

The Case-Study of the Porto Marghera – Venice Lagoon National Priority List Site and the role of the voluntary agreement for the chemical industry

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APAT

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Overview of the presentation

- **Porto Marghera NPL Site: history and state-of-the-art**
- **The VA for the chemical industry**
- **Lessons learned and conclusions**

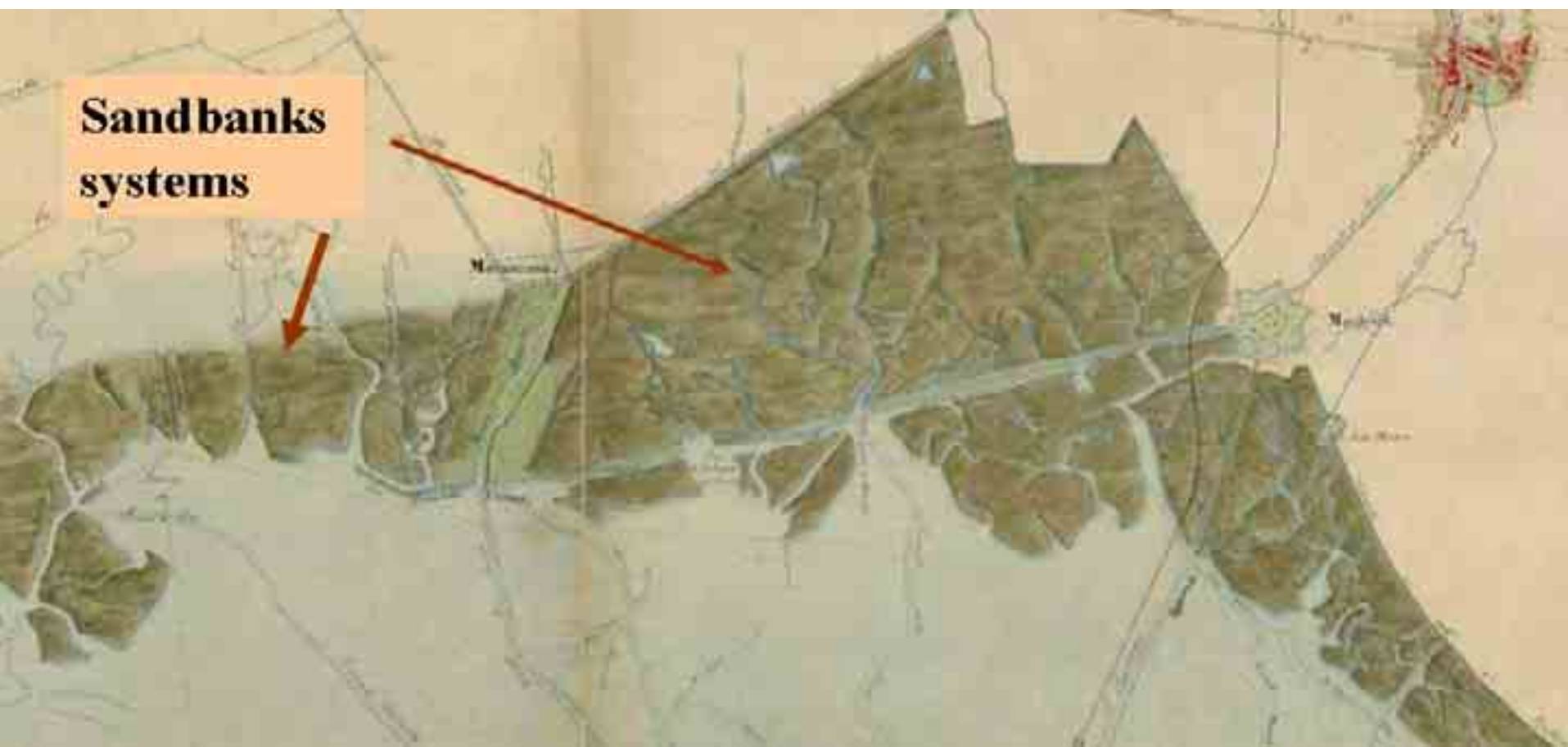
Historical Background

- On July 1917 the State and the Municipality of Venice signed an official act with a consortium of industries and banks: the “Bottenighi” area was created;
- The chemical industry production started in 1924 with the first plant of Montecatini company (fertilizers and chemical products);
- The workers were 6.000 in 1930, 16.000 in 1950, 35.000 in 1975: the industrial area became one of the most important in Europe despite of the Second World War bombings;
- In the late '80s the decline starts;
- In the '90s a new series of regulatory acts set limits to the contamination of soil and groundwater, emphasizing the degradation of lagoon habitat and a deep social and economic crisis.

