

# **NATIONAL ACTION PLAN FOR ITALY**

**Document prepared for the Mediterranean Action Plan (MAP) in the  
framework of the Strategic Action Plan (SAP)**

*December 2005*

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# Preface

The Italian administrative structure is based on regional governments so that, after the preparation of the National Diagnostic Analysis and the estimation of the Baseline Budget for 2003, another step was required for the preparation of the National Action Plan for Italy (NAPs) that was to send a questionnaire to the 21 regional governments. Through the questionnaire regional administrative governments have been required to provide all the information on provisions, programmes and regional campaigns concerning the topics that must be dealt with in Sectoral Plans and NAPs according to SAP issues.

Moreover the regional experts that deal with the SAP topics have been personally reached and a very useful process of information exchange was activated.

This process allowed not only collecting homogeneous and exhaustive information but also to actively involve, inform and promote the participation of regional authorities and experts.

It took much time to achieve the required level of awareness, but the dynamic cooperation obtained by the administrative regions governments and regional agencies for environmental protection represented the starting point for the preparation of NAPs and a good basis for their future implementation.

All information collected with the questionnaires was clustered in sectors according to priority areas for action to control pollution from land based sources identified in the SAP.

For each sector the main provisions were identified at regional level.

Then a deep analysis and evaluation of the regional informative framework collected was carried out in order to define the stage of implementation of national legal framework.

From the comparison between national provisions (i.e. plans, guidelines, common measures, environmental quality criteria, emission/effluent limits, capacity building activities, etc.) and targets and measures proposed by SAP it was defined the level of relative compliance and the main initiatives and proposals for NAP have been established.

# 1. LBS Protocol

The Barcelona Convention has given rise to six Protocols or legal instruments addressing specific aspects of Mediterranean environmental conservation. These Protocols signify countries' commitment to their agendas.

The LBS Protocol is one of the six Protocols of the Barcelona Convention, it was amended and recorded as: "*Protocol for the Protection of the Mediterranean Sea against Pollution from Land-Based Sources and Activities*" and adopted on March 7<sup>th</sup>, 1996. Its general obligations include the following points:

1. The Parties undertake to eliminate pollution deriving from land-based sources and activities, in particular to phase out inputs of the substances that are toxic, persistent and liable to bioaccumulate.
2. To this end, they shall elaborate and implement, individually or jointly, as appropriate, national and regional action plans and programmes, containing measures and timetables for their implementation.
3. The priorities and timetables for implementing the action plans, programmes and measures adopted by the Parties shall be periodically reviewed.
4. When adopting action plans, programmes and measures, the Parties shall take into account, either individually or jointly, the best available techniques and the best environmental practice including, where appropriate, clean production technologies.
5. The Parties shall take preventive measures to reduce to the minimum the risk of pollution caused by accidents.

Italy, being part of the European Union, is subject to the regulations established by the Protocol even through the existing European directives which pursue the same objectives of the Protocol. For instance it can be mentioned the Directive 2000/60/CE which gives measures to be undertaken in order to protect water resources and which has as ultimate goal the elimination of hazardous substances pointed out in the LBS Protocol. Moreover, as summarized in chapter 2.2 and extensively explained in the following chapters, the existing national legal framework, measures and activities undertaken and particularly the outline for the legislative decree coming from law 308/04, are coherent with the topics proposed by the Protocol and represent a valid basis for the successful implementation of NAPs in this country.

## 1.1 SAP Targets

Targets and needed activities at regional and national level are identified by SAP, structured in two areas and a number of categories within each area:

### a) Urban environment:

- (i) Municipal sewage
- (ii) Urban solid waste
- (iii) Air pollution

Issue	Targets		Regional activities	National activities
	2005	2025		
Municipal sewage	dispose sewage from cities > 100000 in conformity with LBS	dispose all sewage in conformity with LBS	<ul style="list-style-type: none"> <li>- update guidelines</li> <li>- develop programmes for EST for sewage treatment</li> <li>- promote research programmes</li> </ul>	<ul style="list-style-type: none"> <li>- update national regulations</li> <li>- develop national plans and programmes for the environmentally sound management of sewage               <ul style="list-style-type: none"> <li>- connection to sewer</li> <li>- outfalls siting</li> <li>- tertiary treatment</li> <li>- good housekeeping</li> <li>- reissue of treated wastewater</li> <li>- separate collections</li> <li>- reuse of sludge</li> <li>- prohibit discharge of sludge into sea water</li> </ul> </li> </ul>
Urban solid waste	solid waste management system in cities > 100000	solid waste management for all urban agglomerations	<ul style="list-style-type: none"> <li>- guidelines for SWM</li> <li>- develop reduction of recycling</li> </ul>	<ul style="list-style-type: none"> <li>- national plans for reduction and recycling</li> <li>- national SWM systems for cities &gt; 100000</li> </ul>
Air Pollution	cities > 100000 ambient air quality conform to standards	cities ambient air quality conform to standards	<ul style="list-style-type: none"> <li>- formulate and adopt air quality objectives</li> </ul>	<ul style="list-style-type: none"> <li>- promote traffic management</li> <li>- lead free petrol</li> <li>- inspection of vehicles</li> <li>- use of national gas</li> <li>- public transport</li> </ul>

### b) Industrial development:

- (i) Toxic, Persistent and Liable to Bioaccumulate substances (TPBs): Persistent Organic Pollutants (POPs); Heavy metals Hg, Cd, Pb and Organo metallic compounds;
- (ii) Other Heavy metals: Zn, Cu, Cr
- (iii) Organo halogen compounds
- (iv) Radioactive substances
- (v) Nutrients and suspended solids, including municipal sewage, industrial waste water, impacts from agriculture and atmospheric emissions, and
- (vi) Hazardous waste

Issue	Targets			Regional activities	National activities
	2005	2010	2025		
<b>1) Industrial pollution</b>		50% reduction of TPB	Point sources discharge and emissions conformity with LBS & standards	<ul style="list-style-type: none"> <li>- guidelines for WWT</li> <li>- EQO for point sources</li> <li>- information programme</li> <li>- research programme</li> <li>- guidelines for BEP, BAT</li> <li>- environmental management</li> </ul>	<ul style="list-style-type: none"> <li>- inventory of point sources</li> <li>- national regulations</li> <li>- priority to SME</li> <li>- environmental management</li> </ul>
<b>2) TPB</b> - POPs	50% reduce of inputs  collect and dispose all PCBs	Phase out inputs of POPs		<ul style="list-style-type: none"> <li>- provide technical information</li> <li>- guidelines for BEP and BAT</li> <li>- emission values for point source discharges for PAH</li> </ul>	<ul style="list-style-type: none"> <li>- inventory of POPs and PAHs</li> <li>- phase out use of pesticides</li> <li>- safe disposal of PCBs and pesticides</li> <li>- reduce emissions of HCB, dioxins, furans</li> </ul>
		25% reduction of PAH inputs	phase out inputs of PAH		<ul style="list-style-type: none"> <li>- apply BEP &amp; BAT</li> </ul>
- Heavy metals (Hg, Cd, Pb)	85% reduction	50% reduction	phase out discharges emissions & losses		<ul style="list-style-type: none"> <li>- apply BAT &amp; BEP</li> <li>- national programmes</li> <li>- adopt emissions of 0.5 g Hg/t of chlorine or 5 g Hg/t depending on process 2 g Hg total releases</li> </ul>
- organo Hg, Pb, Tin compounds	phase out organo Hg	50% reduction of discharges	phase out organo Pb, organo Sn	<ul style="list-style-type: none"> <li>- guidelines for BAT &amp; BEP</li> <li>- EQO and standards</li> </ul>	<ul style="list-style-type: none"> <li>- inventory of organometallic</li> <li>- phase out the use of organotin as antifouling and cooling systems</li> <li>- apply BAT &amp; BEP and environmental management</li> </ul>
- zinc, copper, chromium		reduce discharges	eliminate discharges	<ul style="list-style-type: none"> <li>- guidelines for BAT &amp; BEP</li> <li>- EQO and standards</li> </ul>	<ul style="list-style-type: none"> <li>- adopt 1 mg/l of zinc 0.5 mg/l of copper releases into the sea</li> <li>- apply BAT, BEP and environmental management</li> </ul>
<b>3)</b> - Organohalogen compounds  - Halogenated Aromatic hydrocarbons  - Halogenated aliphatic		reduce discharges	eliminate discharges	<ul style="list-style-type: none"> <li>- guidelines for BAT &amp; BEP</li> <li>- EQO and standards</li> </ul>	<ul style="list-style-type: none"> <li>- apply BAT, BEP and environmental management</li> <li>- adopt 1 kg/t of pulp of AOX release</li> <li>- inventory of pesticides</li> <li>- adopt national programmes for reduction</li> <li>- reduce uses of chlorinated solvent</li> <li>- reduce and control use of 2.4D</li> </ul>

Issue	Targets			Regional activities	National activities
	2005	2010	2025		
hydrocarbons - Chlorinated phenolic compounds - Organohalogen pesticides					and 2.5T and chlorophenols - participate in regional and international related programmes
<b>4) Radio-active substances</b>			eliminate inputs	- information system	- environmental management of radioactive waste - apply BAT, BEP to reduce input - reporting
<b>5) Nutrients and suspended solids</b> - Urban and industrial waste water		50% reduction from industry	all waste disposed according to LBS protocol	- guidelines for BAT & BEP - EQO and standards	- reduce discharge - environmental management of waste water - apply tertiary treatment - good housekeeping - reuse of treated waste water - environmental management of sludges
- Agriculture			reduce inputs	- guidelines for rational use of fertilizers and losses of nutrients - participate to FAO related programmes	- assess fertilizers - assess quantities of ma... - rational use of fertilizers - good agriculture practices - participate to FAO related programmes - implementation of convention on desertification
-Atmospheric emissions					
<b>6) Hazardous wastes</b>		20% reduction of generation of hazardous waste 50%	dispose in safe environmental sound manner	- prepare Mediterranean strategy for management of hazardous wastes - adopt common antipollution measures	- national strategy for the management of hazardous wastes - national plans for management of hazardous wastes - environ. sound disposal of hazardous wastes



Issue	Targets			Regional activities	National activities
	2005	2010	2025		
		safely disposed			- ratify hazardous wastes protocol
- Obsolete chemicals	collect and dispose in a safe environmental manager			- programmes for information exchange	- training programmes for recycling, collection treatment, disposal - inventories
- Luboil	50% collect and dispose in a safe environmental manner			- adopt standards for PCB content (50 mg/kg)	- inventories - pilot programmes for recycling, collection treatment, disposal
- Batteries		20% reduction of generation 50% disposed in an environmental manner	dispose all batteries in an environmental manner		- nation inventories - pilot programmes for recycling, collection treatment, disposal - special programmes for public and military sectors

## **1.2 SAP activities for selected areas and categories of pollutants**

Sectoral plans represent the relevant provisions adopted on a regional level such as regional plans, guidelines, common measures, environmental quality criteria, emission/effluent limits, capacity building activities etc. and taking into consideration the administrative region(s) plans.

According to the SAP, sectoral programmes should cover the following:

- sewage management
- urban solid waste
- air pollution
- pollution caused by Hg, Cd, Pb
- organohalogens: halogenated aliphatic hydrocarbons halogenated aromatic hydrocarbons, chlorinated phenolic compounds, organohalogenated pesticides
- wastewater and solid waste from industrial installations.

A description is provided below of proposed activities related to a number of priority areas of particular relevance to the MED POL Programme:

### ***1. THE DEVELOPMENT OF NATIONAL PROGRAMS FOR THE ENVIRONMENTALLY SOUND MANAGEMENT OF SEWAGE***

National programs for the environmentally sound management of sewage are expected to include the following activities, which have been specified in the SAP:

1. The connection, by 2005, of all coastal cities and urban agglomerations of more than 100.000 inhabitants, to a sewer system as well as the disposal of sewage in conformity with a national regulation system.
2. The location of coastal outfalls so as to obtain or maintain agreed environmental and health quality criteria.
3. The promotion of primary, secondary and where appropriate and feasible tertiary treatment of municipal sewage.
4. The satisfactory operation and maintenance of sewage treatment facilities;
5. The reuse of treated effluents for the conservation of water resources, accompanied by infrastructural measures, treatment at source and the segregation of industrial effluents, where required.
6. The appropriate design of treatment plants and controls of the quality of effluent wastewaters in accordance with national regulations, for the beneficial reuses of sewage effluents and sludge.

7. The environmentally sound treatment of combined domestic and compatible industrial effluents.
8. The separate collection of rain water and municipal wastewater and treatment of the first rain water considered particularly polluting
9. The environmentally sound disposal and/or use (composting, landfilling etc.) of sewage sludge.
10. The prohibition of sludge discharge into water in the Protocol Area.

***2. THE DEVELOPMENT OF NATIONAL PROGRAMS FOR THE REDUCTION AT SOURCE AND ENVIRONMENTALLY SOUND MANAGEMENT OF URBAN SOLID WASTE IN COASTAL AREA.***

National programs for the reduction at source and environmentally sound management of urban solid waste are expected to take into account the following targets specified in the SAP

1. The establishment, by 2005, of environmentally sound and economically feasible systems of collection and disposal of urban solid waste in coastal cities and urban agglomerations of more than 100,000 inhabitants
2. The creation of selective garbage collection systems;
3. The environmentally sound location of urban solid waste disposal sites;
4. The promotion of urban solid waste reduction and recycling
5. The implementation of national training programs proposed to commence in 2002- 2003, on effective waste reduction policies and on the environmentally sound management of urban solid waste in coastal area, including options for recycling and environmentally sound elimination

***3. TO DEVELOP NATIONAL PROGRAMS FOR THE ENVIRONMENTALLY SOUND MANAGEMENT OF WASTEWATER AND SOLID WASTE FROM INDUSTRIAL INSTALLATIONS WHICH ARE SOURCES OF BOD.***

National programs for the environmentally sound management of wastewater and solid waste from industrial installations are expected to include the following activities, which have been specified in the SAP:

1. The disposal of all wastewater from industrial installations, which are sources of BOD, nutrients and suspended solids, located in areas of concern, in conformity with a national regulation system to be formulated and adopted by 2002;
2. The location of coastal outfalls so as to obtain or maintain agreed environmental quality criteria

3. The promotion of primary, secondary and where appropriate and feasible tertiary treatment of BOD wastewater discharged into rivers, estuaries and the sea
4. The sound operation and proper maintenance of facilities, to be promoted through the organization of relevant training programs;
5. The implementation of measures for the reduction and beneficial use of wastewater or other measures appropriate to specific sites such as no-water and low-water solutions, to be facilitated through the organization of relevant training programs and/or workshops;
6. The environmentally sound disposal and/or use (composting, landfilling, etc.) of sludge and other wastes, to be facilitated through the organization of relevant training programs and/or workshops.

#### ***4. THE DEVELOPMENT OF NATIONAL PROGRAMS TO CONTROL AIR POLLUTION FROM MOBILE SOURCES***

Taking into consideration the regional policy to be developed on the promotion of measures to implement the Framework Convention on Climate Change (Kyoto Protocol), national authorities are expected to adopt, wherever feasible, measures to control emissions of carbon dioxide, e.g. through the promotion of energy conservation and energy efficiency.

National programs to control air pollution from mobile sources are expected to include the following activities, have been specified in the SAP:

1. Measures to promote and provide incentives for public transportation;
2. Measures for the promotion of improved traffic management, giving priority to the use of public transport;
3. Measures for the promotion of lead-free petrol, also containing low level aromatic hydrocarbons;
4. Measures for the improved inspection and maintenance of vehicles and the replacement of old-technology vehicles through economic incentives;
5. Measures to promote increased regional and domestic introduction of natural gas;
6. Measures to promote the introduction of gaseous fuel or other alternative forms of energy to substitute diesel fuel in public transportation, particularly buses;
7. Measures to support and encourage the participation of public transport services in the above activities

**5. TO PREPARE NATIONAL PROGRAMS FOR THE REDUCTION AND CONTROL OF POLLUTION BY THE HEAVY METALS, MERCURY, CADMIUM AND LEAD.**

National programs for the reduction and control of inputs of the heavy metals mercury, cadmium and lead are expected to include the following activities, which have been specified in the SAP:

1. The adoption at the national level by 2005 at the latest and application of the common measures for preventing mercury pollution adopted by the Parties in 1987 (releases into the sea max. conc. 0.050 mg/l);
2. The adoption at the national level by 2005 at the latest and application of the pollution prevention and control measures for cadmium and cadmium compounds adopted by the Parties in 1989 (releases into the sea max. conc. 0.2 mg/l);
3. Legal framework for the adoption and application by 2005 at the latest in the industries of the alkaline chloride electrolysis sector,

**6. TO PREPARE NATIONAL PROGRAMS FOR THE REDUCTION AND CONTROL OF POLLUTION BY THE FOLLOWING ORGANOHALOGEN COMPOUNDS:**

-Halogenated Aliphatic Hydrocarbons (chlorinated solvents, chlorinated paraffins)

-Halogenated Aromatic Hydrocarbons [Chlorobenzenes, polychlorinated naphthalenes, polybrominated diphenyl ethers (PBDEs) and polybrominated biphenyls (PBBs)]

-Chlorinated Phenolic compounds

-Organohalogenated pesticides

National programs for the reduction and control of pollution by the above organohalogen compounds are expected to include the following activities, which have been specified in the SAP:

1. To adopt at the national level and apply by 2005 at the latest, the common measures for the control of pollution by organohalogen compounds adopted by the Parties;
2. To reduce the use of short-chained chlorinated paraffins in accordance with the LBS Protocol and internationally agreed provisions for the safeguarding of the environment and human health;
3. To regulate, by the year 2005 at the latest, releases of organochlorines by the paper and paper pulp industries
4. Limiting discharges measured as AOX (adsorbable organic halogen) to 1 kg per ton of paper pulp produced and by reducing it further in accordance with internationally agreed provisions

5. Promotion of BEP and BAT and the promotion of alternative bleaching to the use of molecular chlorine;
6. To reduce and control the manufacture of PBDEs and PBBs in accordance with the LBS Protocol and other regionally and internationally agreed provisions;
7. To reduce and control the manufacture and use of certain pesticides, such as lindane, 2,4-D and 2,5-T herbicides, and tri- tetra- and penta- chlorophenols, used in the treatment of wood, in accordance with the LBS Protocol and other regionally and internationally agreed provisions for the safeguarding of the environment and human health.

