

TAKING
COOPERATION
FORWARD

 WP C - Parma - 04.05.2018

 **Strategia regionale per l'inquinamento diffuso -
L'esperienza di Regione Lombardia**

 AMIIGA, Regione Lombardia - PP6 - Marina Bellotti, Donata Balzarolo

Legal framework
for the Diffuse
Pollution

Strategy
adopted by
Lombardy
Region

1st Management
Plan - North East
Milan

AMIIGA Project -
Pilot Action



Three different levels:

- **European (EC)**
 - Directive 2000/60/EC - Water Framework Directive (WFD)
 - Directive 2001/42/EC - Strategic Environmental Assessment Directive (SEA)
- **National (Italy)**
 - Dlgs 152/06 delegates Regions to enact actions when diffuse contamination is recognized:
- **Regional (Lombardy Region)**
 - Regional Remediation Program (RRP) including the Management Plan for Groundwater Diffuse Pollution (D.G.R. 1990/2014)



DIRECTIVE 2000/60/EC - WATER FRAMEWORK DIRECTIVE

Water management is linked to many policies: integration is the only way forward for sustainable water use

Good chemical is the objective set by the WFD. Member States must use geological data to identify distinct volumes of water in underground aquifers and limit abstraction to a portion of the annual recharge.

Groundwater should not be polluted at all - any pollution must be detected and stopped.

Quality Standards

It highlights the importance of groundwater bodies: Member States must designate separate bodies and ensure that each one achieves “good status” by 2015 (!!).



Water supports life, it is a natural resource for farming, generating and sustaining economic and social prosperity. It is also the core of natural ecosystems and climate regulation.

The 16th Water Framework Directive (WFD), adopted in 2000, takes a pioneering approach to protecting water based on robust geographical information systems. It sets out a positive framework, with 2015 as the deadline for getting all European waters into good condition.

Europe's water is under pressure from economic activities, population growth and information on increasing pressures on freshwater throughout Europe.

Union strategic action is taken: 40% of EU surface waters will not fulfil good ecological status by 2015.

Around 15% of groundwater from poor chemical status due to human activities. The chemical status of 40% of surface waters is unknown, showing that monitoring is inadequate in many Member States.

The 2012 Blueprint for Safeguarding Europe's Water Resources identifies actions for better water management, offers concrete solutions and sets the EU's water policy agenda for years to come.

- The WFD is complemented by other, more specific, EU laws:
- The Environmental Quality Standards Directive (EQSD)
 - The Marine Strategy Framework Directive (MSFD)
 - The Floods Directive (2002)
 - The Seveso-III Directive (2003)
 - The Drinking Water Directive (2008)
 - The Urban Wastewater Directive (2000)
 - The Nitrates Directive (2003)

CONTENTS



SEA - Strategic Environmental Assessment for Plans/Programmes

application to a wide range of **public plans and programmes**

«**plans/programmes which... are prepared for agriculture, forestry, fisheries, energy, industry, transport, waste/ water management, ... or land use and which set the framework for future development consent of projects listed in the EIA Directive**»

If plans/programmes are significant environmental effects, an SEA is needed



THE NATIONAL LEGISLATIVE FRAMEWORK FOR DIFFUSE POLLUTION

- D.lgs 152/06 delegates Regions to enact actions when diffuse contamination is recognized:
- Annex 1-Title V of D.lgs 152/06 affirms “...in groundwaters values (of contaminations) over the concentration thresholds can be admitted only in case:
 - natural background values
 - modification of the natural quality status for a diffused anthropogenic contamination assessed by Public Authorities...anyway in compliance with any sanitary risk and downgradient receptors”



THE NATIONAL LEGISLATIVE FRAMEWORK FOR DIFFUSE POLLUTION

D.Lgs. 152/2006 e ss.mm.ii.

art. 239 → interventi di bonifica e ripristino ambientale per le aree caratterizzate da inquinamento diffuso sono **disciplinati dalle Regioni con appositi piani**,

art. 240, comma 1, lettera r) → definisce l'inquinamento diffuso come “la contaminazione o le alterazioni chimiche, fisiche o biologiche delle matrici ambientali determinate da fonti diffuse e non imputabili ad una singola origine”.

art. 240, comma 1, lettera b), → ...“Nel caso in cui il sito potenzialmente contaminato sia ubicato in un'area interessata da fenomeni antropici o naturali che abbiano determinato il **superamento di una o più concentrazioni soglia di contaminazione**, queste ultime si assumono pari al valore di fondo esistente per **tutti i parametri superati**”.