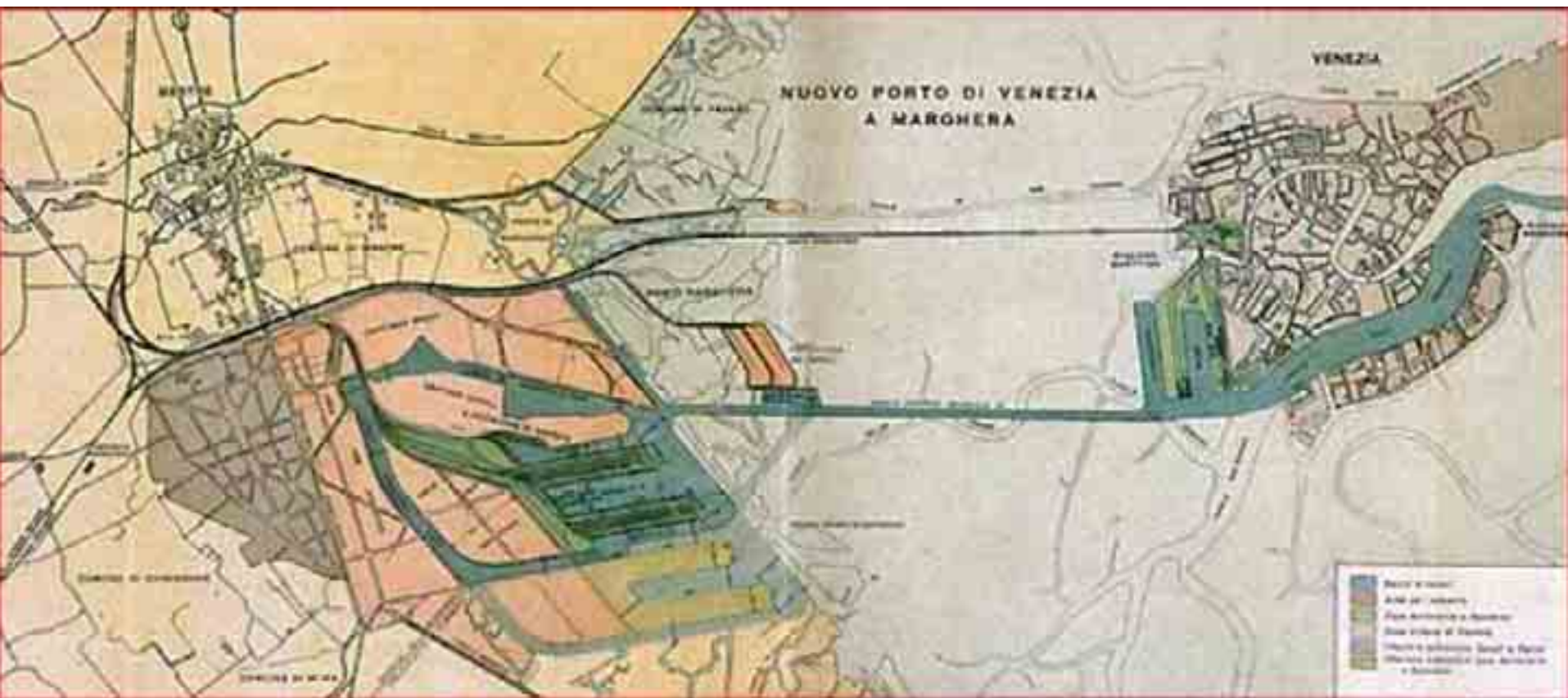
The Industrial Area of Porto Marghera



The Lagoon before the construction of Porto Marghera (1900)