#### ***7. UPDATING AND ADOPTING OF NATIONAL REGULATIONS ON SEWAGE DISCHARGES TO THE SEA AND RIVERS***

National regulations on sewage discharges into the sea and rivers are expected to be updated taking into account the provisions of the LBS Protocol, particularly Annex II and, where appropriate, the common measures on sewage discharges into the sea and rivers already adopted by the Contracting Parties. Regional guidelines for sewage treatment and disposal, environmental quality criteria and standards will assist Mediterranean countries to establish national legislation according to existing conditions. The work on the process for updating the regulations will start in the period 2001-2002. Parties requiring assistance in the formulation of updated regulations, will be eligible for expert legal and/or technical assistance to be provided through the project.

#### ***8. ESTABLISHING A SYSTEM OF PREVIOUS AUTHORIZATION BY COMPETENT NATIONAL AUTHORITIES FOR WORKS WHICH CAUSE PHYSICAL ALTERATIONS OF THE NATURAL STATE OF THE COASTLINE OR THE DEGRADATION OF COASTAL HABITATS***

The preparation of national regulations will be initiated in the biennium 2001-2002, for the establishment of a system of previous authorisation by competent national authorities for projects having a potential impact on the natural state of the coastline or on coastal habitats.

#### ***9. PHASING OUT THE USE OF THE NINE PESTICIDES, EXCEPT FOR THOSE FOR WHICH WHO RECOMMENDATIONS RELATED TO THE SAFEGUARDING OF HUMAN LIFE SUGGEST OTHERWISE***

#### ***10. PROHIBITING THE MANUFACTURE, TRADE AND NEW USES OF PCBS***

#### ***11. PROVISION FOR REGIONAL MANAGEMENT CONCERNING STORAGE, REUSE AND DISCHARGE OF LUB OILS, BATTERIES AND CHEMICALS SUBSTANCES RELATED TO BATTERY PRODUCTION***

#### ***12. ADOPTION OF MONITORING CAMPAIGN ON STORMWATER RUNOFF RELATED TO INDUSTRIAL AREAS***

## 2. National Action Plans

National Action Plans have to be developed as a result of the NDA, BB and the Sectoral Programs. The formulation of NAPs represents the operational long-term aim on the SAP as the Naps are expected to make use of the results of the individual activities identified in the SAP.

The synergism between the Baseline Budget and the NDA ensures the traceability and the reliability of the implementation of the SAP strategy and its targets.

Being Baseline Budget the first step of the preparation of NAPs, chapter 2.1.1 illustrates the methodologies undertaken in the preparation of the BB. The Baseline Budget was introduced as part of the SAP to enable the national and local authorities to track the evolution and the benefits that would be the results of the economic, human and intellectual investments achieved during the implementation of the remedial actions included in the NAPs and sectorial programmes.

In addition, National Action Plan takes into account national hot spots and sensitive areas as well as the provisions of LBS Protocol. In chapter 2.1.2 and 2.1.3 are described national hot spots represented by the contaminated sites of national interest and the location of the national sensitive areas according to typologies specified by Directive 91/271/CEE.

### 2.1. Identification of the fields of action

#### 2.1.1 Italian Baseline Budget

Liquid and atmospheric emissions estimated with the National Baseline Budget are the starting point of the preparation of the National Action Plan. According to SAP, NAPs set the reduction and/or elimination targets related to the substances identified through the National Baseline Budget. The Baseline Budget enables the country and the secretariat to fix a reference level of pollutant releases upon which tracking of the achievements reductions could be reliable and traceable. For this reason it was necessary starting from the elaboration of BB to point out the main pollutants and the relative industrial sources all over the national territory.

Italy developed the Baseline Budget using the data available from the EPER database selecting the Mediterranean administrative regions. Emissions to air, water and coastal emissions are calculated for each sector and pollutant considered in the SAP.

EPER is the European Pollutant Emission Register, which was established by a Commission Decision of 17 July 2000. The EPER Decision is based on Article 15(3) of Council Directive 96/61/EC concerning integrated pollution prevention and control.

According to the EPER Decision, Member States have to produce a triennial report on the emissions of industrial facilities into the air and waters. The report covers 50 pollutants which must be included if the threshold values indicated in Annex A1 of the EPER Decision are exceeded.

The first reporting year was 2001 (although Member States also had the option of providing data for 2000 and 2002); this information had to be reported June 2003 at the latest. The second reporting year will be 2004.

Not all industrial plants existing are considered for EPER reporting – only those activities which are listed in Annex A3 of the EPER Decision are included.

The threshold values have been chosen in order to include about 90% of the emissions of the industrial facilities looked at, so as to prevent an unnecessarily high burden on all industrial facilities.

The EPER Decision obliges the European Commission to make this data publicly accessible on the internet. The website [www.eper.cec.eu.int](http://www.eper.cec.eu.int), which is hosted by the European Environment Agency (EEA) in Copenhagen, was created to fulfil this obligation.

### **2.1.2 Italian hot spots**

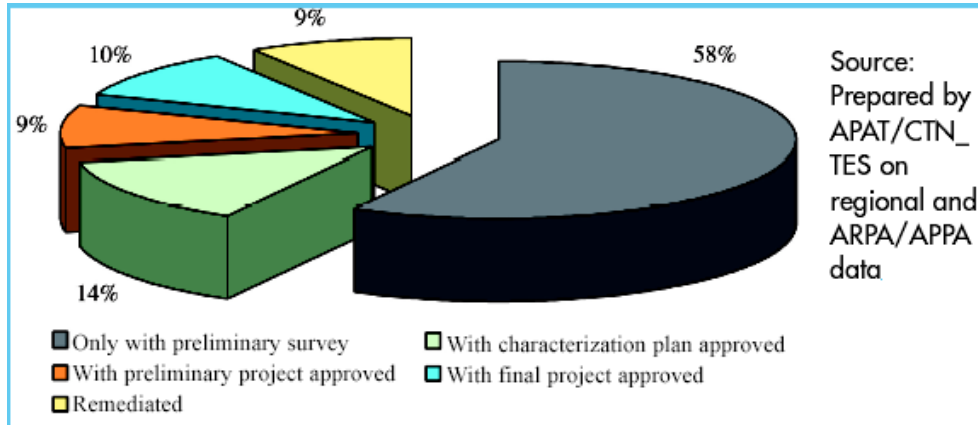
The regional inventories of hot spots for industrial contamination provided by the Ministerial Decree of the Ministry for the Environment n. 471, 25 October 1999, though still in the initial phase, are already supplying data on the number and characteristics of contaminated and remediated sites of national interest.

Important information on this theme are also provided by data on contaminated sites of national interest included in Italian Laws 426/1998 and 388/2000 and in the Decree of the Ministry for the Environment n. 468, 18 September 2001 “*National programmes for environmental recovery and remediation of polluted sites*”, recently integrated by the Law n. 179, 31 July 2002, “*Regulations on environmental topics*”. In figure 1 are reported the sites included in the regional inventories split on the basis of the level of the remediation process. These data, regarding mid-2003, refer to 15 administrative regions. For most of the sites included in the inventories only a preliminary assessment can be made, although in many cases the characterization plan is in process. One third of the sites are now in full recovery, being approved by at least one of the three planning documents provided by Ministerial Decree 471/99 (i.e. the classification plan, the preliminary project and the final project). For 9% of the sites, the remediation process has been concluded with the required provincial certification. It should be recalled that for a larger number of other sites, not included in the figure, remediation has ended in recent years without provincial certification, since



the recovery projects were approved before the issue of the Ministerial Decree 471/99 which stated the need for provincial certification at the end of the recovery of the site.

In Italy a total of about 50 contaminated sites of national interest have been identified, 24 of which are sited on coastal areas as illustrated in figure 2.



Source: Environmental Data Yearbook (APAT, 2003)

Fig. 1 – Distribution by state of advancement of the remediation of contaminated sites of national interest

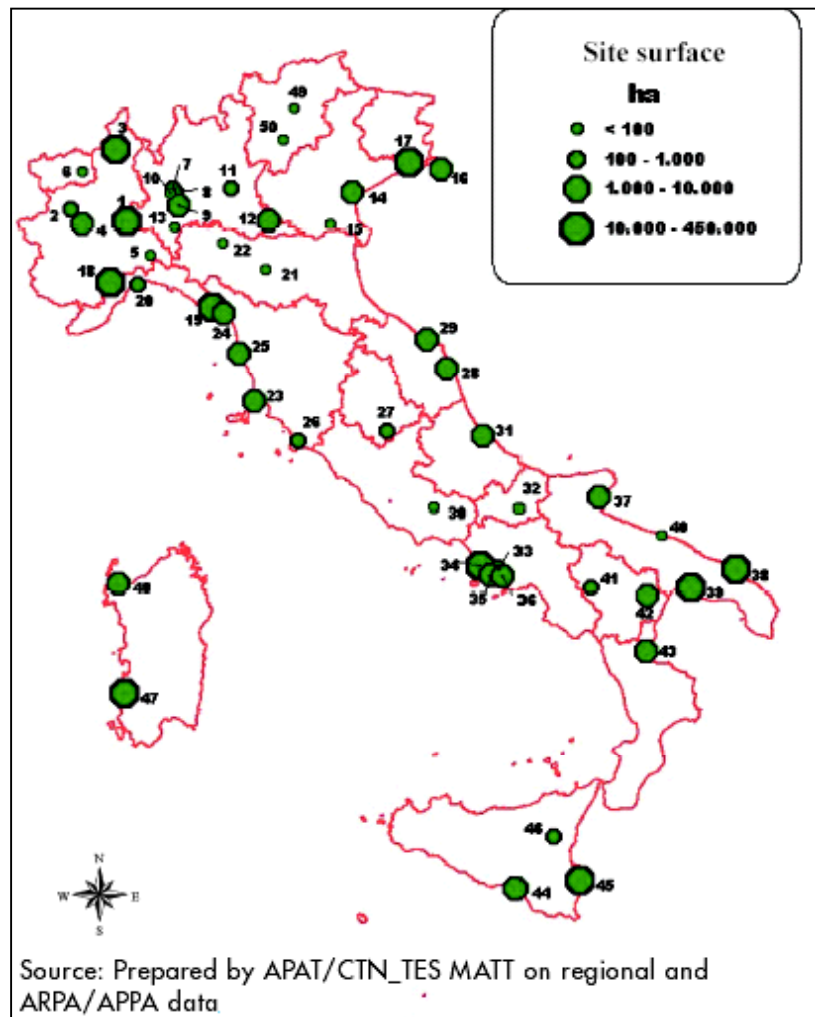


Fig. 2 – Localization and dimensioning of contaminated sites of national interest–Year 2003

The 24 coastal contaminated sites have been endangered from different land-based activities. Table 1 summarizes all the information on the contaminated sites as location, interested marine area and reference decree. It describes as well which are the main pollutants released by land based activities and their sources. All the information about the site can be therefore easily consulted. Information on the main pollutants object of investigations, illustrated in the table, have been taken from the texts of the national laws and, where available, from the characterization plan of the contaminated site.

<b>CONTAMINATED SITES OF NATIONAL INTEREST</b>	<b>REGION</b>	<b>ITALIAN DECREE / LAW</b>	<b>MAIN POLLUTANTS</b>
LIVORNO	Toscana	D.M. 468/01	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• Total hydrocarbons</li> </ul>
MASSA AND CARRARA	Toscana	L. 426/98	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Phenols</li> <li>• Pesticides</li> <li>• Solvents</li> </ul>
ORBETELLO (DISMANTLED SITOCO SITE)	Toscana	L. 179/02	<ul style="list-style-type: none"> <li>• Heavy metals (Arsenic, lead, zinc, cadmium, copper)</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH).</li> <li>• COD related to treatment plant.</li> </ul>
PRIOLO	Sicilia	L. 426/98	<ul style="list-style-type: none"> <li>• Petroleum, Heavy metals</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Metals based on asbestos.</li> </ul>
GELA	Sicilia	L. 426/98	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Total hydrocarbons</li> </ul>
PORTO TORRES (INDUSTRIAL AREA)	Sardegna	L. 179/02	<ul style="list-style-type: none"> <li>• Nutrients (Nitrogen and phosphorus compounds)</li> <li>• Heavy metals</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Heavy hydrocarbons</li> </ul>
MANFREDONIA	Puglia	L. 426/98	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> </ul>
BRINDISI	Puglia	L. 426/98	<ul style="list-style-type: none"> <li>• 100.000 tons of hazardous wastes related to ex- SACA plant</li> <li>• Some covering in eternity in the port area</li> </ul>

TARANTO	Puglia	L. 426/98	<ul style="list-style-type: none"> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Total hydrocarbons</li> <li>• PCBs</li> <li>• Heavy metals (Mercury, copper, lead, cadmium, zinc)</li> <li>• Phenols</li> </ul>
CHIENTI RIVER BASIN	Marche	D.M. 468/01	<ul style="list-style-type: none"> <li>• Trichloroethane</li> <li>• Trichloroethylene</li> <li>• Tetrachloroethylene</li> </ul>
FALCONARA MARITTIMA	Marche	L. 179/02	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Total hydrocarbons</li> <li>• Fluorides</li> <li>• Sulphates</li> </ul>
PITELLI (LA SPEZIA)	Liguria	L. 426/98	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• PCBs</li> <li>• Hydrocarbons</li> <li>• Organostannic compounds</li> </ul>
TRIESTE	Friuli Venezia Giulia	D.M. 468/01	<ul style="list-style-type: none"> <li>• Total hydrocarbons</li> <li>• Heavy metals</li> </ul>
GRADO AND MARANO LAGOON	Friuli Venezia Giulia	D.M. 468/01	<ul style="list-style-type: none"> <li>• Heavy metals (copper, lead, chromium, cadmium, zinc)</li> <li>• Mercury</li> <li>• PCBs</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> </ul>
NAPOLI - EAST COAST	Campania	L. 426/98	<ul style="list-style-type: none"> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Total hydrocarbons</li> <li>• PCBs</li> <li>• Copper, lead, chromium, cadmium, zinc mercury, arsenic</li> </ul>
SALINE AND SALENTO RIVERS	Campania	D.M. 468/01	<ul style="list-style-type: none"> <li>• Waste burden</li> <li>• BOD</li> <li>• COD</li> </ul>
CROTONE - CASSANO - CERCHIARA	Calabria	D.M. 468/01	<ul style="list-style-type: none"> <li>• Heavy metals (copper, lead, arsenic, cadmium, zinc)</li> <li>• Total hydrocarbons</li> </ul>

DOMIZIO FLEGREO AND AGRO AVERSANO COASTAL ZONE	Campania	L. 426/98	<ul style="list-style-type: none"> <li>• Heavy metals (copper, lead, arsenic, cadmium, zinc, mercury)</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Total hydrocarbons</li> <li>• PCBs</li> <li>• Nutrients</li> <li>• Cyanides</li> <li>• Urban waste water pollution</li> </ul>
NAPOLI BAGNOLI - COROGLIO	Campania	L.388/2000	<ul style="list-style-type: none"> <li>• Heavy metals (copper, lead, arsenic, cadmium, zinc)</li> <li>• Total hydrocarbons</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> </ul>
VESUVIO COASTAL ZONE	Campania	L.179/2002	-
COGOLETO - STOPPANI	Liguria	D.M. 468/01	<ul style="list-style-type: none"> <li>• Diffuse Chromium pollution</li> </ul>
SULCIS – IGLESIENTE - GUSPINESE	Sardegna	D.M. 468/01	<ul style="list-style-type: none"> <li>• Heavy metals (copper, lead, arsenic, cadmium, zinc)</li> <li>• Iron</li> </ul>
PIOMBINO	Toscana	L. 426/98	<ul style="list-style-type: none"> <li>• Atmospheric pollutions: dust, Polycyclic Aromatic Hydrocarbons (PAH), Nitrogen oxides, Sulphur oxides</li> <li>• Dismantled industrial and urban waste dumping</li> <li>• Surficial water: Polycyclic Aromatic Hydrocarbons (PAH)</li> </ul>
VENEZIA (PORTO MARGHERA)	Veneto	L. 426/98	<ul style="list-style-type: none"> <li>• Heavy metals</li> <li>• Cyanides</li> <li>• Polycyclic Aromatic Hydrocarbons (PAH)</li> <li>• Dioxins</li> <li>• PCBs</li> <li>• Chlorophenols</li> <li>• Chlorides Solvents</li> <li>• Benzene and its compounds</li> <li>• BTEX</li> <li>• Pesticides</li> </ul>

Source: L. 426/98, L.388/2000, D.M. 468/01, L.179/2002;ICRAM #CII-Pr-CA-NO-04.03, #CII-Pr-FVG-TS-01.08, #CII-Pr-CA-NO-04.03, #CII -pr-fvg-gm-04.07

Table 1 – Location and description of contaminated sites of national interest–Year 2003

### 2.1.3 *National sensitive areas*

Sensitive areas are identified, according to typologies specified by Directive 91/271/CEE, as already eutrophicated water systems or water systems not yet eutrophicated but in the need of specific actions to prevent eutrophication and as water bodies finalized to the production of drinking water.