Allegato 1 al Titolo V della parte quarta del d.lgs. 152/2006, → per le acque sotterranee “... Valori superiori (alle CSC) possono essere ammissibili solo in caso di fondo naturale più elevato o di modifiche allo stato originario dovute all'inquinamento diffuso, **ove accertati o validati dalla Autorità competente**, ... **comunque compatibilmente con l'assenza di rischio igienico - sanitario per eventuali altri ricettori a valle.**”



Diffuse Pollution originated of Organochlorinated

- Origin: sum of punctual and historical sources or dependent on the use of large consumption products (*e.g. chlorinated solvent*).
 - - wide areal distribution
 - - low concentrations
 - - simultaneous presence of both diffused pollution and contamination plumes
- **Plume areas vs diffuse contamination**



National Targets for groundwater Chlorinated Hydrocarbons

	Dir. 2006/118/CE Water Protection (microg/l)	D.Lgs. 152/06 Remediation (microg/l)	D. Lgs 31/2001 Water Consumption (microg/l)
Trichloromethane (TCM)	0,15	0,15	--
Vinyl chloride(CV)	0,5	0,5	0,5
1,2 Dichloroethane	3	3	3
Trichlorethylene (TCE)	1,5	1,5	--
Tetrachlorethylene (PCE)	1,1	1,1	--
Σ Chlorinated Hydrocarbons	10	10	--
1,2 Dichloroethylene	60	60	--
Σ TCE + PCE	--	--	10



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REGIONAL PROGRAM FOR REMEDIATION OF POLLUTED SITES



With d.g.r. n.1990 of June 20, 2014, the Regional Council approved the Regional Program for the waste management (P.R.G.R.) including the **Regional Program for the remediation of polluted sites (P.R.B.)** and the related documents provided by the Strategic Environmental Assessment (S.E.A. - V.A.S.).

The Remediation Program contains the suitable actions to implement the regional legislation in this area, with particular reference to the procedures to carry out for the remediation activities and for the environmental and urban redevelopment of the contaminated areas.



REGIONAL PROGRAM P.R.B.

2014

The Remediation Program (P.R.B.), integral part of the regional program for the waste management, is the planning and programming tool for the remediation activities and it includes:

- The priority setting of interventions on contaminated sites according to a methodology of environmental risk assessment;
- Reduction of waste produced by reclamation;
- Promotion of remediation and urban regeneration of polluted sites
- Estimation of financial charges;
- **The Regional Management Plan for Groundwater Diffuse Pollution, relevant to the whole regional territory**
- Promotion of new remediation and characterization technologies.



Regional Management Plan for Groundwater Diffuse Pollution in Lombardy

CONSTITUTES INTEGRAL PART OF THE 2014 P.R.B.

It includes:

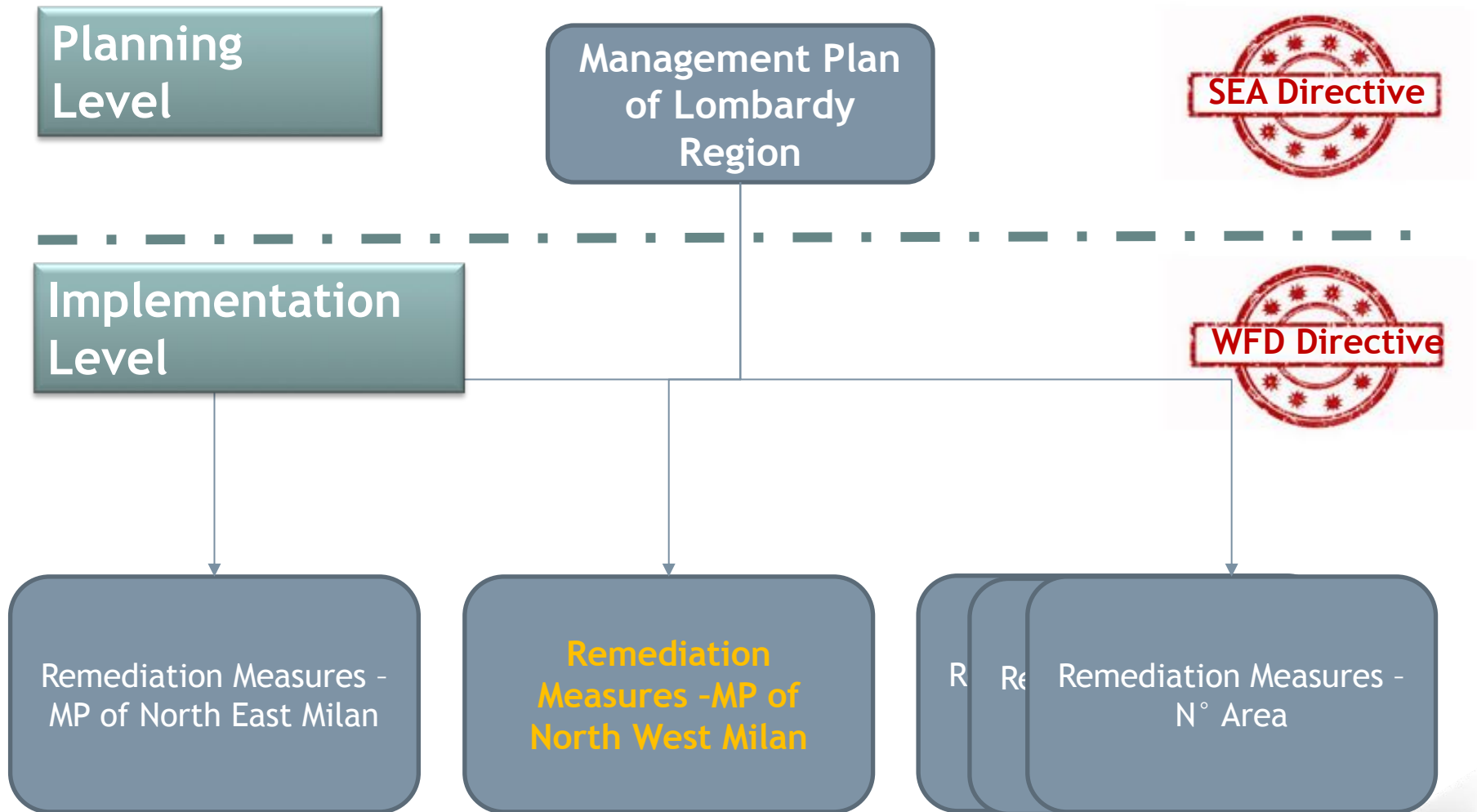
- criteria for the economic and financial planning
- criteria for the priorities definition
- catalog of the areas of diffuse pollution
- Operative Protocol for the management of the diffuse pollution of groundwaters (Annex 17)