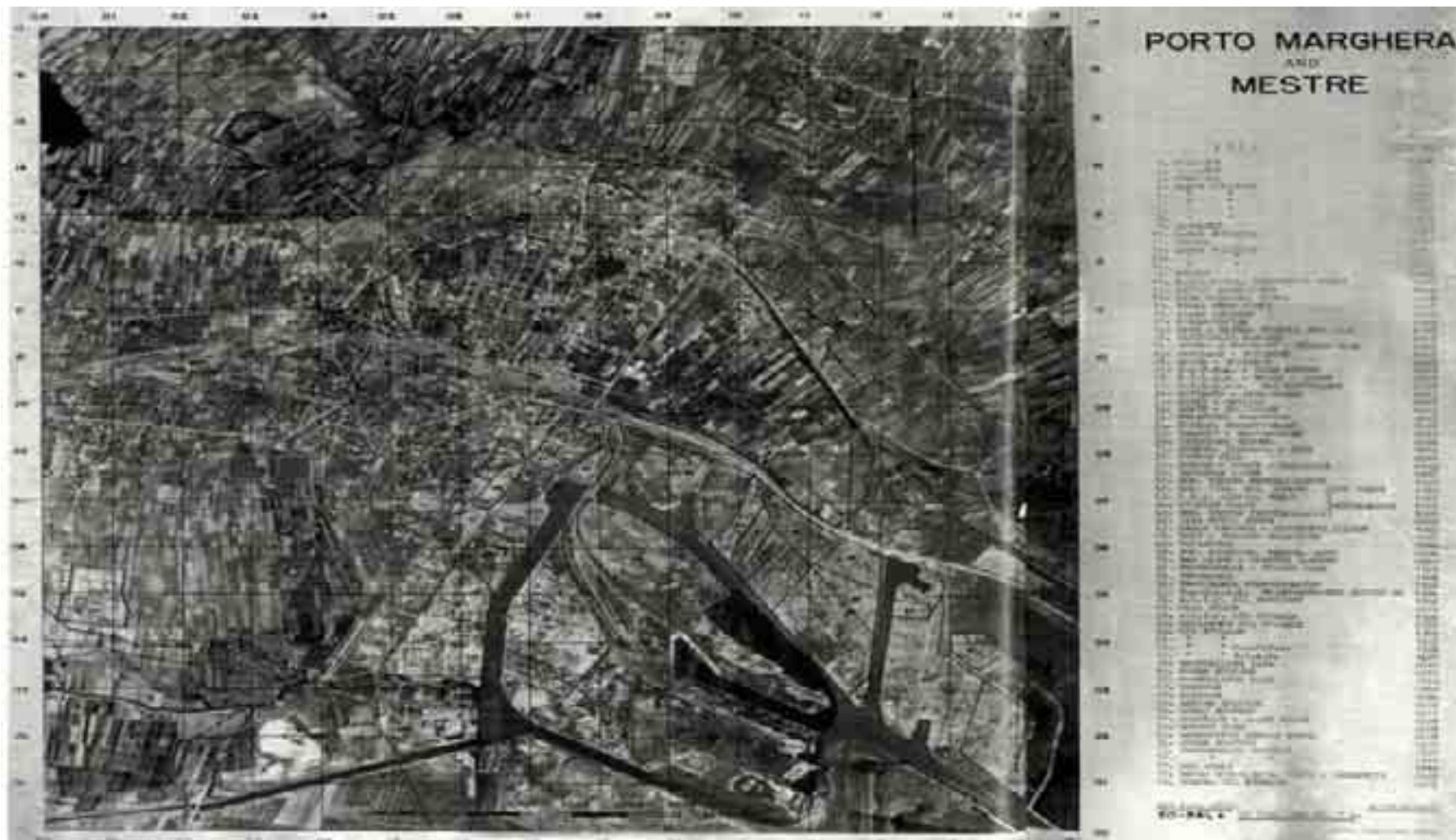
The design of the new port of Marghera (1923)



