte portone chiuso capannone 2	Attività all'interno dei capannoni 1 e 2	area di classe VI	70,0 dBA	63,0 dBA
6	Confine azienda lato Est, fronte portone aperto capannone 1	Attività all'interno dei capannoni 1 e 2 e impianto di aspirazioni polveri funzionante	area di classe VI	70,0 dBA	68,5 dBA



# **ELITE Ambiente: waste recovery facility of Grisignano di Zocco**

**Energy: in 2006 a first PV plant (10 kW) was installed on the office facilities.**



# **ELITE Ambiente: waste recovery facility of Grisignano di Zocco**

**In 2010 a second PV plant (80 kW) was installed on the roof of shed 2.**



# Elite experience: Public health

- **No human activity is risk-free**
- **Potential risks to the public:**
  - **Accidental emissions and discharges to air, water and land**
  - **Emissions and discharges during routine operation by poor design or operational practices**
  - **High level of noise, high dust level during constructing of waste management facilities**
- **Appropriate management systems: prevention plans, emergency plans, regular inspection**
- **Open management of waste management facilities disclose emissions data, discuss operations, encourage site visits, respond promptly to complaints**

# Elite experience: Transport

- **Significantly increase road traffic: nuisance to residents and road users (noise, fear)**
- **Risks of an accident involving hazardous wastes**
- **Air pollution: vehicle exhausts, dust/dirty from vehicle carrying dusty waste/residues such as ash**
  
- **Mitigation of Transport:**
  - **No transport routes through residential areas**
  - **Appropriate road condition for a significant increase in heavy vehicle traffic**
  - **Speed restrictions on vehicles entering and leaving the site**

# Elite experience: Monitoring and auditing

- **Monitoring for noise, dust and odour issues**
- **Water quality of leachate, surface water and groundwater**
- **Traffic management plan**
- **Air monitoring at source**
- **Visual impact, ecology, land restoration**
- **Any relevant public health indicators**
- **Any kind of social impacts**

# Elite experience: Public consultation

- Environmental awareness
- Understanding of environmental issues associated with waste management options
- Critical to open decision-making and should begin as early as possible in the EIA process
- Faithful public consultation process (conference format rather than demonstration format)
- NIMBYY syndrome (concern over property value, visual impact)
- Emissions: long term health effects

# References

**Main site of the European Commission's  
Environment Directorate-General**

**<http://ec.europa.eu/environment/waste/>**

**Moeller, D. W. (2005). Environmental Health (3rd ed.). Cambridge, MA:Harvard University Press.**

**Barlaz, M., Kaplan, P., Ranjithan, S. & Rynk, R.  
(2003) Evaluating Environmental Impacts of solid  
Waste Management Alternatives.**

# WE-EEN



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Europe Network*

## Thank you everybody!