Article 32 of Legislative Decree 152/99 ratifies that urban centres with more than 10.000 inhabitants, whether located in sensitive areas or in the drainage basin of a sensitive area, must provide wastewater treatment plants with a tertiary treatment system for removal of nutrients if the removal percentage of 75 % is not ensured by the secondary treatment.

According to this criterion Basin's Authority of river Po emitted the Decision n. 7/04 which appoints administrative regions to provide treatment plants with a system suitable for the reduction of 75 % of Total Phosphorous and Total Nitrogen whether in the drainage basin of river Po. The decision therefore involves the *Safeguard Plans* of the regions of Valle d'Aosta, Piemonte, Liguria, Lombardia and Emilia Romagna.

The safeguard of waters in sensitive areas represents a fundamental target of Regional *Safeguard Plans*.

Italian sensitive areas are:

- lakes mentioned in Enclosed n. 6 of Legislative Decree 152/99 and streams afferent for 10 km from coastal line
- saltmarsh areas of Orbetello, Ravenna and Piailassa Baiona, Comacchio valleys, saltmarsh lakes and the delta of river Po
- humid-areas established by Ramsar Convention of 1971
- north-west Adriatic coastal areas

Table 1 and 2 below report respectively information on the main regional plans for water safeguard and a list of the sensitive areas identified by the Autonomous Regions and Provinces that takes also into account the identifications referred to in Article 18, Legislative Decree 152/99.

**Table 1: Regional Plans for Water safeguard**

Source: APAT, 2005. "Report on urban wastewater disposal (91/271/CEE – article 16)"

<b>Administrative Region</b>	<b>Regulation</b>	<b>Content</b>
<b>Valle d'Aosta</b>	Protection Plan adopted by resolution of the regional Council n° 4995 of 30.12.04	<i>Concerning the fulfilment of the obligations assumed under the Po River Basin Authority, it undertakes the engagement to reduce, in every hydrographic sub-basin, the entire nutrients amount entering the urban waste water treatment plants of 75% and to reduce, at the same time, nutrients uptake according to the quality objectives established for the control strategic sections identified along the course of the river Po.</i>
<b>Piemonte</b>	Protection plan adopted on September 20, 2004 by resolution n° 23.13437 and then amended and completed on January 17, 2005 by resolution n° 30.14577	<i>To provide a more efficient action concerning the eutrophication phenomenon reduction, the Protection Plan considers the whole regional territory as drainage basin of the sensitive areas known as "the Po Delta" and "the North-western Adriatic coastal area" ....At this purpose, the Plan is aimed to the reduction, in every hydrographic sub-basin, of the entire nutrients amount entering the urban waste water treatment plants of 75%....."</i>
<b>Liguria</b>	Water protection plan adopted by the regional Council by resolution n° 1119 dated October 8, 2004	<i>"The areas within the regional territory of Bormida di Millesimo and Bormida di Spigno rivers, and of Erro, Orba, Aveto, Masone, Masca Gargassa and Scrivia streams, concern the basin of the Po river and therefore the sensitive area of the Adriatic Sea. Thus the objectives identified by the Po River Basin Authority, have been specifically outlined for those areas".</i>
<b>Lombardia</b>	Proposal of protection and use of water programme (PTUA) approved by the regional Council by resolution n° VII/19359 on November 12, 2004	<i>"The Lombard regional territory covers almost the entire drainage basin of the sensitive areas known as the Po Delta and Adriatic Sea, except for Reno di Lei and Spoel small alpine basins. To safeguard the Po Delta and the North-western Adriatic coastal area, the Po River Basin Authority points to reduce the total amount of phosphorus and nitrogen entering all the urban waste water treatment plants that fall within the Po river basin of 75%, because this is the drainage basin of the above said sensitive areas. The Lombardy Region intends to apply the same criterion of quantity reduction even to the drainage basins of internal sensitive areas".</i>
<b>Emilia-Romagna</b>	Water protection plan adopted by resolution of the regional Council on December 22, 2004 n° 633	<i>The water Protection Plan of the Emilia-Romagna Region, identifies the hydrographic basins of the surface water bodies which flow to the Po river or to the Adriatic Sea as drainage basins of the sensitive areas of the "Po Delta" and "North-western Adriatic coastal area" at the mouth of the Adige river on the South boundary of the Municipality of Pesaro. In compliance with the provisions of art. 5, Directive 91/271/EEC and in the respect of the Po River Basin Authority resolution dated March 3, 2004 n° 7, the objective is the reduction of at least 75% of the total amount of phosphorus and nitrogen in the hydrographic basins/sub-basins which contributes to the pollution of the sensitive areas.</i>

**Table 2: List of the sensitive areas identified by Administrative Regions and Autonomous Provinces.**

Source: APAT, 2005. "Report on urban wastewater disposal (91/271/CEE – article 16)"

Autonomous Region/Province	Sensitive areas identified																																				
<p><b>Autonomous Province of Bolzano</b></p>	<p>Through the <b>L.P. 18.06.02, n°8</b>, the Autonomous Province of Bolzano has decided to protect all the water bodies, apart from the designation of sensitive area or drainage basin in a sensitive area, setting emission limit values concerning the entire amount of nitrogen and/or phosphorous in compliance to those envisaged for the sensitive areas on Table 2, attachment 5 of the dlgs 152/99 and on Directive 91/271/EEC, as far as waste of treatment plants with a capacity over 10,000 a.e. are concerned.</p> <p>Moreover, in the natural lakes of the Bolzano Province, waste water disposals have been formally banned and all the urban waste water treatment plants have been realized downstream of the natural lakes; therefore urban waste water disposals in streams related to the same lakes do not exist.</p> <p>In the proposal of the <b>water protection plan provisional plan</b> approved by resolution of the regional council on February 2, 2004, n° 294, "<i>THE WHOLE BASIN OF THE ADIGE RIVER FLOWING INTO THE ADRIATIC NORTH-WESTERN SENSITIVE AREA AND LOCATED IN THE AUTONOMOUS PROVINCE OF BOLZANO, is classified as drainage basin in a sensitive area.</i></p>																																				
<p><b>Autonomous Province of Trento</b></p>	<p>By resolution of the provincial council n° 2497 of October 3, 2003, the Autonomous Province of Trento defines as SENSITIVE AREAS, ALL THE WATER BASINS WITHIN THE PROVINCIAL TERRITORY.</p>																																				
<p><b>Lombardia</b></p>	<p>In the Proposal of protection and use of water programme (PTUA) approved by the regional Council by Resolution n° VII/19359 on November 12, 2004, the Lombardy Region confirms the identification as sensitive areas of lakes with a surface larger than 0.3 Km<sup>2</sup>, under 1,000 m of altitude, of wet zones identified in compliance with the Ramsar convention, and respective drainage basins.</p> <table border="1" data-bbox="448 1218 1430 1977"> <thead> <tr> <th colspan="3" data-bbox="448 1218 1430 1263"><u>Lakes concerned and respective drainage basins</u></th> </tr> </thead> <tbody> <tr> <td data-bbox="448 1263 778 1319">ALSERIO</td> <td data-bbox="778 1263 1091 1319">IDRO</td> <td data-bbox="1091 1263 1430 1319">MONTORFANO</td> </tr> <tr> <td data-bbox="448 1319 778 1375">ANNONE (EAST AND WEST)</td> <td data-bbox="778 1319 1091 1375">ISEO</td> <td data-bbox="1091 1319 1430 1375">PIANO</td> </tr> <tr> <td data-bbox="448 1375 778 1431">COMABBIO</td> <td data-bbox="778 1375 1091 1431">LUGANO</td> <td data-bbox="1091 1375 1430 1431">PUSIANO</td> </tr> <tr> <td data-bbox="448 1431 778 1487">COMO</td> <td data-bbox="778 1431 1091 1487">MAGGIORE</td> <td data-bbox="1091 1431 1430 1487">SEGRINO</td> </tr> <tr> <td data-bbox="448 1487 778 1543">ENDINE</td> <td data-bbox="778 1487 1091 1543">MANTOVA (UPPER, MEDIUM, LOWER)</td> <td data-bbox="1091 1487 1430 1543">VARESE</td> </tr> <tr> <td data-bbox="448 1543 778 1599">GARDA</td> <td data-bbox="778 1543 1091 1599">MEZZOLA</td> <td data-bbox="1091 1543 1430 1599">VALVESTINO</td> </tr> <tr> <td data-bbox="448 1599 778 1655">GARLATE</td> <td data-bbox="778 1599 1091 1655">MONATE</td> <td data-bbox="1091 1599 1430 1655"></td> </tr> <tr> <th colspan="3" data-bbox="448 1655 1430 1700"><u>Wet zones and respective drainage basins</u></th> </tr> <tr> <td data-bbox="448 1700 778 1879">BOSCONI ISLAND</td> <td colspan="2" data-bbox="778 1700 1430 1879">LAKE OF MEZZOLA AND PIAN DI SPAGNA</td> </tr> <tr> <td data-bbox="448 1879 778 1924">TORBIERE DEL LAGO DI ISEO</td> <td colspan="2" data-bbox="778 1879 1430 1924">PALUDE BRABBIA</td> </tr> <tr> <td data-bbox="448 1924 778 1977">VALLI DEL MINCIO</td> <td colspan="2" data-bbox="778 1924 1430 1977">PALUDI DI OSTIGLIA</td> </tr> </tbody> </table>	<u>Lakes concerned and respective drainage basins</u>			ALSERIO	IDRO	MONTORFANO	ANNONE (EAST AND WEST)	ISEO	PIANO	COMABBIO	LUGANO	PUSIANO	COMO	MAGGIORE	SEGRINO	ENDINE	MANTOVA (UPPER, MEDIUM, LOWER)	VARESE	GARDA	MEZZOLA	VALVESTINO	GARLATE	MONATE		<u>Wet zones and respective drainage basins</u>			BOSCONI ISLAND	LAKE OF MEZZOLA AND PIAN DI SPAGNA		TORBIERE DEL LAGO DI ISEO	PALUDE BRABBIA		VALLI DEL MINCIO	PALUDI DI OSTIGLIA	
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TORBIERE DEL LAGO DI ISEO	PALUDE BRABBIA																																				
VALLI DEL MINCIO	PALUDI DI OSTIGLIA																																				



Autonomous Region/Province	Sensitive areas identified	
<b>Piemonte</b>	In the Piedmontese regional territory, the main pre-alpine lakes are referable to the classification provided by the dlgs 152/99, both for dimensions and geographical position and for trophic characteristics. The protection plan considers the following lakes as sensitive areas:	
	MAGGIORE (OR VERBANO)	AVIGLIANA (LAGO GRANDE DI AVIGLIANA)
	ORTA (OR CUSIO)	TRANA (LAGO PICCOLO DI AVIGLIANA)
	MERGOZZO	VIVERONE
	CANDIA	SIRIO
<b>Friuli Venezia Giulia</b>	Wet zones Ramsar Convention: MARANO LAGOON - VALLE CAVANATA	
<b>Veneto</b>	From the Protection Plan adopted by resolution of the Regional Council n° 4453 on December 29, 2004 The circular n° 18, 13.08.99 of the regional Council President, approved with DGR n° 2847, 03.08.99 and published in the BUR n° 77, 07.09.99 of the Veneto Region and the next circular n° 12, 09.08.02, approved with DGHR, 02.08.02 n° 2106 and published in the BUR n° 89, 10.08.02, list the <b>sensitive areas of first identification</b> which are:	
	<u>Natural lakes and streams within 10 km from the coastline</u>	
	LAKE OF ALLEGHE (BL)	LAKE OF GARDA (VR)
	LAKE OF LAGO (TV)	LAKE OF FRASSINO (VR)
	LAKE OF SANTA MARIA (TV)	LAKE OF FIMON (VI)
	<u>Wet zones Ramsar Convention:</u>	
	VINCHETO DI CELLARDA AREAS IN THE MUNICIPALITY OF FELTRE (BL)	VALLE DI AVERTO AREAS IN THE MUNICIPALITY OF CAMPAGNALUPIA (VE)
	COASTAL AREAS FROM THE MOUTH OF THE ADIGE RIVER TO THE PO DELTA INCLUDED AND THE STREAMS RELATED TO THEM REPRESENTED BY A 10 KM SEGMENT FROM THE COASTLINE	
As provided by the third paragraph of article 18 d.lgs 152/99, the provisions of the existing legislation, concerning the protection of Venice, are maintained. Therefore, the VENICE LAGOON is considered a “sensitive area” according in particular to the Master Plan “for pollution prevention and water reclamation of the hydrographic basin flowing in the Venice lagoon” approved with the DCR on 01.03.00 n° 24. Regions can establish other sensitive areas, in compliance with the above said art. 18 paragraph 4, i.e. identify, within the areas of first identification, the water bodies which do not constitute sensitive area and at the same time the drainage basins within the sensitive areas which contribute to the pollution of those areas, as provided at paragraph 6. The Region therefore defines as sensitive areas, BASINS THAT FLOW IN THE VENICE LAGOON AND IN THE COASTAL AREA LOCATED BETWEEN THE MOUTH OF THE SILE AND THE PO DELTA, except for the Sile basin.		
<b>Emilia-Romagna</b>	According to the article 18, dlgs 152/99 the following zones represent the sensitive areas identified for the Emilia-Romagna Region:	
	The LAGOONAL AREAS OF RAVENNA, PIALLASSA-BAIONA, VALLI DI COMACCHIO, THE BRACKISH LAKES AND THE PO DELTA;	
	The ADRIATIC COASTAL AREAS AND THE STREAMS RELATED TO IT WITHIN 10 KM FROM THE COASTLINE	
	The WET ZONES IDENTIFIED ACCORDING TO THE RAMSAR CONVENTION	

Autonomous Region/Province	Sensitive areas identified	
<b>Toscana</b>	According to the art. 18, dlgs 152/99, the LAGOONAL AREA OF ORBETELLO is considered a sensitive area within the Tuscany Region.	
	The Tuscany Region, upon resolution of the Tuscan Regional Council (DCRT) on October 8, 2003	
	<u>resolution n° 170</u> identifies the PADULE DI BOLGHERI AND THE RELATED DRAINAGE BASIN as sensitive area within the regional basin of the Tuscany Coast;	
	<u>resolution n° 171</u> identifies the LAKE OF BURANO AND THE PADULE DELLA DIACCIA BOTRONA AND THE RELATED DRAINAGE BASINS, as sensitive area within the regional basin of Ombrone;	
	<u>resolution n° 172</u> identifies the LAKE OF MASSACIUCCOLI AND THE RELATED DRAINAGE BASIN, as sensitive area within the responsibility of the Basin Authority of Serchio river.	
	Upon resolution of the regional Council on January 25, 2005 n° 6, the Tuscany Region approves the Water Protection Plan that in the Volume I “Basin of the Arno river”, paragraph 7.2 (art. 12) states as follow: “the Region, upon approval of this Protection Plan, identifies, according to art. 18, D.lgs n° 152/99, <b>the SENSITIVE AREA OF THE ARNO as laid down in the planimetry attached to this Plan</b> ”.	
<b>Marche</b>	The Marche Region has identified, through its own administrative act – DACR n° 302 of February 29, 2000 (chapter 7 “sensible areas and zones subject to nitrates of agricultural origin”) – the two sensitive areas and the drainage basins within its own territory according to the dlgs 152/99	
	PESARESE AND SAN BARTOLO SENSITIVE AREAS (art.18 paragraph 2 lett.d)	ALTA VALLE DEL CHIANTI SENSITIVE AREA (attachment 6 lett. a)
<b>Puglia</b>	According to art. 18, dlgs 152/99 the following sensitive areas and related drainage basins have been identified within the Apulia Region: basin of Occhito, lake of Salpi wet zone, Guaceto tower wet zone, lake of Lesina, lake of Varano, Mar Piccolo, Le Cesine wet zone and the basin of Locone.	
<b>Lazio</b>	Upon resolution n° 317, April 11, 2003 the Latium Region identifies the following sensitive areas and related drainage basins:	
	LAKE OF BOLSENA (whole hydrographic basin)	LAKE OF ALBANO (whole hydrographic basin)
	LAKE OF VICO (whole hydrographic basin)	LAKE OF BRACCIANO (whole hydrographic basin)
	LAKE OF MEZZANO (whole hydrographic basin)	LAKE OF NEMI (whole hydrographic basin)
	LAKES OF REATINO AREA (lakes of Salto, Turano, Ripa Sottile and lake Lungo) (whole hydrographic basin and hydrographic basins of the related streams)	COASTAL LAKE OF CIRCEO (Fogliano, Monaci, Caprolace, Sabaudia) (whole hydrographic basin of the lakes)
	LAKE OF SCANDARELLO (whole hydrographic basin)	LAKE OF MARTIGNANO (whole hydrographic basin)
	LAKE OF NAZZANO (hydrographic basin of the Tiber and of its affluent Farfa)	LAKE OF FONDI, LUNGO, S. PUOTO (whole hydrographic basin of the lakes)
	LAKE OF CANTERNO (whole hydrographic basin and related streams)	LAKE OF S. GIOVANNI INCARICO (whole hydrographic basin and related streams)
	LAKE OF POSTA FIBRENO (whole hydrographic basin and related streams)	