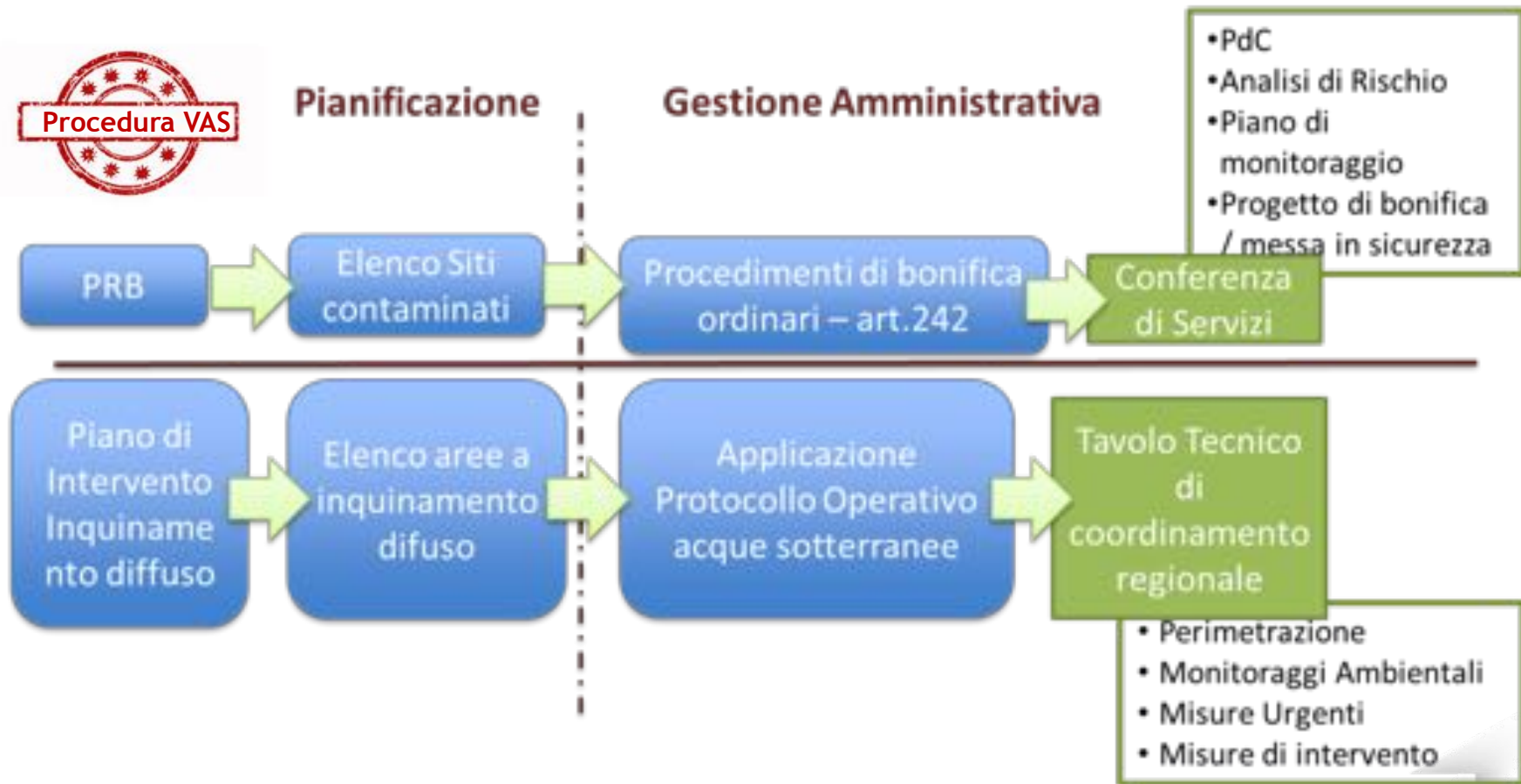
**For each area of diffuse pollution it is expected
the identification of the Remediation Measures
(Local Management Plan)**



LOMBARDY REGION APPROACH



Proposta di Protocollo operativo acque sotterranee



RIG - REGIONAL IMPLEMENTATION GROUP is in charge for the definition of the Management Plan for the Pilot Action
(***Tavolo tecnico di coordinamento regionale***)