1920



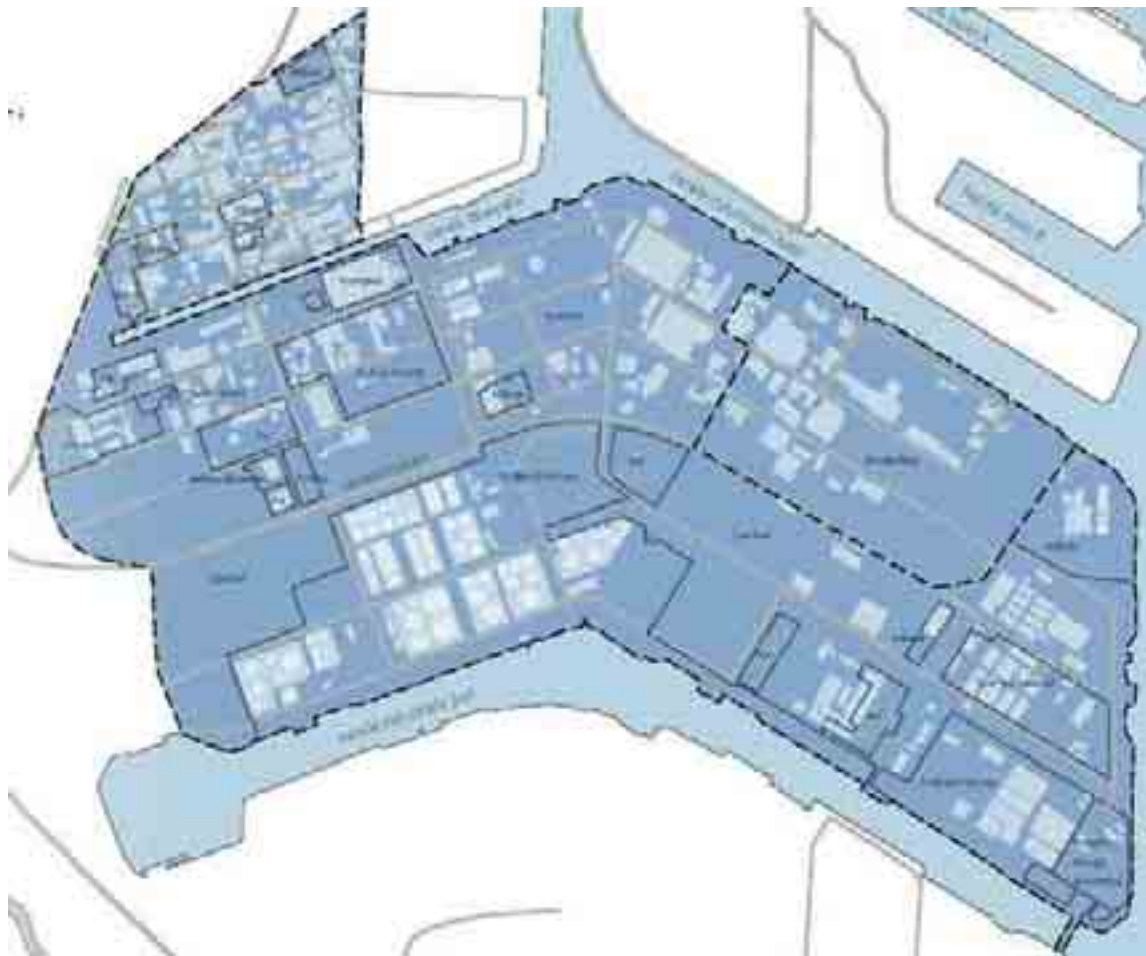
Detailed map of the Porto Marghera and Mestre area found inside a U.S. bomber of the Second World War




1960



Old and New Petrochemical Area (1960)