Autonomous Region/Province	Sensitive areas identified	
<b>Umbria</b>	Upon resolution n° 274, March 12, 2003 the Umbria Region identifies the following sensitive areas and related drainage basins:	
	LAKE OF TRASIMENO	LAKE OF PIEDILUCO
	ARTIFICIAL LAKE OF ALVIANO	PADULE DI COLFIORITO
	STRETCH OF RIVER NERA (SCHEGGINO REGIONAL BOUNDARY)	STRETCH OF RIVER CLITUNNO
	THE DRAINAGE BASIN IDENTIFIED FOR THE LAKE OF ALVIANO, REPRESENTS THE WHOLE HYDROGRAPHIC BASIN OF THE TIBER UPSTREAM OF THE BASIN	
<b>Abruzzo</b>	According to the Attachment 6, D.L.vo 152/99, the following lakes under 1,000 m above the sea level and with a liquid mirror surface at least of 0.3 Km <sup>2</sup> and the related rivers within a 10 km segment, have been considered as sensitive areas.	
	LAKE OF BOMBA AND SANGRO RIVER	LAKE OF PENNE AND TAVO RIVER
	LAKE OF BARREA AND SANGRO RIVER	LAKE OF SCANNO AND TASSO STREAM
	LAKE OF CASOLI AND AVENTINO RIVER	
<b>Sicilia</b>	According to the art. 18, dlgs 152/99, the S. Giovanni Lake has been identified as sensitive area. The <b>Sicilian</b> Region with Ordinance n° 65/TCI on October 2, 2003 has identified as sensitive area the CASTELLAMMARE GULF AND THE RELATED DRAINAGE BASIN.	
<b>Sardegna</b>	Resolution of the Council on April 16, 2002 n° 12/14 published in the Official Bulletin of the Autonomous Region of Sardinia of June 20, 2002 “Studio per l’adeguamento del Piano regionale di risanamento delle acque – Approvazione programmi di interventi urgenti” (a study concerning the adjustment of the regional water reclamation Plan – Approval of urgent interventions programmes). During the first stage of identification of the sensitive areas within the territory of the Sardinia Region, an explanation has been offered about water bodies for potable use and wet zones entered in the Ramsar convention, and the identification of additional sensitive areas has been postponed to a secondary stage. This first identification has been enriched, through modifications, with additional sensitive areas and the protection criteria for the drainage basins have been extended.	

## 2.2 Legal framework and provisions

### 2.2.1 National legal framework

1. Legislative Decree 152/99
2. National Law 36/94 “*Legge Galli*”
3. Ministerial Decree 185/03
4. Ministerial Decree 367/03
5. Ministerial Decree 471/99 (Italian Ministry for the Environment and Territory - IMET)
6. National Law 979/82
7. Legislative Decree 372/99
8. President Decree 470/82
9. Annex to Legislative Decree 530/92, modified by Ministerial Decree of October 14<sup>th</sup>, 1998
10. Law 308/04 and Legislative Decree n. 152/2006 “*Norme in materia ambientale*”

- 1) The Italian water framework law, the Legislative Decree 152/99, after amendments and integrations provided by the Legislative Decree 258/2000, has established measures for the reduction of pollutants through the setting of emission limit values in surface waters, in marine waters and in soil for a list of pollutants among those included in Annex I of the LBS Protocol (organohalogen compounds, polycyclic aromatic hydrocarbons, heavy metals and their compounds, compounds of nitrogen and phosphorus, organophosphorus compounds, crude oils and hydrocarbons of petroleum origin); for 18 single substances (substances of the list I of the “Dangerous Substances Directive 76/464/EC”) are defined emission limit values in terms of kg/year for specific sectors of activity.

All the Regions are obliged to put into force monitoring programmes on the dangerous substances identified in the list of “Dangerous Substances Directive 76/464/EC” mentioned above and on other compounds and to report – according to the Legislative Decree 18/09/2002 entitled “*Modalità di informazione sullo stato delle acque ai sensi del D.Lgs. 11 maggio 1999, n. 152*” – to the Italian Ministry for the Environment and Territory (IMET) information about the adopted monitoring procedures, their relative results and which environmental quality objectives, defined for the status of marine coastal waters, have been reached.

Moreover, regarding marine pollution, the decree establishes a monitoring and planning procedure, aimed to improving the quality of marine water. In particular, the regions should draw up a “water protection plan”, for all the marine waters belonging to the “significant water bodies”, which include the marine waters within 3000 m offshore and not deeper than 50 m. The plan should follow specific monitoring activities. The aim of the plans is to reach, or keep when already existing, a “good” or “elevated” quality level (according to the definitions provided by the decree). This quality status pursued in order to reach a “good” environmental quality level by the end of 2016, while by the end of 2008 each classified surface water body or its expanse has to reach at least a “sufficient” quality level.

Legislative Decree 152/99 states as well that all the industrial discharges have to be authorized by the Member State while civil and urban discharges must obtain the authorization by the regional authority. The decree defines the deadlines and the criteria for the authorizations of the industrial discharges.

Moreover the decree sets up quality objectives for shellfish waters for a few number of compounds in line with the conditions fixed by the European directive 79/923/CEE on quality of waters required for the protection of shellfish.

According to ministerial decree 367/03, which identifies environmental quality standards in surface waters for 160 substances, all Italian surface water bodies, included marine coastal waters, have to reach by 2008 the concentration limits defined by the tables enclosed to this decree.

- 2) The Law 18/05/1989 no. 183 introduced standards aimed at guaranteeing protection of the soil, remediation of water, exploitation and management of water resources for use in rational economic and social development as well as protection of related environmental aspects.

The aims described above were later incorporated into the “*Legge Galli*” 36/94, which brought profound innovations to regulations affecting water resource industry.

First of all, the *Legge Galli* establishes that all surface and ground water is public, and that human consumption takes priority over other uses, which are permitted when sufficient resources are available, upon condition that they do not compromise the quality of the water for human consumption.

The *Legge Galli* has innovated governance in the sector, in particular by:

- vertically standardizing the various segments of management by creating the “*Servizio Idrico Integrato-SII*”, intended as the complete set of public utilities involving water catchments, adduction and distribution for civil use, sewers and wastewater treatment;

- identifying “*Ambiti Territoriali Ottimali -ATO*” to allow adequate management, overcome the fragmentation of local management, and achieve economies of scale with a user base capable of generating revenues to cover the necessary operating costs and investments, remunerating the invested capital;
- forming a *Agenzia d'Ambito* for each *ATO*, with the task of:
  - organizing the *SII*;
  - identifying the *SII* manager;
  - supervising the activities of the *SII* manager;
  - setting rates for water services;
- organizing the business management of the water sector, which must be based on criteria of efficiency, effectiveness and entrepreneurship;
- defining a rate system based on the principle of the single rate for each *ATO*, including drinking water distribution, sewer and wastewater treatment services, to ensure full coverage of investment and operational costs.

The *SII* is organized based on a clear distinction in attributing the various function levels.

The distribution of tasks may be briefly summarized as follows:

- general and scheduling activities are assigned to national and regional agencies;
- governance, organization and control functions are the responsibility of local agencies grouped into *Autorità d'Ambito*;
- management activities are assigned to the *SII* Manager, whether public or private.

- 3) The Ministerial Decree June 12th 2003, n. 185, regulates the reuse of industrial, civil and urban wastewater in several applications (e.g. agriculture, civil and industrial) setting reuse limits for several pollutants among those included in the annex I of the LBS Protocol.
- 4) The Ministerial Decree November 6th 2003, n. 367, in line with the provisions of the “Dangerous Substances Directive 76/464/EC” regulates environmental quality standard (EQS) in surface waters for 160 single substances and sets up two deadlines for the achievement of EQS: the short-term (2008) deadline is foreseen by the Legislative Decree 152/99 and the long-term (2015) deadline is in line with the provisions of the European Water Framework Directive 2000/60/EEC (all European water bodies have to achieve the “good chemical and ecological status” within this date). This Decree provides prescriptions for the achievement of these goals (e.g. the application of Best Available Technologies for industrial point sources).

5) The Ministerial Decree of IMET, October 25th 1999, n. 471, has established the criteria, the procedures and the methodologies to secure, remediate and environmentally recover contaminated sites. It provides intervention values for several compounds in soil, subsoil, groundwater and surface waters for green and industrial areas: when the concentrations of the pollutants are above these values there is a risk for human health and the environment and there is the obligation for the remediation of this site; the Decree provides also reference procedures for sampling and analysis and criteria for site remediation. The National Law 426/98 has defined a first list of national contaminated sites. This list was implemented by the Law 388/2000, by the “National Program for the remediation and environmental recovery of contaminated sites” 426/01 and by the Law 179/2002 with a total provisional definition of 49 national “contaminated sites of national interest” included marine coastal areas.

6) Regarding the prevention of risk of sea pollution caused by accidents, the Law n.979/82 establishes relevant rules, by imposing an alert and ready intervention system, managed by the maritime authorities. The system is activated in case of events producing damage or a risk of damage to the sea water, also when these events are caused by land-based activities. In particular, the responsible has to immediately eliminate the risk of damage or remediate the damage itself. In case the responsible does not provide a ready intervention, then the local authorities have to activate at the polluter’s expenses.

The Law 31/12/1982, n. 979 has foreseen a monitoring programme for marine coastal areas. This monitoring programme has started in 1996 with the aim to evaluate the quality status of the marine environment in the coastal areas: at the moment in the ongoing programme , *inter alia*, the sampling and analysis of heavy metals, tributyltin compounds, organochlorine pesticides, PAH and other compounds in the matrices sediment and biota are foreseen.

Moreover, according to the civil protection rules (Law n. 225/92), in case of particularly serious accidents, the intervention for the prevention or reduction of their effects can be performed, through the adoption of suitable emergency orders.

The prevention of the risks of accidents is also accomplished, in general, by laws putting into effect, in the Italian system, the European Directive n. 96/82, regarding the risk of accidents in industrial plants. In particular, the Legislative Decree n. 334/99 establishes a series of obligations and fulfilments aimed to the prevention of the significant accidents concerning specific dangerous substances and to the mitigation of their effects on the environment and human health. This law is applied to all the industrial plants using quantities of specific dangerous substances exceeding a certain foreseen level.

It is worthwhile to mention also the Ministerial Decree n. 293/01, linked to the above mentioned decree n. 334/99, which establishes the prevention procedures for risks of accidents in industrial and petrol handling harbour. The controls are in this case performed by the maritime and harbour authorities.

- 7) The Directive 96/61/EC on Integrated Pollution Prevention and Control (IPPC) was transposed into the Italian Legislation by Decree 4.8.1999 n.372/99 which lays down the rules regarding the issuing, renewal and examination procedures of integrated environmental permits for existing industrial plants.

The Directive 96/61/EC has been recently modified by the Directive 2003/87/EC. The Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003, establishing a plan for greenhouse gas emission allowance trading within the Community and amending Council Directive 96/61/EC.

The Italian Government has to adopt - by 2006 - a Legislative Decree in order to take in the Directive 2003/87/EC.

Art.9 of decree 372/99 establishes controls within the operator's monitoring system and inspections of the plants by the competent authorities to verify that the conditions imposed by integrated environmental authorization are being respected.

Art.13 of the Decree 372/99 also lays down sanctions for different degrees of non – fulfilment.

On April 22, 2005 Article 4, Paragraph 2 of the Decree 372/99 was repealed by the Decree 59/05.

- 8) Italy, with a total of 5628 bathing water areas, accounts for almost 30% of the European bathing areas monitored. The President Decree 470/82 has set legally binding standards for bathing water (coastal areas and freshwater) in line with the provisions of the Directive 76/160/CEE; these standards are referred mainly to microbiological parameters. The Italian law sets lower standards than European regulation. This decree was integrated by the National Decree 422/00.

- 9) Through the Decree of the Ministry of Health October 14<sup>th</sup>, 1998, that modifies the Annex to the Legislative Decree 530/92, which implements the Directive 97/61/EC, control activities and laboratory analysis on mussels are required. In the meanwhile mussels' culture waters quality is granted through the addendum2/C of Legislative Decree 152/99.



10) At the end of 2004, law 308/04 gave to Government the delegation to rationalize and simplify most of environmental legislation. As stated by Article 1 of the law the government must enforce one or more legislative decrees in order to reorganize, coordinate and integrate the existent legal framework on the following sectors:

- waste management and remediation of contaminated sites;
- water safeguard and management;
- soil protection and fight to desertification;
- management of protected areas and sustainable use of protected species (flora and fauna);
- penal responsibility for environmental damages;
- evaluation of environmental impact;
- air pollution control.

According to the decree, on April 3rd, 2006 the Government enforced Legislative Decree n.152/2006 "*Norme in materia ambientale*".

### **2.2.2 *Italian programmes to address marine pollution from land based activities***

According to Art. 3 of Law n. 979/1982 on the protection of the sea, IMET has launched in 1989 a network for the monitoring of the marine and coastal environment in order to prevent and control any emissions of pollutants in the sea. This qualified system of monitoring has to be constantly linked to operational centres and a national centre which collects, coordinates, and elaborates data. This system is organized in triennial Monitoring Programmes coordinated, funded and carried out by IMET in cooperation with the Italian coastal Regions.

As a first implementation of this provision, specific monitoring campaigns were carried out, focusing on highly vulnerable areas: from 1989 to 1991 the northern part of the Adriatic Sea was monitored; from 1991 to 1995 a monitoring programme involving 14 Italian regions was run and collected data were organized in a national data base.

In 1996, IMET started a more comprehensive monitoring programme, aiming at covering the whole Italian coastal waters. The first phase of the programme covered the period 1996/1999 and the second phase covered the period 2001/2004.

The Monitoring Programme 2001/2004 was developed by IMET and ICRAM (Central Institute for Applied Marine Research) with the contribution of main Italian research organizations and universities. Its general goal was to establish a comprehensive monitoring system able to put in

place a fruitful co-operation between State and coastal Regions (in Italy 15 regions out of 20 have a coastal area). In order to be able to give results at national level, the Programme developed standardized and uniform procedures and methodologies for the data collection at local level. Data were collected and processed and were made available to the general public through its regular publication on IMET web site.

Main objectives of the Programme were:

- To evaluate the environmental conditions of the Italian seas, either in areas with severe human impacts and in areas with a high level of naturalness
- To test and introduce new monitoring parameters
- To develop analytical methods to be used by all regions involved
- To validate collected data and organize them in a database
- To make data accessible to the general public

In the identification of the monitoring sites, statistical analysis of data originated from previous monitoring programmes was taken into due account: areas where there was an overlapping of analytical results associated with a low level of pollution were excluded from the system; in each region, areas showing analytical results slightly higher than the average were included as critical areas and areas with a high level of naturalness were included as control areas. As a result, the monitoring programme carried out a yearly investigation of 81 marine areas (63 critical areas and 18 control areas).

The 2001-2004 Monitoring Programme included a training programme for the personnel of regional laboratories involved. Training activities were co-ordinated by ICRAM and ANPA (National Agency for Environmental Protection), in collaboration with IMET. Starting from 2003, intercalibration activities concerning the sampling of water, sediments and mussels started, involving all regional laboratories. This was a part of the European intercalibration programme "QUASIMEME" promoted by the FRS marine laboratory of Aberdeen (Scotland). The following training initiatives were organized: Introductory meeting on marine mesozooplankton monitoring activities (Rome, Italy)/2 training courses on "Collecting and determining samples of phytoplankton and zooplankton" (Cesenatico, Italy)/A seminar on sediments and biota sampling procedures (Rome, Italy)/2 training courses on "Identification and determination of zooplankton samples" (Naples, Italy)/2 training courses on "Ecotoxicological assays" (Rome and Livorno, Italy)/A training course on "Soft bottoms benthonic biocenosis" (Trieste, Italy)/A training course on

"Posidonia oceanica prairies" (Viterbo, Italy)/A course on "Ecological, legal and administrative aspects of the management of marine and coastal environments".

IMET has stipulated a "Programme Framework Agreements" for the protection and management of water resources between the State and all the Italian Regions in the period 2002-2005 with a total amount of 14,8 billions of Euro: in these framework agreements are provided also measures for the reduction and phasing out of the emission of dangerous substances in surface waters.