- Definition and implementation of the databases
- Implementation of the monitoring network
- Circumscription of the area affected by diffuse pollution and definition of the reference threshold
- Definition of the measures of intervention
- Proposal for the Plan of intervention

Lombardy Region:

- Coordinates the RIG
- Proposes the draft Management Plan
- Submits the Management Plan to the approval of the Regional Council



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Progetto AMIIGA
- Pilot Action



REMEDIATION MEASURES - 1ST MP NORTH EAST MILAN

In 2015, for the management of diffuse pollution in the North East Milan Area, Lombardy Region created the

1° REGIONAL IMPLEMENTATION GROUP

involving 7 Municipalities, 2 Provinces, Environmental and Health Agencies, water managers and stakeholders that have the duty to evaluate results and share choices concerning the diffuse contamination management



Remediation Measures
of North East Milan
(D.G.R. 6373/2017)

Milan FUA (coloured areas - 486 km²) and the Wide Area (pink, 157 km² , 617.773 inhabitants)

TAKING COOPERATION FORWARD



2015 - 2017 RIG Activities

- Roles and responsibilities;
- Definition of new target values for diffuse pollution;
- Measures defined within the RIG on the basis of a regional proposal
- Draft of Management Plan

Phases:

1 - Investigation and data collection

2 - Definition of the concentrations representative of diffuse pollution

3 - Measures planning

4. Risk Assessment

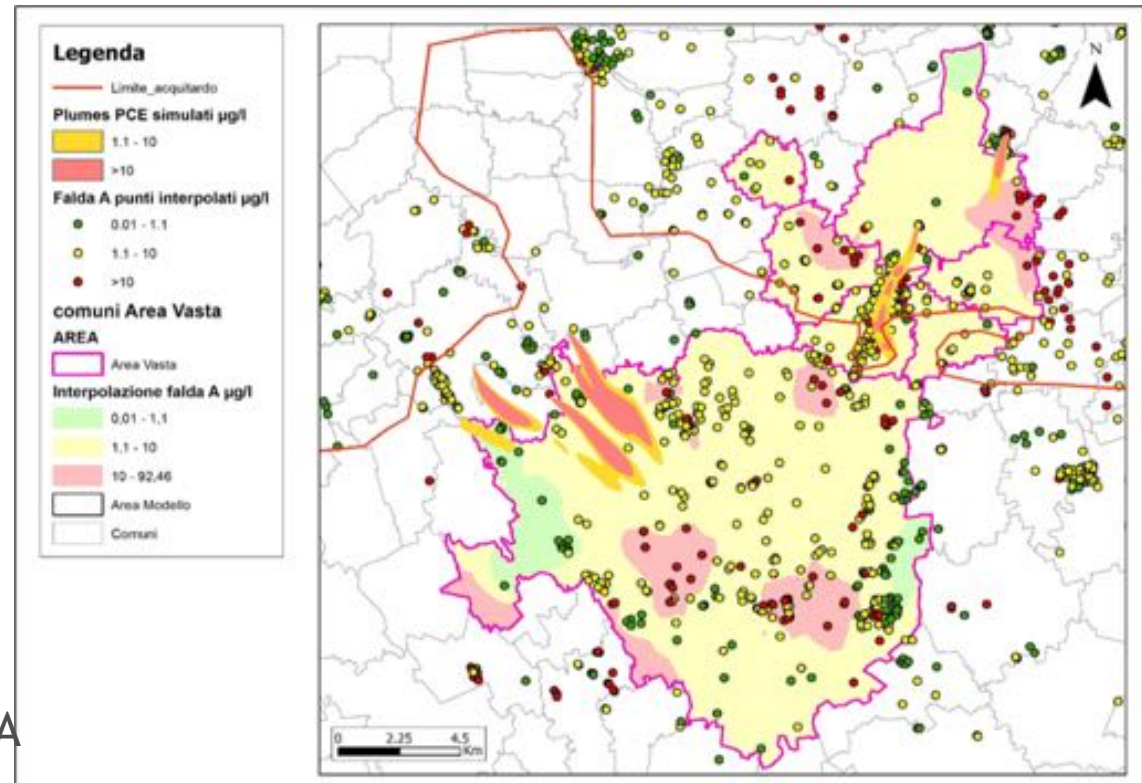
5. Dissemination strategy



REMEDIATION MEASURES - 1ST MP NORTH EAST MILAN

Investigation and data collection

- Hydrogeological and groundwater monitoring data collection (ARPA Lombardia / Politecnico)
- Hydro-geological and numerical model implementation (Politecnico)
- Polluted sites in NE Milan area: state of contamination; administrative procedure; remediation measures (ARPA Lombardia /RL)



Definition of concentrations representative of the diffuse pollution

- Definition of **contamination plumes** in the NE Milan area
 - Identification of receptor of the contamination (drinking-water wells)
- Definition of the **boundaries** of the area affected by **diffuse pollution** :
 - need of regional regulamentation
- Identification of **new target values** for diffuse pollution
 - reference values for remediation of polluted sites