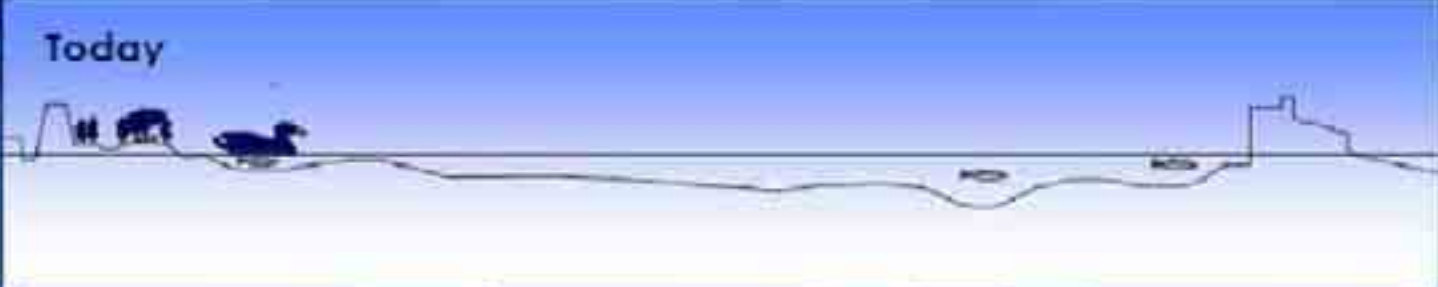
Lagoon evolution

Commissione Delegata per l'Emergenza Sociale, Economica, Ambientale relativa ai Corsi Portuali di Grande Navigazione della Laguna di Venezia

Past



Today



Lagoon is losing channels and deepening, going to be sea again.



Contamination (1)

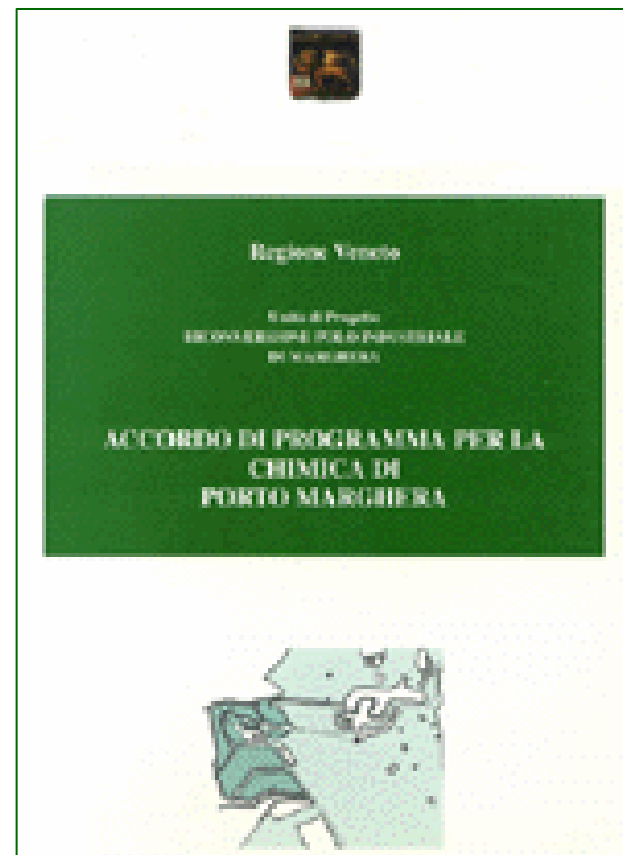
- Soil, subsoil, groundwater and sediments affected by contamination
- Different industrial activities led to different contaminants: mainly heavy metals, chlorinated hydrocarbons, petroleum hydrocarbons, Dioxins and Furans, PCBs, PAH, Normally Occurring Radioactive Materials (NORMs)

Review of the Voluntary Agreement (VA) (1)

- The “VA for the Chemical Industry of Porto Marghera” was signed on Oct. 1998 and approved by the President of the Italian Council of Ministers on Feb. 1999;
- In order to comply with the subsequent Decree of the Ministry of the Environment n. 471 on clean-up activities, issued in Dec. 1999 an “Integrative Act of the VA for the Chemical Industry of Porto Marghera” was subscribed on Dec. 2000 and approved by the President of the Italian Council of Ministers on Nov. 2001.

Review of the Voluntary Agreement (2)

- Main goal of the VA: construction and maintenance of the optimal conditions of co-existence between protection of the environment and development of the chemical industry;
- The VA was subscribed by Relevant Ministers, Veneto Region, Local Authorities, Labour Unions and also by the main companies of the Petrochemical Area;



Objectives of the VA

1. Remediation and protection of the environment through the application of emergency action and clean-up activities, reduction of the atmospheric emissions in the Lagoon and prevention of the industrial risk;
2. Development of industrial investments for the application of the Best Available Technologies to the industrial processes in order to achieve high technological standards of production, maintaining, improving and qualifying the occupational level.