### **2.2.3 *European Legislation***

- Directive 2000/60/EC, The EU Water Framework Directive
- 76/160/EEC, The Bathing Water Directive (OJ No. L 31, 5.2.1976)
- 76/464/EEC, Dangerous Substances Directive (OJ No. L 129, 18.5.1976)
- 86/280/EEC, Dangerous Substances Discharges Directive (OJ No. L 181, 4.7.1986)
- 78/659/EEC, On the Quality of Fresh Waters Needing Protection or Improvement in Order to Support Fish Life (OJ No. L 222, 18.7.1978)
- 79/923/EEC, The Shellfish Water Directive (OJ No. L 281, 10.11.1979)
- 87/57/EEC, Council Decision of 22.12.1986 concluding the Protocol for the protection of the Mediterranean Sea against pollution from land-based sources (OJ No. L 024, 27.1.1987)
- 84/132/EEC, Council Decision of 1.3.1984 on the conclusion of the Protocol concerning Mediterranean specially protected areas
- 85/208/EEC, Council Decision of 25.3.1985 amending Decision 80/686/EEC setting up an Advisory Committee on the Control and Reduction of Pollution Caused by Hydrocarbons Discharged at Sea
- 85/613/EEC, Council Decision of 20.12.1985 concerning the adoption, on behalf of the Committee, of programmes and measures relating to mercury and cadmium discharges under the convention for the prevention of marine pollution from land-based sources
- 91/271/EEC, The Urban Waste Water Treatment Directive (OJ No. L 135/40, 21.5.1991)
- Directive 91/676/EEC concerning the protection of waters against pollution caused by nitrates from agricultural sources
- Directive 2003/4/EC on the access to environmental information by the public

### **2.2.4 Management of coastal zones**

Administrative functions concerning integrated planning and management of coastal areas were transferred to regions and local authorities by laws n. 59/1997, 979/82, 179/02 and by legislative decree n. 112/1998 which confers public administrative functions to regions and local authorities.

According to these regulations, the national government is competent for the definition of general criteria for the environmental protection of coastal areas. In the exercise of this power, IMET (Italian Ministry for Environment and Territory) is supported by technical bodies, e.g. the Division for Coastal Protection of APAT (Agency for Environmental Protection and Technical Services). Regions adopted specific laws concerning the elaboration of plans and programmes for the integrated management of coastal zones, implementing the European Parliament Recommendation of 30/05/2002.

The main principles of national legislation are:

1. Local and regional authorities are responsible for land use planning.
2. Regional governments have to promote the sustainable management of coastal areas and the control of erosion processes (funding is provided by the national administration).
3. The Integrated Coastal Zone Management-ICZM, a Strategy for Europe (EU COM 2000/547), must be implemented through specific regional programmes. Therefore, no specific legislation has been adopted at national level.

## 2.3 Regional Provisions

The Italian administrative structure is based on regional governments so that, after the preparation of the National Diagnostic Analysis and the estimation of the Baseline Budget for 2003, another step was required for the preparation of the National Action Plan for Italy (NAPs) that was to send a questionnaire to the 21 regional governments. Through the questionnaire regional administrative governments have been required to provide all the information on provisions, programmes and regional campaigns concerning the topics that must be dealt with in Sectoral Plans and NAPs according to SAP issues.

The active cooperation obtained by the regional administrative governments and regional agencies for environmental protection allowed to reach an exhaustive level of information which represented the starting point for the preparation of NAPs.

In this chapter information collected through the questionnaire are reported in details while some integration as tables, maps and complete information on regional conventions and projects undertaken are reported in the Appendix.

### ***1. THE DEVELOPMENT OF NATIONAL PROGRAMS FOR THE ENVIRONMENTALLY SOUND MANAGEMENT OF SEWAGE***

National programs for the environmentally sound management of sewage are expected to include the following activities, which have been specified in the SAP:

#### **1. The connection, by 2005, of all coastal cities and urban agglomerations of more than 100.000 inhabitants to a sewer system as well as the disposal of sewage in conformity with a national regulation system.**

ABRUZZO – the region has developed the Regional plan for water safeguard (DGR 103/04) according to the Italian law on water framework, the legislative decree 152/99. For the reuse of treated effluents for the conservation of water resources, accompanied by infrastructural measures, treatment at source and the segregation of industrial effluents. Regional government has also developed a study for the environmentally sound location of treatment plants.

BASILICATA – In the regional territory urban agglomerations of more than 100.000 inhabitants do not exist. Nevertheless the sewer system has been created for more than 100.000 equivalent inhabitants.

CAMPANIA – the Regional plan for water safeguard (Dlgs 152/99), deals with this topic and it will be in force before October 2005.

PUGLIA – the Accordo Programma Quadro called “Water safeguard and integrated water management All.B Sezione b” (“Tutela delle acque e gestione integrata delle risorse idriche All.B Sezione b”) defined the planning of new plants to serve tourist coastal agglomerations. The amount of 9.500.000,00 € has been allocated for this project.

CALABRIA – all urban agglomerations of more than 10.000 inhabitants are connected to a sewer system and the disposal of sewage is operated in conformity with a national regulation system.

FRIULI – the regional administration, through the “General plan on water restoring” (“Piano generale di risanamento”), promoted the plan of consortium plants and network in order to centralize more treatment plants. It must be pointed out the case of some municipalities such as Muzzana del Turgnano, Carlino, Marano Lagunare, S. Giorgio di Nogaro, Cervignano and Torviscosa where many actions have been undertaken related to the implementation of collecting plants, urban and industrial waste water treatment plants and to the building of a new pipeline to discharge into sea. Before entering into the pipeline, sewage is treated in the plant of S. Giorgio di Nogaro which has a potentiality of 698.000 equivalent inhabitants. The pipeline, after crossing the lagoon, is discharged into the sea at a distance of 60.000 meters from the shoreline.

It is foreseen the extension of the area connected to the network of other municipalities. A system to serve 9 municipalities (Sagrato, Fogliano, Redipuglia, San Pier d’Isonzo, Ronchi dei legionary, Doberdò del lago, Turiacco, San Canziano, Montefalcone and Staranzano) has been developed for the “Bacino di Isonzo”. The system is provided with a centralized treatment plant and a submarine pipeline which discharge into the sea.

LIGURIA – the regional plan called “General plan on water restoring” (“Piano generale di risanamento”) was approved in July 1982. The plan included the regional law 38/82 entitled “Management of public sewage discharge and of civil agglomerations which not discharge into public sewage” (“Disciplina degli scarichi delle pubbliche fognature e degli insediamenti civili che non recapitano in pubblica fognatura”). The plan was updated in July 1991 and the regional law 38/82 substituted by the regional law 43/95. The content of the plan represents the basis of the provisions set by the Regional plan for water safeguard adopted during 2004 and it individuated all the coastal outfalls, the waste water treatment plants and the pipelines map. Moreover, in the documents the

different typologies of the waste water treatment plants are illustrated and funds have been allocated since 1982 according to their planning priority.

The regional law 43/95 indicates the authorities responsible for operation and maintenance of sewage treatment facilities.

EMILIA ROMAGNA – since 1983 L.R. 7/83 and L.R. 42/86 for the protection of Adriatic Sea required the connection to sewage system for all urban centres sited on coastal areas. Moreover financial support has been given through financial investments and Safeguards Plans to improve the sewage-treatment system. According to D.Lgs. 152/99 (enforcement of Directive 91/271/CEE) the deadline of 31st December 2000 was set in order to connect all urban centres with more than 10.000 equivalent inhabitants to sewage system and provide treatments plants with secondary and, where needed, tertiary treatment.

Province	2.000-10.000		10.001-15.000		15.001-150.000		>150.000		Total	
	n°	EI	n°	EI	n°	EI	n°	EI	n°	EI
Ferrara	3	12.498	0	0	0	0	1	172.53	4	185.029
Ravenna	0	0	0	0	3	210.442	1	176.974	4	387.416
Forlì – Cesena	1	3.394	0	0	2	198.977	0	0	3	202.371
Rimini	11	6.061	0	0	2	241.644	2	713.852	5	961.557
<b>Regional total</b>	<b>5</b>	<b>21.953</b>	<b>0</b>	<b>0</b>	<b>7</b>	<b>651.063</b>	<b>4</b>	<b>1.063.357</b>	<b>6</b>	<b>1.736.373</b>

LAZIO – all coastal urban centres are provided with wastewater treatment plant and all the locations of coastal outfalls are individuated and environmentally sound located.

Economical and social develop of coastal zone is promoted by the L.R. 1/01 “*Norme per la valorizzazione e lo sviluppo del litorale del Lazio*”.

The regional administration has undertaken a programme of renovation of the sewage system. With D.G.R. 143/03 the regional administration endorsed a programme for the improvement of coastal zones including financings for an upgrading of water quality (*Azione I. 1.3*).

VENETO – all coastal areas of the region are highly tourist, therefore population of urban centres fluctuate according to seasons changes. All urban centres with more than 10.000 inhabitants are provided with adequate sewage and treatment system for the collection and treatment of wastewaters.

MOLISE – all urban agglomerations of more than 10.000 inhabitants are connected to a sewer system and the disposal of sewage is operated in conformity with the national regulations.



SARDEGNA – in the framework of the enforcement of regional plan for reclaiming of internal waters, the “*Piano Regionale di Risanamento*” stated by Law 319/76 known as “*Legge Merli*”, the Council for Environmental Defence, according to Law 135/97, started up an extraordinary plan for wastewater treatment in order to adequate urban liquid discharges to the European Directive 91/271/CEE. The targets will be achieved through financings supplied by the Italian Ministry for Environment and Territory, through the realization and completion of drainage, treatment systems and discharges. 550M Euro have been allocated for the mentioned purposes and up till now 94 millions Euros have been financed.

According to L.R. 29/97 the whole territory of Sardegna has been individuated as a single *Ambito Territoriale Ottimale-ATO*, the territorial area individuated in order to overcome the fragmentation of water resources management. As stated by Law 388/2000, enforcement of Art. 11 of Law 36/94 “*Legge Galli*”, the “*Piano Stralcio*”, a programme of urgent actions in the framework of sewage/wastewater treatment system, have been developed for the *ATO*. The function of the “*Piano Stralcio*” is to describe infrastructures’ functionality and consistency, provide a list of the existent programmes and projects, individuate critical aspects and give a list of priority actions to be undertaken in accordance with deadlines and site’s typology. Through the programme of “*Piano Stralcio*” it was possible to obtain an estimation of a financial budget necessary for the most impellent interventions for a total amount of approximately 2.900 Billions Lire.

Moreover the preparation of the “*Piano Stralcio*” allowed to the regional government to redact the agreement “*Accordo di Programma Quadro-APQ*” between regional and national government on water resources, sewage and treatment systems. Through the agreement the regional administration could have at its disposal 175M Euro for the council for the environment. The fund allowed the start up of the measure 1.1 “*Ciclo Integrato dell’Acqua*” on water management.

Afterwards, according to Law 36/94, it was implemented the territorial plan “*Piano d’Ambito*”, instituted the territorial authority “*Autorità d’Ambito*” and individuated the director of the integrated water service “*Servizio Idrico Integrato*”.

For the sector of sewage and wastewater treatment, according to the mentioned “*Piano Stralcio*”, financial resources required to achieve the compliance of the systems have been estimated of approximately 1.400M Euro.

The targets of the department for environmental protection of the regional government are:

- Prevention and reduction of pollution and reclaiming of contaminated water bodies;
- Improvement and safeguard of waters' quality;
- Promotion of sustainable and reduced use of water resources
- Allow the maintenance of self-depurating properties of water bodies and biodiversity.

The mentioned targets are achieved through the fulfilment of the objectives for sewage and wastewater treatment provided by D.Lgs. 152/99.

Being the lack of water a issue of main concern, the main goal of the regional administration is the safeguard of water resources. Reduction and reuse are therefore promoted. As a result an improvement of the sewage/treatment system would lead to a more efficient treatment, to an improvement of water bodies' quality, would allow the reuse for irrigation and would protect coastal areas from polluted discharges. That is why many funds are allocated for this purpose.

TOSCANA – all over the regional territory is in progress the process of implementation of the interventions on sewage/treatment system provided by the *Legge Galli* L.36/94. Managers of the *Agenzia d'Ambito* are responsible for the implementation of the activities. Other actions on these issues are foreseen to be pursued in the framework of the implementation of the agreement “*Accordo di Programma*” between regional government and Ministry for Environment. Moreover some guidelines and technical norms on wastewaters' treatment in urban centres subject to high seasonal fluctuations are under revision.

VALLE D'AOSTA – since 1989 the regional government of Valle D'Aosta have been carried out the planning of water reclaiming and safeguard.

In the framework of the implementation of the regional plan for water reclaiming the regional territory have been divided into areas in order to allow adequate management, overcome the fragmentation of local management and optimize the system of collection and treatment of wastewaters. Results of the plan are, among other things, the realization of important treatment plants. Presently only the areas of Valdigne, Mont Rose and Mont Blanc, comprehensive of the municipalities of Courmayeur, Pré Saint Didier, Morgex, La Salle e La Thuile, Hones, Bard, Donnas, Pont Saint Martin are not provided with a tretment plant.

**2. The location of coastal outfalls so as to obtain or maintain agreed environmental and health quality criteria.**

ABRUZZO – the region has developed the Regional plan for water safeguard (DGR 103/04) according to the Italian law on water framework, the legislative decree 152/99. For the reuse of treated effluents for the conservation of water resources, accompanied by infrastructural measures, treatment at source and the segregation of industrial effluents. Regional government has also developed a study for the environmentally sound location of treatment plants.

BASILICATA –ARPA Basilicata has located and registered the whole regional system of the outfalls, included coastal outfalls.

CAMPANIA – the Regional plan for water safeguard (Dlgs 152/99), deals with this topic and it will be in force before October 2005.

CALABRIA –all wastewater treatment plants have been located and registered on magnetic support.

FRIULI –Since 2002 the authorizations to discharge into sea are given by the provincial governments. Provinces have also up-dated the census of urban and industrial sewage discharges.

LIGURIA – the regional plan called “General plan on water restoring” (“Piano generale di risanamento”) was approved in July 1982. The plan included the regional law 38/82 entitled “Management of public sewage discharge and of civil agglomerations which not discharge into public sewage” (“Disciplina degli scarichi delle pubbliche fognature e degli insediamenti civili che non recapitano in pubblica fognatura”).The plan was updated in July 1991 and the regional law 38/82 substituted by the regional law 43/95. The content of the plan represents the basis of the provisions set by the Regional plan for water safeguard adopted during 2004 and it individuated all the coastal outfalls, the waste water treatment plants and the pipelines map. Moreover, in the documents the different typologies of the waste water treatment plants are illustrated and funds have been allocated since 1982 according to their planning priority.

The regional law 43/95 indicates the authorities responsible for operation and maintenance of sewage treatment facilities. According to regional legislation responsible authorities, if needed, indicate the time of maintenance plants.

EMILIA ROMAGNA – No direct discharge of wastewaters into waterbodies is envisaged in the project of sewers and treatment plants. Treatment plants and discharges are registered and located (see maps in appendix).

LAZIO – all coastal urban centers are provided with wastewater treatment plant and all the locations of coastal outfalls are individuated. Over 1.000 controls are yearly made on

every typology of discharge by ARPA Lazio, the regional agency for environmental protection.

VENETO – coastal outfalls of the region with the related potentiality are located. The region provided as well a list of the outfalls reported in table 1 below.

<b>Coastal Outfall</b>	<b>Potentiality (EI-Equivalent Inhabitants)</b>
Rosolina Mare (Rosolina)	30.000
Chioggia	1.600
Fusina (Venezia )	330.000
Campalto (Venezia)	110.000
Lido di Venezia	30.000
Cavallino – Treporti	105.000
Eraclea Mare	250.000
Jesolo	180.000
Caorle	120.000
San Michele al Tagliamento – Bibione	150.000

MOLISE – an existing study reports a list of coastal outfalls and their location.

SARDEGNA – the locations of coastal outfalls are registered and the register is constantly updated.

TOSCANA – The managers of the *Agenzia d'Ambito* are preparing a register of the regional treatment plants and of the untreated outfalls.

### **3. The promotion of primary, secondary and where appropriate and feasible tertiary treatment of municipal sewage.**

ABRUZZO – the region has developed the Regional plan for water safeguard (DGR 103/04) according to the Italian law on water framework, the legislative decree 152/99. For the reuse of treated effluents for the conservation of water resources, accompanied by infrastructural measures, treatment at source and the segregation of industrial effluents. Regional government has also developed a study for thr environmentally sound location of treatment plants.

BASILICATA – law 135/97 and QCS 94/99 promoted the secondary and, where appropriate and feasible, the tertiary treatment of municipal sewage.

UMBRIA – all the regional territory is located inside the drainage basins of sensitive areas. For this reason treatment plants for urban agglomerations of more than 10.000 inhabitants are all provided with tertiary treatment.

The Accordo Programma Quadro called “Water safeguard and integrated water management” (“Tutela delle acque e gestione integrata delle risorse idriche”) identified

the adjustment operations of the plants in order to reach the limits for the discharge in sensitive areas.

CAMPANIA – these topics are carried out with the financing project PS3 by government's commissary.