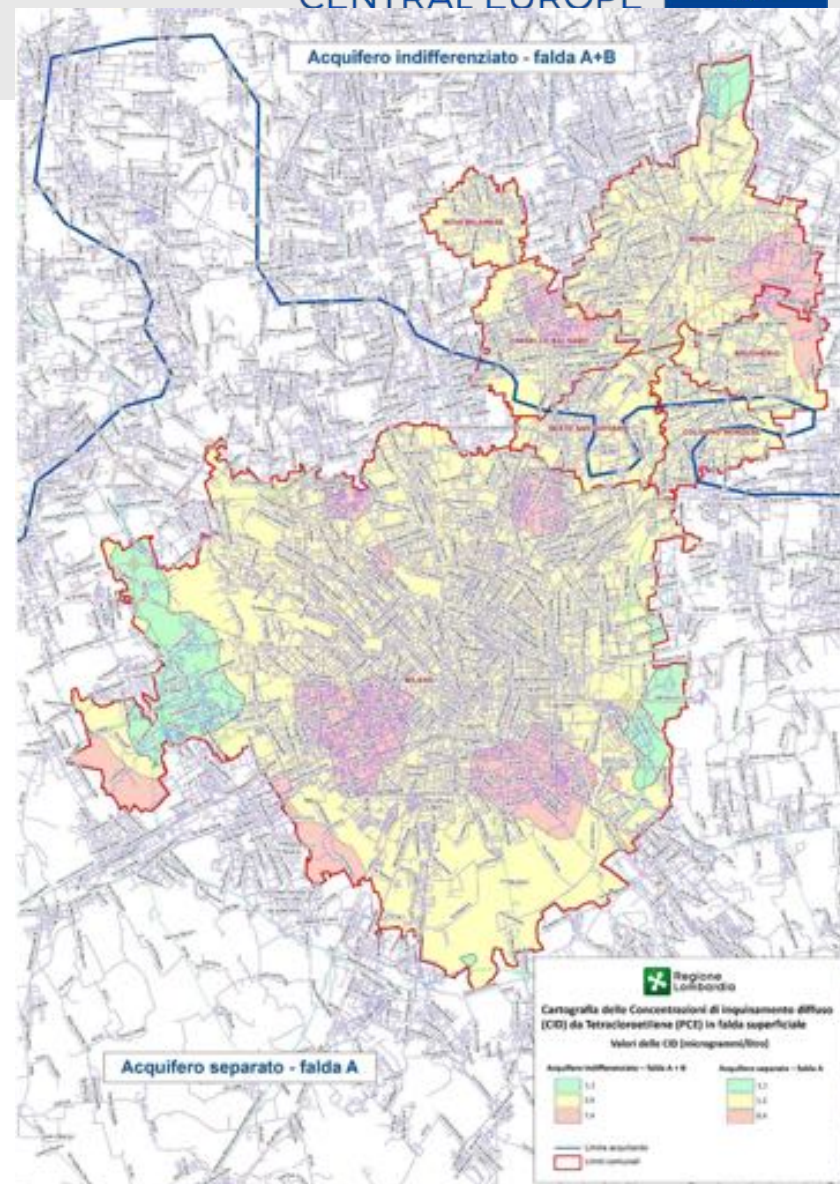
CRB – Concentrazioni Riferimento Bonifiche



REMEDIATION MEASURES - 1ST MP NORTH EAST MILAN

CRB Values	Yellow area (microg/l)	Red area (microg/l)	Referen ce Values (microg/l)
Northern Eastern Municipaliti es	2,9	7,4	1,1
Milan	5,1	8,5	1,1

North East Milan -CRB Values for
Tetrachlorethylene
Reference concentrations for
remediation - Diffuse Pollution



REMEDIATION MEASURES - 1ST MP NORTH EAST MILAN

Measures planning 1/2

Measures defined in the North East Milan area

Regione Lombardia	Municipalities	Provinces
Prioritisation of Polluted sites in the area	Procedures for polluted sites	Actions against the polluters
Coordination of local authorities for the implementation of measures (RIG)	Remediation activities in place of the polluters	Support in the monitoring of the network
Monitoring of plumes contamination	Limitations on the use of water (according with RA)	
Coordination of the Monitoring plan in order to evaluate the evolution of the contamination and the effects of the intervention measures		



Measures planning 2/2

Regional Agency for Environmental Protection

Management of Monitoring
Network for diffuse pollution

Agreement with RL for the
monitoring of plumes

Support to Municipalities in
polluted sites procedures

Support to RL in the control of
the performed measures

Regional Agency for Health Protection

Support to PA to define
urgent measures for health
protection
(If necessary for RA)

Monitoring of drinking water

Water supply/service managers

Activation remediation
measures (filters)

Urgent measures for
drinking water



Risk Assessment from diffuse pollution

The first Management Plan includes an Assessment of potential Risk for citizen resident in North East Milan area due to groundwater pollution

Weakness: a standardised procedure to apply to wide areas with low concentrations does not exist

- ✓ Lombardy Region applied an innovative procedure for North East Milan area,
- ✓ currently under evaluation from central institutions



REMEDIATION MEASURES - 1ST MP NORTH EAST MILAN

Dissemination strategy

Plan for the communication in order to inform the population:

- Mapping of the area
- Section in the RL Web site
- Public meetings
- Etc.