Actors (Public)

Ministries of:

Environment, supported by relevant national agencies
 (e.g. APAT, ISS, ISPESL, ICRAM);

Industrial Activities;

Public Health;

Public Works



National

Veneto Region, through the regional EPA (ARPAV);

Venice Province;

Venice Municipality;

Venice Port Authority;

Ministry of the Public Works through the Venice Water
 Authority (Magistrato alle Acque di Venezia)



Local

Other Actors (Private Companies and Social Groups)

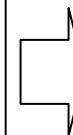
Industrial Union (Unindustria);
Chemical Industry Federation (Federchimica);
Labour Unions



National

Enichem;
EVC European Vinyls Corporation
Edison
Atofina
Crion
Sapio
Agip Petroli
ESSO
API

Ausimont
Montefibre
San Marco Petroli
Decal
Agip Gas
Ambiente S.p.A.
Esercizio Raccordi Ferroviari
Ente Zona Industriale di Porto Marghera
Petroven
Local citizenCommittes



Local

Tools (1)

Procedures: Public Discussions and Technical Meetings (Permanent Conference of Stakeholders, VA Technical Secretariat);

Strategies: Protocols and Guidelines (Master Plan, SIMAGE and additional protocols on environmental risk analysis, clean-up technologies, sediments management, ecc.);

Controls: constant monitoring activity assured on behalf of the Ministry of the Environment by the Environmental Protection Agency of Veneto Region (ARPAV) in co-operation with the CC.T.A. (Carabinieri for the Environmental Protection)

Tools (2)



- Master Plan – Goals
- Definition of the emergency actions;
- Development of a confinement strategy (51 km of sheet piles walls);
- Excavation of highly contaminated sediments (about 6.4 millions of cubic metres);
- Construction of wastewater treatment plants, landfills, etc.;
- Remediation of contaminated soil in order to achieve complete industrial recovery of the area

Tools (2)

Master Plan – Economic and Financial aspects

Estimated cost of the planned actions: over 1.800 millions of Euro: public and private participation;

Restoration of the area and subsequent urban planning needed in order to obtain high value uses (i.e. tourism, residential, commercial)

Performance Indicator(s) and Impacts (1)

ECONOMIC :

total industrial surface;

number of workers;

workers distribution in the industrial sectors;

raw materials and products.

SAFETY:

number of labour accidents;

frequency of labour accidents.

Performance Indicator(s) and Impacts (2)

ENERGY :

- total energy consumption;
- % use of thermal and electrical energy;
- total energy production

EMISSIONS (Totals):

- SO_x;
- NO_x;
- CO;
- VOCs;
- VC;
- chlorinated compounds.

Performance Indicator(s) and Impacts (3)

WATER:

- total amount of water pumped from the lagoon;
- total amount of water discharged into the lagoon;
- total treated (groundwater, surface water)

WASTE:

- total hazardous waste produced;
- total non hazardous waste produced;
- total treated;
- total disposed;
- total recovered;

State of Implementation

- Starting from 2001 more than 1000 technical documents were examined by the public authorities;
- The preliminary characterization (100 m square grid) of the Petrochemical area was completed in 2003- 2004 together with the main emergency actions;
- A detailed characterization (50 m square grid) has been performed in order to develop the remediation projects;
- A great impulse to the confinement works (sheet piles walls) was given through the use of both public (Ministry of the Environment) and private (transactions) funds.
- The Ministry of the Environment approved the final remediation project for the Petrochemical Area (about 550 hectares) almost 20% of the site.

Lessons Learned and Conclusions (1)

- Voluntary agreement between government and industry have been increasingly used as a new policy tool to achieve environmental restoration and protection targets;
- Sanctions: are essential for the success of the VA in case of non-compliance (environmental damage costs can be charged to the polluters by the Ministry of the Environment if the legal action is supported by technical reports)
- Monitoring and verification of the goals of the VA require the full participation of all stakeholders and the co-operation among public, private and social actors;

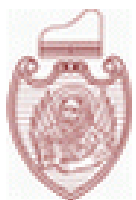
Lessons Learned and Conclusions (2)

The co-ordination work of the Ministry of the Environment plays a fundamental role in the application of VA by proactively promoting and ensuring the involvement of all stakeholders, monitoring their activities over time;

The development of clean-up activities creates new jobs (environmental experts, consultants, ecc.);

Successful examples of residential/recreational re-use of the cleaned-up areas: Parco San Giuliano

Parco S. Giuliano



*reference: Venice
Municipality web-
site*