PUGLIA – the “POR Puglia 2000-2006, misura 1.1, azione 3a” deals with the planning and adaptation of sewage treatment plants. Moreover the Accordo Programma Quadro called “Water safeguard and integrated water management All.B sezione b” (“Tutela delle acque e gestione integrata delle risorse idriche All.B sezione b”) defined the adaptation of sewage disposal plants to serve agglomerations. The amount of 129.017.231,70 € has been allocated for this project.

CALABRIA – all plants are provided with primary treatment of municipal sewage. Main plants are also provided with tertiary treatment of municipal sewage.

FRIULI – the regional law 40/90 provides the financing of three-year plans necessary to build, adjust and improve the sewer system of coastal agglomerations. Financings are given on the basis of specific requests by local authorities.

LIGURIA – the regional plan on water restoring “*Piano generale di risanamento*”, was approved in July 1982. The plan included the regional law L.R. 38/82 on management of public sewage discharge and of civil agglomerations which do not discharge into public sewage called “*Disciplina degli scarichi delle pubbliche fognature e degli insediamenti civili che non recapitano in pubblica fognatura*”. The plan was updated in July 1991 and the regional law L.R. 38/82 substituted by the regional law L.R. 43/95. The content of the plan represents the basis of the provisions set by the Regional plan for water safeguard adopted during 2004.

In these documents are individuated all the coastal outfalls, wastewater treatment plants and the map of pipelines. Moreover, in the documents the different typologies of the waste water treatment plants are illustrated and funds have been allocated since 1982 according to their planning priority.

The regional law L.R. 43/95 indicates the authorities responsible for the operation and maintenance of sewage treatment facilities.

PIEMONTE – Since 2000 the agreements “Accordi Programma Quadro” related to “Water safeguard and integrated water management” (“Tutela delle acque e gestione integrata delle risorse idriche”) have represented the main financial tool in order to ensure infrastructural adjustment and conformity of the regional waste water treatment plants to the dlgs 152/99. Up to now a total amount of 172.000.000,00 € have been

allocated for 6 “Accordi Programma Quadro” in line with the provisions set by dlgs 152/99.

BOLZANO – Almost every plant operates a tertiary treatment of sewage in observance of law limits for sensitive areas. The adjustment is in progress only for three plants.

EMILIA ROMAGNA – With D.Lgs. 152/99 coastal waters (within 10 km from the shoreline) of Northern Adriatic Sea were declared sensitive areas (as stated by Art.5 of Directive 91/271/CEE). These areas, in order to respect limits of Enclose I-Table 2 of Directive 91/271/CEE, must be supplied with secondary and tertiary stages of treatments for wastewaters. Moreover, with the DGR 633/04 the region adopted the plan for waters safeguard (*Piano di Tutela delle Acque-PTA*) according to Art.44 of D.Lgs. 152/99. The DGR 633/04 fixes as well terms for the achievement of the objectives of quality stated by D.Lgs. 152/99. All the regional territory is in the drainage basin of a sensitive area, therefore all urban centres with more than 10.000/20.000 EI must implement appropriate phosphor and nitrogen treatment systems by year 2008/2015 respectively.

LAZIO – The “*Piano Regionale di Tutela delle Acque*”, the regional plan for water safeguard, has been adopted with D.G.R. 676/04. The plan gives regulations on water quality parameters and limits.

VENETO – with the recent adoption of the regional safeguard plan “*Piano di Tutela Regionale*” according to Directive 271/91/CEE and to D.Lgs 152/99 the most of the coastal areas near Sile River’s outfall and Po River’s outfall have been designated as sensitive areas; as a result all liquid discharges from wastewater treatment plants with a potentiality of more than 10.000 equivalent inhabitants, located in these areas or in the drainage basins of these areas, must be compliant with the limits fixed by D.Lgs 152/99 for total nitrogen and total phosphorus. In order to respect the mentioned limits treatments plants must be supplied with the equipments required for tertiary stages of treatment.

Liquid discharged into the Venice Lagoon are subject to a special law, the “Ronchi-Costa” Decree 30/7/1999. The decree fixed limits lower than those fixed by D.Lgs 152/99 for sensitive areas.

MOLISE – all treatment plants operate primary and secondary treatment while the municipality of Campobasso operates even tertiary treatment. Plants treating industrial wastewaters carry out pre-treatment and tertiary treatment.

SARDEGNA – in the framework of the enforcement of regional plan for reclaiming of internal waters, the “*Piano Regionale di Risanamento*” stated by Law 319/76 the “*Legge Merli*”, the Council for Environmental Defence, according to Law 135/97,

started up an extraordinary plan for wastewater treatment in order to adequate urban liquid discharges to the European Directive 91/271/CEE. The targets will be achieved through financings supplied by the Italian Ministry for Environment and Territory, through the realization and completion of drains, treatment systems and discharges. 550M Euro have been allocated for the mentioned purposes and up till now 94M Euro have been financed.

According to L.R. 29/97 the whole territory of Sardegna has been individuated as a single ATO (ATO-Ambito Territoriale Ottimale: is the territorial area individuated in order to overcome the fragmentation of water resources management). As stated by Law 388/2000, enforcement of Art. 11 of Law 36/94 "*Legge Galli*", a programme of urgent actions in the frame of sewage/wastewater treatment system have been developed for the ATO, the "*Piano Stralcio*". The function of the "*Piano Stralcio*" is to describe infrastructures' functionality and consistency, provide a list of the existent programmes and projects, individuate critical aspects and give a list of priority actions to undertake in accordance with deadlines and site's typology. Through the programme of "*Piano Stralcio*" it was possible to obtain an estimation of a financial budget necessary for the most impellent interventions for a total amount of approximately 2.900 Billions of Lire. Moreover the preparation of the "*Piano Stralcio*" allowed to the regional government to redact the agreement "*Accordo di Programma Quadro-APQ*" between regional and national government on water resources, sewage and treatment systems. Through the agreement the regional administration could have at its disposal 175 millions of Euros for the council for the environment. The fund allowed the start up of the measure 1.1 "*Ciclo Integrato dell'Acqua*" on water management.

Afterwards, according to Law 36/94, it was implemented the territorial plan "*Piano d'Ambito*", instituted the territorial authority "*Autorità d'Ambito*" and individuated the director of the integrated water service "*Servizio Idrico Integrato*".

For the sector of sewage and wastewater treatment according to the mentioned "*Piano Stralcio*" financial resources required to achieve the compliance of the systems have been estimated of approximately 1.400 millions of Euros.

The targets of the department for environmental protection of the regional government are:

- Prevention and reduction of pollution and reclaiming of contaminated water bodies;
- Improvement and safeguard of waters' quality;
- Promotion of sustainable and reduced use of water resources

- Allow the maintenance of self-depurating properties of water bodies and biodiversity.

The mentioned targets are achieved through the fulfilment of the objectives for sewage and wastewater treatment provided by D.Lgs. 152/99.

Being the lack of water a priority the main goal of the regional administration is the safeguard of water resources. Reduction and reuse are therefore promoted. As a result an improvement of the sewage/treatment system would lead to a more efficient treatment, would lead to an improvement of water bodies' quality, would allow the reuse for irrigation and would protect coastal areas from polluted discharges. That is why many financial investments are done in this direction.

TOSCANA – all over the regional territory is in progress the process of implementation of the interventions on sewage/treatment system provided by the *Legge Galli* L.36/94. Managers of the *Agenzia d'Ambito* are responsible for the implementation of the activities. Other actions on these issues are foreseen to be pursued in the framework of the implementation of the agreement “*Accordo di Programma*” between regional government and Ministry for Environment. With the agreement public funds are allocated in order to encourage the realization of tertiary treatment and the reuse in agriculture and industry of treated wastewaters. According to the “*Piano di Tutela delle Acque*” the basin of Arno River was declared sensitive area, therefore the possible need of realizing a tertiary treatment for the treatment plants along the river is under evaluation.

TRENTO – the provincial water recovery plan PPRA (Deliberation of Provincial Council 12.07.87 n. 56/60) provides for treatment of wastewaters for all urban centers with more than 50 equivalent inhabitants. Most of the interventions have been completed. Primary treatments cover 9% of the population, secondary and tertiary treatments cover 84% of the population. Only 7% of the population is authorized to discharge autonomously.

VALLE D'AOSTA – all the 15 treatment plants are equipped for the secondary stage of treatment. The two biggest plants serving the areas of Aosta and Arnad are provided with tertiary treatment. Moreover all new plants which regional administration are foreseen to realize will be provided with tertiary treatment.

#### **4. The satisfactory operation and maintenance of sewage treatment facilities;**

ABRUZZO – the region has developed the Regional plan for water safeguard (DGR 103/04) according to the Italian law on water framework, the legislative decree 152/99.



For the reuse of treated effluents for the conservation of water resources, accompanied by infrastructural measures, treatment at source and the segregation of industrial effluents. Regional government has also developed a study for the environmentally sound location of treatment plants.

BASILICATA – even if the system maintenance of sewage treatment facilities has not been activated yet, interventions for its creation have been planned through the Regional Law 63/96 and 36/94.

UMBRIA – the regional agency monitored, in the last years, the efficacy and efficiency of the main sewage treatment plants on the regional territory.

CAMPANIA – these activities are carried out with the financing project PS3 of the government's commissary.

CALABRIA – many water pipes are provided with remote control television switch (“Telecontrollo”).

FRIULI – according to Legislative Decree 152/99, administrators of the plants ensure the controls on the functioning and maintenance of the plants. Controls on discharges are performed by the regional agency for environmental protection.

PIEMONTE – the managers of wastewater treatment plants have to respect emission limits set by the national legislation. Controls on plants functionality are made by the provincial administrative government with the technical supervision of the regional agency for environmental protection. The provisions of the Regional plan for water safeguard, after the adoption by the Regional Administrative Government, will represent another basic instrument for the maintenance of treatment plants. The provisions of the plan include “general provisions” setting general rules and “area provisions” which assign legal value to the measures provided by local authorities.

EMILIA ROMAGNA – Through the regional law L.R. 25/99 (enforcement of L.36/94) the management of sewers system and treatment plants has been reassessed. The integrated management has been achieved by means of the introduction of an integrated water system-aqueduct/sewer/wastewater treatment (*servizio idrico integrato*) and through the institution of the *Agenzia d'ambito*, the territorial agency which allows cooperation of local administrations.

LAZIO – The satisfactory operation and maintenance of sewage treatment facilities is pursued according to criteria provided by national D.Lgs. 152/99. With D.G.R. 495/04 the regional administrations made a census of all the treatment plants in order to plan actions for the adjustment to legal regulations.

VENETO – The satisfactory operation and maintenance of sewage treatment facilities is guaranteed by ARPA Veneto, the regional agency for environmental protection. According to regulation in force the agency is responsible for the execution of the controls on the efficiency of the plants. Moreover, Article 26 of the regulations of the waters safeguard plan “*Piano di Tutela delle Acque*”, adopted with the DGR 29/12/2005, states that all plants with a potentiality >10.000 equivalent inhabitants must be provided with an auto-sampler device.

MOLISE – The satisfactory operation and maintenance of sewage treatment facilities is guaranteed by the regional agency for environmental protection by means of periodic controls on effluents’ quality and treatment plants’ operative conditions all over the regional territory.

SARDEGNA – The satisfactory operation and maintenance of sewage treatment facilities is guaranteed by the local office for prevention and by the regional agency for environmental protection ARPA.

TOSCANA – all over the regional territory is ongoing the process of implementation of the interventions on sewage/treatment system provided by the *Legge Galli L.36/94*. Managers of the *Agenzia d’Ambito* are responsible for the implementation of the activities. Other actions on these issues are foreseen to be pursued in the framework of the implementation of the agreement “*Accordo di Programma*” between regional government and Ministry for Environment.

Some programmes have been activated for the promotion of campaigns for control on discharges and drawing up of self-control agreements between the regional agencies for environmental protection and managers of the plants.

TRENTO – operative controls on secondary treatments are regularly undertaken by the managers of the plants, while spot-checks are made on primary treatments by the regional agency for environmental protection (APPA).

VALLE D’AOSTA – all treatment plants operative on the regional territory are provided with an automatic system of control of operation and maintenance.

**5. The reuse of treated effluents for the conservation of water resources, accompanied by infrastructural measures, treatment at source and the segregation of industrial effluents, where required.**

ABRUZZO – the region has developed the Regional plan for water safeguard (DGR 103/04) according to the Italian law on water framework, the legislative decree 152/99. For the reuse of treated effluents for the conservation of water resources, accompanied

by infrastructural measures, treatment at source and the segregation of industrial effluents. Regional government has also developed a study for the environmentally sound location of treatment plants.

**BASILICATA** – According to the Italian law 135/97, taken in through the DGR n° 5095 of 25 September 1997, the regional government is concluding the realization of a wastewater treatment plant located in the municipality of Potenza. Treated effluents from this plant will be reused for industrial purpose.

**UMBRIA** – the Accordo Programma Quadro called “Water safeguard and integrated water management” (“Tutela delle acque e gestione integrata delle risorse idriche”) individuated 7 sewage treatment plants whose treated effluents can be reused in the agricultural and industrial sectors. Moreover financial resources necessary to accomplish the adjustment of the plants as stated in the D.M. 185/03 have been individuated.

**CAMPANIA** – activities related to water reuse are carried out with the financing project PS3 by government’s commissary.

**PUGLIA** - the Accordo Programma Quadro called “Water safeguard and integrated water management All.D” (“Tutela delle acque e gestione integrata delle risorse idriche All.D”) defines the priority actions to reuse the treated effluents for the conservation of water resources. The amount of 47.000.000 € has been allocated for this project. Moreover, the regional program entitled “Straordinary plan of the actions for the reuse of treated effluents” (“Programma Straordinario degli interventi per il riutilizzo delle acque reflue depurate”) individuated 39 reuse actions for a total amount of 88 tons/year.

**FRIULI** – the agreement (June 2003) on water reuse provides for the following actions:

- Aqueduct to serve the industrial area of Aussa-Corna, in the province of Udine, with reuse of treated effluents from the wastewater treatment plant of San Giorgio di Nogaro.
- Extension of the aqueduct to serve the industrial area of Trieste for the partial reuse for industrial processes of the treated effluent from the waste water treatment plant of Zaule (Trieste).

**LIGURIA** – some treatments to allow the reuse of treated effluents in agriculture are under planning in the area called Cinque Terre. In the documents mentioned above other similar actions are foreseen and the regional administration are looking for the finances necessary to their planning.

**PIEMONTE** – After the adoption of the regional plan for water safeguard being adopted the regional administrative government will implement the provision provided by the plan which will represent the main instrument for the issue of water reuse. The plan

provisions, as illustrated above, include “general provisions” which set general rules and “area provisions” which assign law effectiveness to the measures provided by the monograph of the area. The reuse of treated effluents is set by the article 42 of the above provisions. This measure will be actuated through the “Area plans” (“Piani d’Ambito”) of the Water Integrated System (“Servizio Idrico Integrato”) according to the Italian law 36/94 well known as “Legge Galli”. In the framework of the “Area plans”, each area authority has to evaluate the possibility to build and carry out new plants for the reuse of treated effluents and the possibility to include these operations inside the own “Area plans”. Up to now 3 plants have activated the reuse of urban treated waste water.

**BOLZANO** – The promotion of wastewater reuse is planned only for plants sited on areas where a lack of water resources occurs. The plant of “Monticolo” in the municipality of Appiano (1.250 equivalent inhabitants) was supplied with a reuse system, while works are going to be ended for the phyto-depuration plant of “Verano” (1.000 equivalent inhabitants).

**EMILIA ROMAGNA** –prescription on treated wastewater reuse are given by the plan for waters safeguard (*Piano di Tutela delle Acque*) adopted by regional administration with the DGR 633/04, while quality parameters are given by decree 185/2003. Some plants were individuated as priority and these plants must reach 50% of reusable waters by 2016. In order to improve coastal water’s quality financial support have been given by the regional administration to four coastal treatment plants to implement techniques for water reuse. With the plan for waters safeguard it was introduced a reuse plan, the *Piano di riutilizzo*. Reuse plan are elaborated by the area agencies “Agenzie d’ambito” together with plants’ administrators, local administrations and with stakeholders interested to the reuse. The reuse plan is comprehensive of the recovery plant, of the distribution system and of the monitoring and control devices. The plan establishes characteristics and quality of reusable waters according to their final use. Limits are those set by D. 185/2003.

Water resources’ safeguard activities are applied according to Art. 23, paragraph 3, D.Lgs. 152/99.

**LAZIO** – The reuse of treated effluents for the conservation of water resources is promoted mainly for agricultural purposes. Article 19 of implementation norms of the “*Piano Regionale di Tutela delle Acque*” provides for the studying of techniques for the reuse of treated wastewaters from the city of Rome for agricultural and industrial purpose.

VENETO – at the moment only the treatment plant of Rosolina is equipped for the reuse of treated effluents for agricultural irrigation. The project “*PIF - Progetto Integrato Fusina*” has been undertaken, at the end of the project the most of the waste waters treated by the plant of Fusina will be reused for industrial purposes. Moreover the plan for waters safeguard adopted by the regional administration provides for actions aimed to the implementation of the reuse according to provisions of DM 185/2003.