LA GESTIONE DELL'INQUINAMENTO DIFFUSO DELLE FALDE NELL'AREA NORD-EST MILANESE

(Comuni di Brugherio, Cinisello Balsamo, Cologno Monzese,
Milano, Monza, Nova Milanese, Sesto San Giovanni)



Direzione Generale Ambiente, Energia e Sviluppo Sostenibile

Giugno 2017



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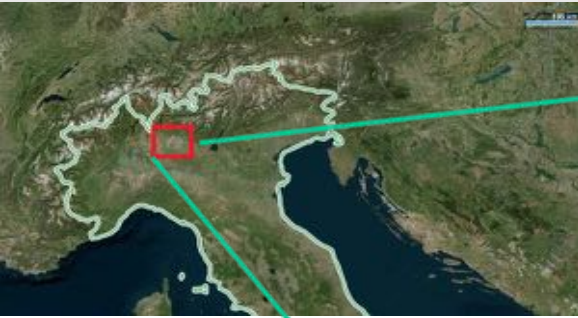
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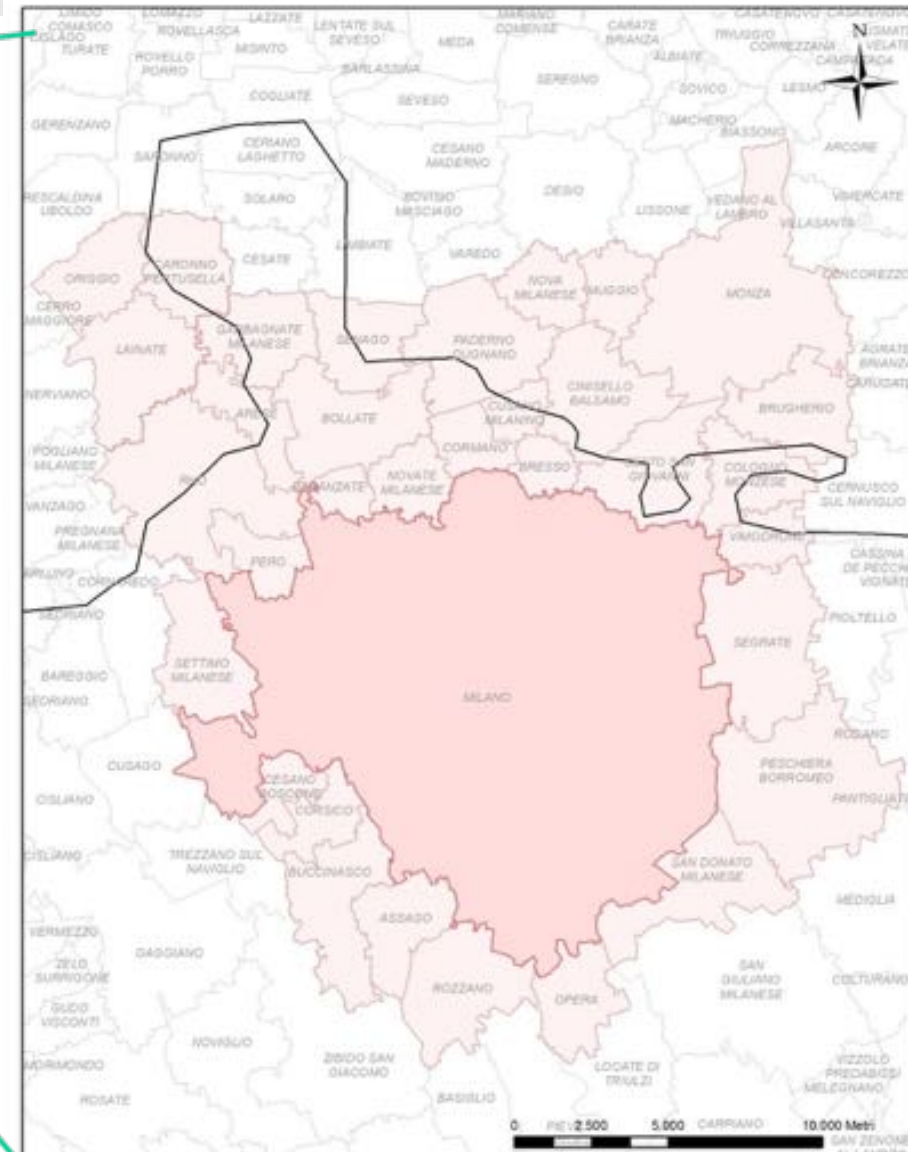


AMIIGA PROJECT



MUNICIPALITIES: 34
AREA: 514 Km²
POPULATION: 2.254.263

Name	Total surface (Hectare)	Total surface (Km ²)	Residents (Census 2011)	Residents density (residents per Km ²)
Milano	18,167	181.7	1,242,123	6,837
Monza	3,309	33.1	119,856	3,622
Peschiera Borromeo	2,322	23.2	21,254	958
Rho	2,224	22.2	50,252	2,250
Segrate	1,749	17.5	33,519	1,917
Paderno Dugnano	1,411	14.1	46,562	3,299
Bollate	1,332	13.1	35,557	2,710
Lainate	1,293	12.9	25,054	1,937
San Donato Milanese	1,288	12.9	30,992	2,407
Cinisello Balsamo	1,272	12.7	71,128	5,590
Rozzano	1,224	12.2	39,983	3,268
Buccinasco	1,200	12.0	26,503	2,208
Sesto San Giovanni	1,170	11.7	76,534	6,540
Settimo Milanese	1,072	10.7	19,148	1,786
Brugherio	1,041	10.4	33,170	3,186
Garbagnate Milanese	900	9.0	26,262	2,920
Sevico	860	8.6	20,914	2,432
Cologno Monzese	840	8.4	43,786	5,449
Caronno Pertusella	840	8.4	16,397	1,952
Assago	805	8.1	8,124	1,009
Origgio	792	7.9	7,436	937
Opera	784	7.8	15,126	1,751
Arese	656	6.6	19,138	2,916
Nova Milanese	585	5.8	22,315	3,817
Muggiò	548	5.5	23,208	4,238
Novate Milanese	546	5.5	19,938	3,620
Corsico	536	5.4	33,669	6,285
Però	498	5.0	10,291	2,067
Vimodrone	474	4.7	16,436	3,464
Cormano	447	4.5	19,944	4,458
Cesano Boscone	394	3.9	23,398	5,940
Bresso	338	3.4	25,712	7,602
Cusano Milanino	308	3.1	18,905	6,134
Baranzate	278	2.8	10,779	3,881
TOTALE	51,464	514.6	2,254,263	

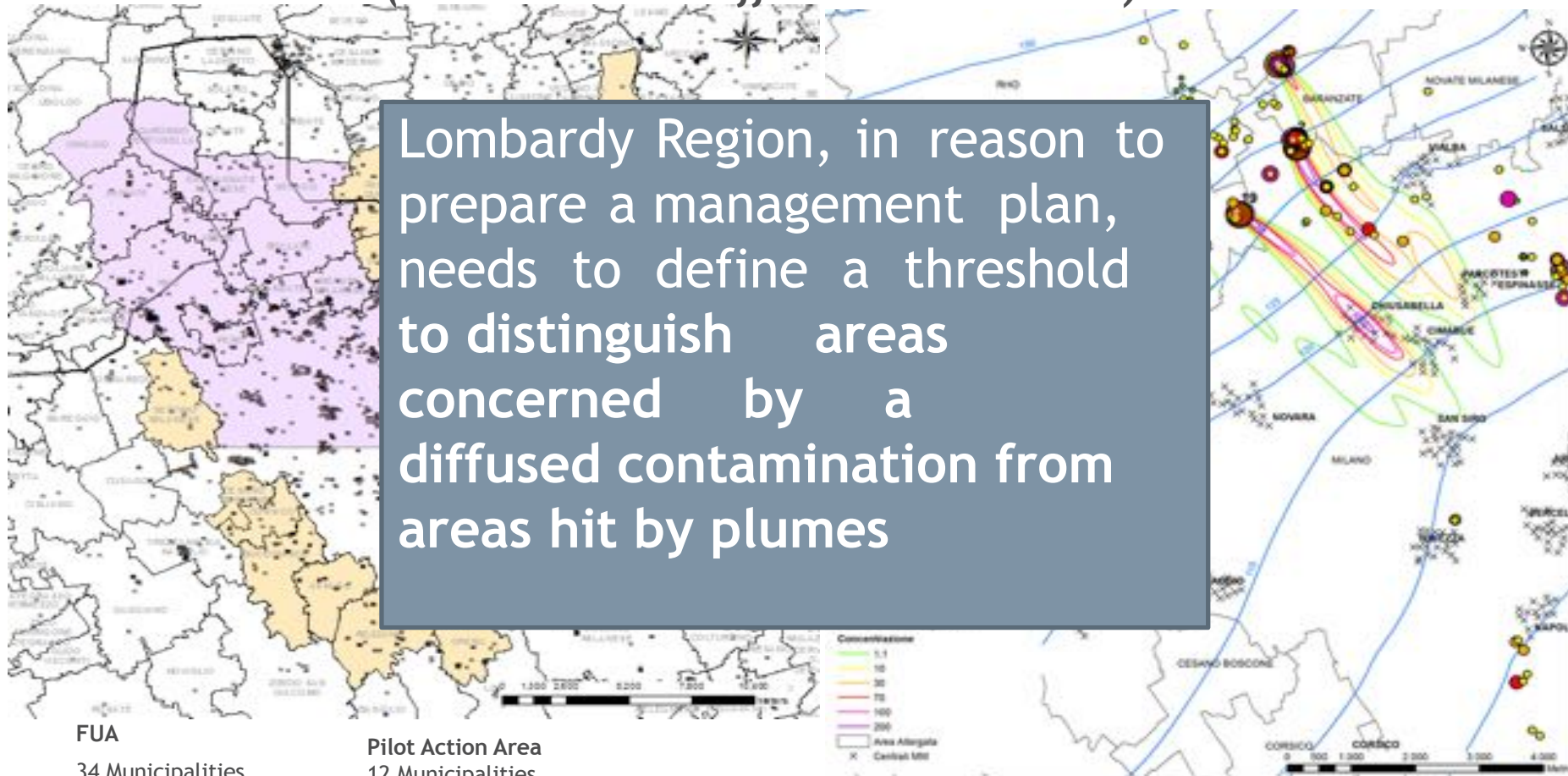


AMIIGA PROJECT - PILOT ACTION

A.T2.3 DISTINCTION BETWEEN SITE-SPECIFIC AND DIFFUSE CONTAMINATION

(Plume areas vs diffuse contamination)