SARDEGNA – the regional government enacted regional law L.R. 14/00 implementation of the mentioned D.Lgs. 152/99. Article 3, Paragraph 5 of the L.R. 14/00 established regulations for treated wastewater reuse for irrigation, domestic or industrial production purposes. Moreover, according to D.M. 185/03, the regional department for environmental protection is preparing the regional plan for water reuse “*Piano per il Riutilizzo delle Acque Reflue*”. In the framework of the preparation of the plan the department is carrying out a control on treatment plants to determine those suitable for treated wastewater reuse. Through these controls it will be possible to set up the list of interventions on treatment plants to be carried out in the framework of the implementation of the waters’ safeguard plan “*Piano Regionale di Tutela delle Acque*” in order to achieve the quality standards required.

The legal framework on water resources management of the region is completed by the following provisions:

- “*Piano regionale di risanamento delle acque-P.R.R.A.*”: the regional plan for water reclaiming.
- “*Piano straordinario di completamento e realizzazione dei sistemi di collettamento e depurazione delle acque reflue-P.S.D., Art. 6, L. 135/97*”: the extraordinary plan for the realization of collection and treatment systems of wastewaters.
- “*Programma di interventi urgenti*”: the programme for priority actions, draft of the plan provided by Article 11, Paragraph 3 of Law 36/94.
- “*Piano d’ambito*”: through this plan it was possible to individuate objectives and criteria of actions on hydraulic infrastructures to be performed in order to achieve the quality standard required by European provisions and directives for water reuse.

The reuse of treated wastewaters is promoted in order to save water resources and face the demand of water from the sector of agriculture. This policy allows the environmentally sound management of water resources and their sustainable exploitation. On the other hand the indirect effect of the reuse is the reduced pressure of

contamination on the receiving water body, while the increasing of the irrigated surface gives a valid input to the fight against desertification, one of the problems of major concern for the regional environment.

The “*Piano per il Riutilizzo delle Acque Reflue*” will provide measure for the steps of water’s reuse process as:

- wastewaters’ treatment;
- treated wastewaters’ refining;
- storage of refined wastewaters;
- connection of refined wastewaters’ stores with the distribution network.

The appliance of the mentioned measures will involve many stakeholders as plants’ managers and local authorities.

In the appendix it is reported a table with a list of the treatment plants of the region, their potentiality and the related level of treatment achieved (traditional treatment and refining for reuse).

TOSCANA – it has been drawn up the agreement “*Accordo di Programma*” between regional government and Ministry for Environment for the promotion of treated wastewaters reuse in agriculture and industry. With the agreement public funds are allocated in order to improve treatment plants and realize pipes for the distribution and reuse of treated waters. Other agreements are foreseen to be drawn up.

TRENTO – provincial government is arranging the plan for water reuse.

VALLE D’AOSTA – the treatment plant serving the area of Aosta City is provided with a further treatment aimed to the reuse of treated waters in agriculture.

## **6. The appropriate design of treatment plants and controls of the quality of effluent wastewaters in accordance with national regulations, for the beneficial reuses of sewage effluents and sludge.**

ABRUZZO – the region has developed the Regional plan for water safeguard (DGR 103/04) according to the Italian law on water framework, the legislative decree 152/99. For the reuse of treated effluents for the conservation of water resources, accompanied by infrastructural measures, treatment at source and the segregation of industrial effluents. Regional government has also developed a study for the environmentally sound location of treatment plants.

BASILICATA – all the effluents from the plants are controlled according to the D.lgs 152/99 and to the regional law 3/94. All plants are equipped for the treatment of combined industrial and urban wastewater and all treatment plants are provided with a

drying tank for sludge. The prohibition of sludge discharge into water is regulated by the regional law 3/94.

UMBRIA – apposite agreements will be activated with the authority in charge to make the controls.

CALABRIA – controls are made by the regional agency called “ARPA-Cal”.

FRIULI – characteristic of treatment plants are in line with those provided by the Ministerial Decree 185/2003. All over the regional territory, the amount of the sludge reused in the agricultural sector is of about 3.860 tons on a cultivated area of 1.169 ht. The analyses on sludge are made according to the Dlgs 99/92.

LIGURIA – up to date the reuse of sewage sludge is not under planning.

PIEMONTE - The provisions of the Regional plan for water safeguard after being adopted by the Regional Administrative Government, will represent the main basic tool regarding this topic. The plan provisions, as illustrated above, include “general provisions” which set the rules and the general plan contexts and “area provisions” which assign law effectiveness to the measures provided by the monograph of the area. The reuse of treated effluents is set by the article 42 of the above provisions. This measure will be actuated through the “Area plans” (“Piani d’Ambito”)of the Water Integrated System (“Servizio Idrico Integrato”) according to the Italian law 36/94 well known as “Legge Galli”. In the framework of the “Area plans”, each Area authority has to evaluate the possibility to build and carry out new plants for the reuse of treated effluents and the possibility to include these operations inside the own “Area plans”. Up to now 3 plants have activated the reuse of urban treated waste water.

EMILIA ROMAGNA - Provincial administration, with the technical and operative support of the regional agency for environmental protection (ARPA Emilia Romagna) and under supervision of the administrator of the integrated water system, controls the compliance of pollutants’ concentrations with law limits. With D.G.R. 1299/01 Emilia Romagna region defined criteria for the control activities on wastewater treatment, according to limit emission values (VLE) of Tables 1/2 - Enclose I – Directive 91/271/CEE. A protocol of agreement between ARPA and the administrator of the integrated water system was instituted in order to pursue the control activity involving actively plants’ administrators, to standardize monitoring procedures and programmes and to implement information on regional wastewater treatment system.

LAZIO - The appropriate design of treatment plants and controls of the quality of effluent wastewaters for agricultural and industrial reuse is done in accordance with the D.M. (IMET) 185/03.

VENETO – all new projects that provide for the reuse of the runoff are updated according to legal provisions in force.

SARDEGNA – in the framework of the enforcement of regional plan for reclaiming of internal waters, the “*Piano Regionale di Risanamento*” stated by Law 319/76 the “*Legge Merli*”, the Council for Environmental Defence, according to Law 135/97, started up an extraordinary plan for wastewater treatment in order to adequate urban liquid discharges to the European Directive 91/271/CEE. The targets will be achieved through financings supplied by the Italian Ministry for Environment and Territory, through the realization and completion of drainage, treatment systems and discharges. 550 millions Euros have been allocated for the mentioned purposes and up till now 94 millions Euros have been financed.

According to L.R. 29/97 the whole territory of Sardegna have been individuated as a single ATO (ATO-Ambito Territoriale Ottimale: is the territorial area individuated in order to overcome the fragmentation of water resources management). As stated by Law 388/2000, enforcement of Art. 11 of Law 36/94 “*Legge Galli*”, a programme of urgent actions in the frame of sewage/wastewater treatment system have been developed for the ATO, the “*Piano Stralcio*”. The function of the “*Piano Stralcio*” is to describe infrastructures’ functionality and consistency, provide a list of the existent programmes and projects, individuate critical aspects and give a list of priority actions to undertake in accordance with deadlines and site’s typology. Through the programme of “*Piano Stralcio*” it was possible to obtain an estimation of a financial budget necessary for the most impellent interventions for a total amount of approximately 2.900 Billions of Lire. Moreover the preparation of the “*Piano Stralcio*” allowed to the regional government to redact the agreement “*Accordo di Programma Quadro-APQ*” between regional and national government on water resources, sewage and treatment systems. Through the agreement the regional administration could have at its disposal 175 millions of Euros for the council for the environment. The fund allowed the start up of the measure 1.1 “*Ciclo Integrato dell’Acqua*” on water management.

Afterwards, according to Law 36/94, it was implemented the territorial plan “*Piano d’Ambito*”, instituted the territorial authority “*Autorità d’Ambito*” and individuated the director of the integrated water service “*Servizio Idrico Integrato*”.

For the sector of sewage and wastewater treatment according to the mentioned “*Piano Stralcio*” financial resources required to achieve the compliance of the systems have been estimated of approximately 1.400 millions of Euros.



The targets of the department for environmental protection of the regional government are:

- Prevention and reduction of pollution and reclaiming of contaminated water bodies;
- Improvement and safeguard of waters' quality;
- Promotion of sustainable and reduced use of water resources
- Allow the maintenance of self-depurating properties of water bodies and biodiversity.

The mentioned targets are achieved through the fulfilment of the objectives for sewage and wastewater treatment provided by D.Lgs. 152/99.

Being the lack of water a priority the main goal of the regional administration is the safeguard of water resources. Reduction and reuse are therefore promoted. As a result an improvement of the sewage/treatment system would lead to a more efficient treatment, would lead to an improvement of water bodies' quality, would allow the reuse for irrigation and would protect coastal areas from polluted discharges. That is why many financial investments are done in this direction.

Moreover the regional government enacted regional law L.R. 14/00 implementation of the mentioned D.Lgs. 152/99. Article 3, paragraph 5 of the L.R. 14/00 established regulation on treated wastewater reuse for irrigation, domestic or industrial production purposes. Moreover, according to D.M. 185/03, the regional department for environmental protection is preparing the regional plan for water reuse "*Piano per il Riutilizzo delle Acque Reflue*". In the framework of the preparation of the plan the department is carrying out a control on treatment plants to determine those suitable for treated wastewater reuse. Through these controls it will be possible to set up the list interventions on treatment plants to be carried out in the framework of the implementation of the waters' safeguard plan "*Piano Regionale di Tutela delle Acque*" in order to achieve the quality standards required.

The legal framework on water resources management of the region is completed by the following provisions:

- "*Piano regionale di risanamento delle acque-P.R.R.A.*": the regional plan for water reclaiming.
- "*Piano straordinario di completamento e realizzazione dei sistemi di collettamento e depurazione delle acque reflue-P.S.D., Art. 6, L. 135/97*": the extraordinary plan for the realization of collection and treatment systems wastewaters.

- “*Programma di interventi urgenti*”: the programme for priority actions, draft of the plan provided by Article 11, Paragraph 3 of Law 36/94.
- “*Piano d’ambito*”: through this plan it was possible to individuate objectives and criteria of actions on hydraulic infrastructures to be performed in order to achieve the quality standard required by European provisions and directives for water reuse.

The reuse of treated wastewaters is promoted in order to save water resources and face the demand of water from the sector of agriculture. This policy allows the environmentally sound management of water resources and the sustainable exploitation. On the other hand the indirect effect of the reuse is the reduced pressure of contamination on the receiving water body, while the increasing of the irrigated surface gives a valid input to the fight against desertification, one of the problems of major concern for the regional environment.

The “*Piano per il Riutilizzo delle Acque Reflue*” will provide measure for the steps of water’s reuse process as:

- wastewaters’ treatment;
- treated wastewaters’ refining;
- storage of refined wastewaters;
- connection of refined wastewaters’ stores with the distribution network.

The appliance of the mentioned measures will involve many stakeholders as plants’ managers and local authorities.

In the attached appendix it is reported a table with a list of the treatment plants of the region, their potentiality and the related level of treatment achieved (traditional treatment and refining for reuse).

TOSCANA – According to D.Lgs. 185/02 the regional government activated monitoring programmes for treated wastewaters intended to be reused in agriculture.

TRENTO – as mentioned above quality controls of effluent wastewaters are regularly carried out and sludge is good enough for the reuse in agriculture.

VALLE D’AOSTA – reuse of sludge is forbidden in this region and systematic controls are carried out on treated wastewater, especially if addressed to reuse.

## **7. The environmentally sound treatment of combined domestic and compatible industrial effluents.**

BASILICATA – all the plants effluents are checked according to the D.lgs 152/99 and the regional law 3/94. For unseparate sewage, industrial and urban together, all systems

are advanced. Referring to point 9, all sewage treatment plants are provided with a drying sludge tank and the prohibition of sludge discharge into water in the Protocol Area is regulated by the regional law 3/94.

UMBRIA – the Regional plan for water safeguard provides disciplinary measures for sewage containing hazardous substances.

FRIULI - The urban and industrial treatment plant of San Giorgio di Nogaro, which serves about 698000 equivalent inhabitants, is a secondary treatment plant. In the extension plan of the Tolmezzo treatment plant is stated that the plant will treat both urban and industrial waste water and the main amount will be from paper plants.

LIGURIA - up to date the environmentally sound treatment of combined domestic and compatible industrial effluents is not under planning.

PIEMONTE - the discharge of industrial waste water into the public sewer system has to be authorized by the public sewer system manager. The scope of the authorization is to fix a industrial waste water pre-treatment according to the relative treatment capacity of the public sewer plant. The manager of the industrial waste water pre-treatment is responsible to respect the quality limits fixed for the receiving water body.

EMILIA ROMAGNA - Referring to environmentally sound treatment of combined domestic and compatible industrial effluents the treatment of wastewaters from industrial plants in urban wastewaters treatment plants is forbidden according to D.Lgs. 152/99 and to DGR 1053/2003. Whether compatible, under a specific authorization (Enclose 5, Table 3, D.Lgs. 152/99) and after a proper pre-treatment industrial wastewaters can be discharged in the urban sewer.

LAZIO - The environmentally sound treatment of combined domestic and compatible industrial effluents is achieved by means of specific regulations.

VENETO – in the regional territory plants treating combined domestic and industrial sewage do not exist. Every plant is projected according to the characteristics of the sewage to be treated. Some plants are equipped with a pilot plant for the check of the quality of the wastewater entering the plant and the calibration of the processes.

MOLISE – plants treating combined domestic and compatible industrial effluents guarantee the environmentally sound treatment through pre-treatment and tertiary treatment of the sewage.

SARDEGNA – According to the regional law L.R. 14/00, carrying out of D.Lgs. 152/99, the role of controlling the environmentally sound treatment of combined domestic and industrial effluents is assigned to municipal governments.

TOSCANA – in case of treatment of combined domestic and industrial effluents the treatment is supercharged and, according to D. Lgs. 367/03, special agreements have been drawn up in order to allocate funds addressed at the realization of sections of the treatment plant for the decontamination from hazardous substances. It must be underlined that concerning this issue the region of Toscana anticipates the deadlines provided by the decree.

TRENTO – wastewaters are pretreated at the head of the plant for special sewage compatible with the treatment process.

### **8. The separate collection of rain water and municipal wastewater and treatment of the first rain water considered particularly polluting**

BASILICATA – all the plants effluents are checked according to the D.lgs 152/99 and the regional law 3/94. For unseparate sewage, industrial and urban together, all systems are advanced. Referring to point 9, all sewage treatment plants are provided with a drying sludge tank and the prohibition of sludge discharge into water in the Protocol Area is regulated by the regional law 3/94.

PUGLIA - the Accordo Programma Quadro called “Water safeguard and integrated water management All.B sezione c” (“Tutela delle acque e gestione integrata delle risorse idriche All.B sezione c”) deals with this topic and the amount of 44.590.000 € has been granted for this project.

CALABRIA – many municipalities have already supplied with a separate collection of rain water and municipal waste water. Particularly, the coastal agglomerations created rain water tanks.

FRIULI – the regional plan included in the “General plan on water restoring” (“Piano generale di risanamento”), provides a separate sewage system of rain water and municipal wastewater. Up to now, in the increasing urban area, are foreseen a separate sewage system of rain water and municipal wastewater, while in the industrial area are foreseen treatments for the rain water according to the different industrial sector.

LIGURIA - the regional legislation foresees that waste water treatment plants are planned to treat the rain water, while the separate collection of rain water and municipal wastewater is allowed in especial cases. The University of Genova is planning a study to characterize the stormwater runoff of some industrial agglomerations. The results of this study will be used to discipline the rain water treatment on a regional level.

PIEMONTE - the provisions of the Regional plan for water safeguard, after being adopted by the Regional Administrative Government, will represent the main basic tool

regarding this topic. The plan provisions, as illustrated above, include “general provisions” which set the rules and the general plan contexts and “area provisions” which assign law effectiveness to the measures provided by the monograph of the area. This issue is set by the article 32 of the above provisions and the deadlines are in line with the law by decree 152/99.

The “Area plans” according to the above mentioned national law n. 36/94, must be integrated with the necessary operations related to the separate treatment of rain water.

**BOLZANO** - The 70% of sewage system is of separate type and there is no separate collection of first-rain waters, while rain waters coming from potentially polluted areas (i.e. oil stations) are separately treated with sedimentation plus deoiling. The elaboration of a new legal framework for rain-waters is in progress according to Art. 46 of L.P. 8/02.

**EMILIA ROMAGNA** - The most of the sewer system of Emilia Romagna is of single type. In the framework of the *Piano di Tutela delle Acque* are foreseen activities of management and treatment of first rain waters. D.R. 286/2005 defines criteria for operative procedures in order to equip treatment plants serving urban centres with more 20.000 EI with devices able to reduce contaminants’ load of 25% by 2008 and of 50% by 2016.

**LAZIO** - The realization of a separate system for the collection of first rain water was necessary only for few municipalities.

**VENETO** – according to “*Piano di Tutela delle Acque*” adopted by the regional government the most of the sewage system will be of separate typology. The plan provides as well for the separate treatment of polluted first rain water.

**SARDEGNA** – only few plants in the regional territory operate separate collection of rain water and municipal wastewater. These plants treat first rain water separately.

**TOSCANA** – the most of the sewage system of the region is of mixed type with the exception of some areas, especially coastal ones, where it can be found a separate system for first rain waters. In new urban centres are projected only sewage systems of separate type.