Lombardy Region, in reason to prepare a management plan, needs to define a threshold to distinguish areas concerned by a diffused contamination from areas hit by plumes



FUA

34 Municipalities

About 514 km²

About 2.254.263 inhabitants

Pilot Action Area

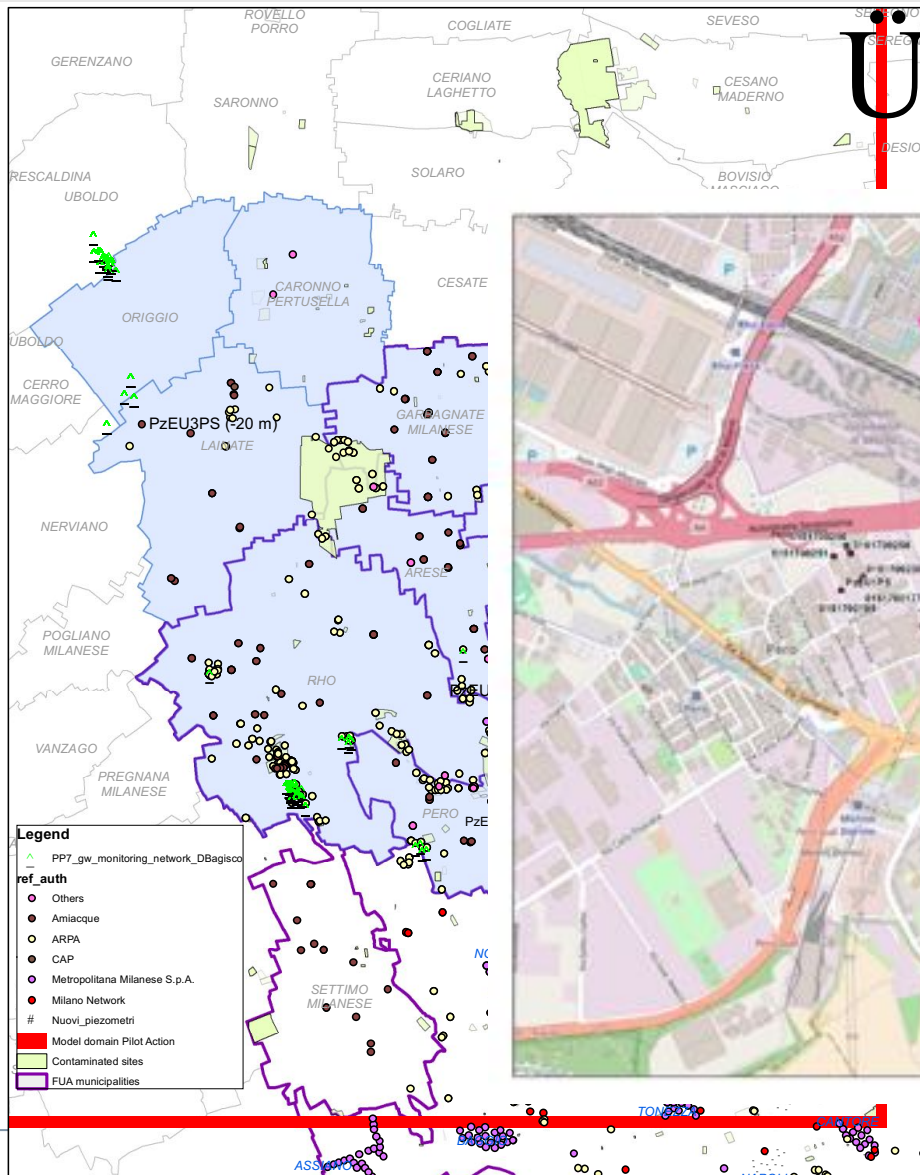
12 Municipalities

About 157 km²

About 617.773 inhabitants



AMIIGA PROJECT - PILOT ACTION



TAKING COOPERATION FORWARD

AMIIGA PROJECT - PILOT ACTION RIG STRUCTURE

WHO ARE INVOLVED?

3 General Direction of Lombardy
Region

Two Provinces (Milano and Varese)

12 Municipalities (Arese,
Baranzate, Bollate, Caronno
Pertusella, Garbagnate Milanese,
Linate, Milano, Novate Milanese,
Origgio, Pero, Rho, Senago)

Regional Agency for
environmental protection
Regional Agency for Public Health

Three Integrated Water Service
Provider

NEXT STEP

In May 2018 - Next RIG - AGENDA:

- Monitoring network
- hydrogeological and chemical situation (1st monitoring campaign),
- Proposal of the Index MP Draft
- Risk Assessment - evaluation of opportunity and methodology

In February 2019 -
Draft of Management Plan for the North
West Milan Area

In July 2019 -
Good Practice of Management Plan for
groundwater





U.O. TUTELA AMBIENTALE
D.G. AMBIENTE, ENERGIA E SVILUPPO SOSTENIBILE



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