**TRENTO** – article 13 of the provincial water recovery plan “*PPRA*” provides for separate sewage system of urban wastewaters and rain waters. It issued the separate sewage system of first rain waters only for big urban centres.

**VALLE D’AOSTA** – only occasionally are realized separate sewage systems. Referring to first rain water regional legal framework provides for the separate treatment only for areas where particularly polluting activities are carried out (i.e. petrol stations).

**9. The environmentally sound disposal and/or use (composting, landfilling etc.) of sewage sludge.**

BASILICATA – all the plants effluents are checked according to the D.lgs 152/99 and the regional law 3/94. For unseparate sewage, industrial and urban together, all systems are advanced. Referring to point 9, all sewage treatment plants are provided with a drying sludge tank and the prohibition of sludge discharge into water in the Protocol Area is regulated by the regional law 3/94.

UMBRIA – presently in the region are in force provisional technical directives which deal with this topic. The new technical directives on sludge management have been almost completed and will come into force before December 31<sup>st</sup>, 2005

FRIULI - the agricultural use of sludge is regulated by the Italian decree 99/92. All over the regional territory, the amount of the sludge reuse in the agricultural sector is about of 3.860 tons on an agricultural area of 1.169 ht.

PIEMONTE - the law the sewage sludge are is set by the law by decree n.22/1997, the agricultural use by the law by decree n 99/1992 and the compost production by the law 748/1984.

BOLZANO - Due to intensive cultivation of fruit trees and to the high presence of livestock producing an elevated amount of sewage treatment of sludge is only permitted out of the province of Bolzano and then reused for agriculture. A thermal incinerator plant for sludge is already operating and a second one is foreseen. Discharge of sludge in surficial waters is forbidden according to Art. 43 of L.P. 8 /02.

EMILIA ROMAGNA - According to D.Lgs. 22/97 sludge from wastewaters treatment plants are considered hazardous wastes. D.Lgs.99/92, enforcement of Directive 86/278/CEE, concerns environment and soil protection form reuse of sludge in agriculture. In Emilia Romagna region the 53% of the sludge are reused in agriculture and the 21% is dumped. In biennium 2002-2003 was used respectively an amount of 56.000 tons and of 66.000 tons. With regional directive D.R. 2773/2004 new dispositions were given for this issue.

LAZIO – some companies are authorized to the reuse sludge in agriculture.

VENETO – the environmentally sound use of sewage sludge is pursued through the reuse of the 50% of produced sludge for agricultural uses.

MOLISE – sewage sludge produced by the plant CONIV in the municipality of Montenero di Bisaccia are reused in agriculture under the Decree 99/1992.

SARDEGNA – It can be said that the regional government operates the environmentally sound disposal and/or use of sewage sludge.

TOSCANA – all over the regional territory is ongoing the process of implementation of the interventions on sewage/treatment system provided by the *Legge Galli* L.36/94. Managers of the *Agenzia d'Ambito* are responsible for the implementation of the activities and sludge are reused in agriculture according to legal framework in force.

TRENTO – all sludges produced by wastewater treatment plants are composted and prepared for the reuse.

VALLE D'AOSTA – in the region the reuse of sludge is prohibited.

#### **10. The prohibition of sludge discharge into water in the Protocol Area.**

UMBRIA – actually in the region the sewage sludge can be reused in the agricultural sector or can be disposed. The new technical directives on sludge use in agriculture have been almost completed and they must be adopted before December 31<sup>st</sup>, 2005.

FRIULI – Discharge of sludge in internal and marine waters is forbidden according to D.Lgs. 152/99.

LIGURIA – this topic is regulated by the national provisions set by D.Lgs. 152/99.

PIEMONTE – the prohibition of sludge discharge into water in the Protocol Area is set by Article 48 of the D.Lgs. 152/99.

BOLZANO - The most of the industrial sewage comes from food processing industry. Urban treatment plants treat both industrial and urban wastewaters. Sludge follows therefore the same course.

EMILIA ROMAGNA - Discharge of sludge in internal and marine waters is forbidden according to D.Lgs. 152/99.

LAZIO - The prohibition of sludge discharge into water is ratified by D.Lgs. 152/99.

VENETO - the prohibition of sludge discharge into water is provided by the regional and national laws in force.

SARDEGNA – there are no regional laws on sludge discharge into water because this issue is dealt with by the Article 48 of the Legislative Decree 152/99.

TRENTO – The prohibition of sludge discharge into water is ratified by D.Lgs. 152/99.

VALLE D'AOSTA – The prohibition of sludge discharge into water is ratified by D.Lgs. 152/99.

## **2. THE DEVELOPMENT OF NATIONAL PROGRAMS FOR THE REDUCTION AT SOURCE AND ENVIRONMENTALLY SOUND MANAGEMENT OF URBAN SOLID WASTE IN COASTAL AREA.**

National programs for the reduction at source and environmentally sound management of urban solid waste are expected to take into account the following targets specified in the SAP.

**1. The establishment, by 2005, of environmentally sound and economically feasible systems of collection and disposal of urban solid waste in coastal cities and urban agglomerations of more than 100.000 inhabitants**

BASILICATA- the realization of an integrated system of waste management in the municipality of Lauria has been approved through the DGR 1737/2003, DGR 3167/2004 and OPGR 5/2005. In order to carry out the operation, the preliminary project had to be approved and financing was granted.

MARCHE - the whole regional territory is provided with systems of collection and disposal of urban solid wastes, carry out by single and joined municipalities or by the regional companies. The services are carried out according to the regional and provincial planning which deal with this topic and compatibly with the economic and environmental aspects.

UMBRIA – in the region a thermal incinerator is present to recycle the energy. Moreover it has been planned a plant to produce fuel from urban solid waste.

Composting plants are also present in the regional territory from organic fraction of urban solid waste.

The regional administrative government has approved sectoral plans on waste management according to environmental sustainability.

CAMPANIA – the regional administrative government has determined just one system for waste treatment and disposal according to environmental sustainability.

This system foresees the increasing of separate collection for all recyclable waste fractions and the production of fuel from unseparate waste fractions (CDR). CDR Plants produce fuel, organic fraction and waste. According to European legislation, all the organic fraction is treated before its disposal.

FRIULI – Trieste is the only coastal agglomerations of more than 100,000 inhabitants. Waste management is carried out by ACEGAS-APS company which owns an incinerator with a potentiality of about 612 t/d. This plant was activated at the beginning of 2000 and now it disposes off all the wastes of Trieste's province for an amount of recovered energy of about 80 GWh.

Waste provincial collecting is supplied by the same company for a total recovered amount of 15%.



LIGURIA – the regional waste plan approved in the 2000 and the following four provincial plans, foresee a management, regarding municipal waste collecting and disposal, which completely absolves the needs of the whole regional territory

PIEMONTE – an economically feasible system of collection and disposal of urban solid waste in coastal cities and urban agglomerations of more than 10.000 inhabitants is present.

BOLZANO - According to L.P. 61/73 urban centres with more than 10.000 inhabitants operate a separate collection of urban solid wastes.

LAZIO - The establishment of environmentally sound and economically feasible systems of collection and disposal of urban solid waste have been activated, amongst others, in coastal cities and urban agglomerations of more than 100,000 inhabitants through the resources allocated with “*DOCUP Ob. 2 Lazio 2000-2006*” and with the agreement on remediation of contaminated sites and wastes management “*APQ8 – Bonifica dei siti inquinati e gestione dei rifiuti*” between IMET and Italian Ministry of Finances. Amongst other initiatives, in 2003 the regional administrative government made an announcement for a project of a system for collection and treatment of wastes with a financing of 26.060.069,00 euros.

VENETO – provincial plans for wastes disposal provided for systems of collection and disposal of urban solid waste in coastal cities and urban agglomerations of more than 10.000 inhabitants.

MOLISE – all urban centers of the region, including coastal cities and urban agglomerations of more than 10.000 inhabitants, activated according to regional and municipal plans for wastes management a system of collection and disposal of wastes in order to achieve the targets established by D. Lgs. n. 22/97.

SARDEGNA – the system of waste management is ruled by the regional plan for urban solid wastes endorsed by D.G.R. 57-2/98. The deliberation was transmitted to European Community in October 2000 and declared in conformity with European Directives. Afterwards EC gave authorization to the regional authority to use the resources financed by Por 2000-2006 for the realization of the plants provided by the plan. The system consists in the organization of all urban centres of the region in territorial areas, the organization of a collection network, the realization of centralized plants for the treatment or the energetic valorisation of the wastes and the disposal of the residual fraction. The system is not yet fully operative and not all the targets have been achieved, but all urban centres of the region, included coastal ones, activated a system of collection and disposal in accordance with the existent legal framework.

TOSCANA – according to the national decree D. Lgs. 22/97 and to the regional law L.R. 25/98 the regional government endorsed the regional plan for wastes' management. The following documents being comprehended in the document:

- 1° draft on urban wastes (Del. C.R. 7 aprile 1998, n. 88);
- 2° draft on special wastes, comprehensive of hazardous wastes (Del. C.R. 21 dicembre 1999, n. 385)
- 3° draft on remediation of contaminated sites (Del. C.R. 21 dicembre 1999, n. 384)

The regional provinces endorsed the provincial plans for wastes management as stated by L.R. 25/98 and by the regional plan for wastes' management. More specifically: all plans on urban wastes have been endorsed, while up to now the provinces of Livorno, Pistoia; Firenze e Pisa adopted but not yet endorsed the plans for special wastes.

The regional plan provides general criteria and targets to be achieved, while the provincial plan provides more detailed and specific measures on the integrated system for separate collection, on treatment plants, on the environmentally sound location of the plants, etc..

L.R. 25/98 provides for a third level of planning, besides regional and provincial ones: the industrial plans. Industrial plans are duty of the *Comunità d'Ambito* of the *Ambiti Territoriali Ottimali-ATO* (see page 23 on Law 18/05/1989 no. 183, the “*Legge Galli*” for details on *ATO*). Up to now all the *Comunità d'Ambito* have been created while the industrial plan have been endorsed by the provinces of Siena, Firenze, Pisa and Grosseto.

The coastal *ATOs* are distributed as follows:

- ATO 1 – 3 municipalities of the province of Massa Carrara;
- ATO 2 – 4 municipalities of the province of Lucca;
- ATO 3 – 3 municipalities of the province of Pisa;
- ATO 4 – 16 municipalities of the province of Livorno;
- ATO 9 – 9 municipalities of the province of Grosseto;

Recently the regional council approved three important integrations to the regional plan:

- “*Programma di decontaminazione e smaltimento degli apparecchi e dei PCB in essi contenuti ai sensi del Decreto legislativo 209/1999*” (Del. C.R. 20 Luglio 2004, n. 86) – program for the decontamination and disposal of devices containing PCB, integration of the regional plan on urban wastes (Del. C.R. 7

- aprile 1998, n. 88) and of the regional plan on special and hazardous wastes (Del. C.R. 21 dicembre 1999, n. 385).
- *“Programma regionale per la riduzione dei rifiuti urbani biodegradabili da collocare in discarica in attuazione dell’art. 5 del D.Lgs. 13 gennaio 2003, n. 36”* – program to reduce the production of biodegradable urban wastes directed to disposals enforcement of Directive 1999/31/CE (Del. C.R. 23 Novembre 2004, n. 151), integration of the regional plan for urban wastes management (Del. C.R. 88/1998).
  - *“Piano regionale per la gestione degli imballaggi e dei rifiuti di imballaggio”* (Del. C.R. 21 Dicembre 2004, n. 167) – plan for the management of packaging wastes, integration of the regional plan for the management of urban wastes (Del. C.R. 7 aprile 1998, n. 88).

According to L.R. 25/98 provincial governments have to update their provincial plans on the basis of the mentioned amendments and integrations to the regional plan.

Evaluating the previous regional provision and regulations it can be said that the region of Toscana, including coastal areas, activated a system of wastes management (collection and disposal) aimed at the achievement of the objectives and principles provided by the regional and national regulations and by the system of planning established.

TRENTO the main target of the integrated system of wastes management is the improvement of separate collection. Moreover, the provincial plan for wastes disposal “PPSR” provides for the elaboration of guidelines and project of separate collection to be pursued by the 13 local management authorities. Presently the administration is improving the operations of collection and transferring to the 8 disposals of the provincial territory while works for the realization of a thermal incinerator for the production of energy and heating have been completed.

## **2. The creation of selective garbage collection systems;**

BASILICATA - in the context of the POR Basilicata 2000-2006 Measure 1.3, Action B, the project “Separate collection of municipal wastes in a representative area of Basilicata Region” *“Raccolta differenziata di RSU in un’area rappresentativa della regione Basilicata”* has been started through the DGR 3168/2004 and DGR 845/2005. The

relationship between local authorities and regional administrative government and the definitive project have been approved and the project is going on.

MARCHE - on the whole regional territory the separate collection of municipal wastes is active with the following percentages for 2003:

- 16% Province of Pesaro and Urbino
- 17% Province of Ancona
- 23% Province of Macerata
- 15% Province of Ascoli Piceno

CAMPANIA –separate collection of municipal wastes has been activated on a regional level also thank to the realizations of consortiums.

In order to promote separate collection of wastes and to reach the targets set out by European legislation, the regional administrative government activated awards and penalties

UMBRIA –the regional territory has been divided into 4 sectors. Each sector has been provided with a separate collecting system of municipal wastes.

According to the laws in force a separate collecting system of package has been introduced. Data on separate collection of municipal wastes are validated and published yearly by the regional administrative government.

CALABRIA – the regional administrative government activated the separate collection of wastes all over the territory

FRIULI – in the municipality of Trieste there are five centers where urban wastes are separately collected the following fractions: bulky waste, hazardous waste, electronic waste, packages and pruning.

LIGURIA – the regional waste plan describes the organization of separate waste collection in order to complete the program called “Separate waste collection regional plan” “*Piano regionale per la raccolta differenziata*” of 1997 and points out the strategy to reach the goals of the D.Lgs. 22/97. The separate waste collection system includes collecting centers and consortium plants opened to the private citizens to collect recycle materials.

Thanks to community funds called “*Obiettivo 5B 1994/1999 -DOCUP Obiettivo 2-2000/2006*” 13 waste collecting centres and 24 separate waste collecting centres (“ECO-centres”) were built while more 12 and 50, respectively, are almost completed. The potentiality of the centres has been calculated in proportion to served people.

PIEMONTE – a door to door collecting system is carried out.

BOLZANO - For the most of the municipalities wastes are collected daily or 2 or 3 times a week in the so called “*ecologic island*”. Usually every fraction is collected separately, only glass is collected with metals.

EMILIA ROMAGNA – The DGR 3906 provided guidelines for the realization of a separate collection system. Therefore since 1995 all over the region a system of separate collection, disposal and thermal incineration of wastes was activated reaching for the province of Ferrara, Ravenna, Forlì-Cesena and Rimini respectively the 32.6%, 34.7%, 20.1% and 24.8% of separate collection to the total amount of wastes produced in 2003. Every coastal province is supplied with thermal incinerator.

LAZIO - The creation of selective garbage collection systems and reduction of production of wastes have been one of the principal targets of the regional administration. For reduction of wastes the regional administration promoted many agreements between local administration, producers associations and private companies. On the other hand selective collection has been improved one the action on this matter was L.R. 26/03 which have promoted reduction, reuse and recycling of urban wastes.

VENETO – all the municipalities of the region operate selective collection of wastes. Presently the target of 35% fixed by D.Lgs. 22/97 has been exceeded.

MOLISE – most of the regional municipalities activated a system of separate garbage collection. In order to increase the percentage of selective collection the regional administration financed the purchase of the necessary equipments.

SARDEGNA – The development of selective garbage collection systems is still partial and did not reach targets established by EC yet. Nevertheless with recent adoption of the provisions provided by D.G.R. n. 15-32/05 and n. 34-14/05, there has been established a system of bonus/sanction to encourage the selective collection of wastes.

TOSCANA – as mentioned in the previous paragraph the region activated many initiatives in order to improve the system of separate collection of wastes. Since the enforcement of the D. Lgs. 22/97 “*Decreto Ronchi*” the percentage of separate collection increased progressively. In 2004 it has been reached an average level of separate collection of 33,4% for the whole regional territory and 30,18% for coastal municipalities, 35% being the target set by the decree.

A table reporting the percentages of separate collection for coastal municipalities is presented in Paragraph 3 of the Appendix.

TRENTO the autonomous province of Trento activated an integrated system of collection for dry-humid fraction of wastes with the obligation of separately collecting organic fraction for urban centres with more than 2.500 inhabitants. Moreover the

provincial plan for wastes management provides for the door-to-door collection of reusable dry fraction for big producers while for domestic wastes provides for the implementation and improvement of ecological islands. Up to June 2005 the province reached 45,5% of collection of urban wastes. Organic fraction is treated in two private composting plants, while dry fraction is treated in storage of selecting plants for the recovery.

### **3. The environmentally sound location of urban solid waste disposal sites**

BASILICATA-, the list of the sites and their location is reported in the Provincial Plans on waste management which have been taken in through the DGR 1734/2002 and DGR 1739/2002, for the municipalities of Potenza and Matera respectively.

MARCHE - the Regional plan (approved in December 1999) and the following provincial plans on waste management have located the urban solid waste disposal sites all over the regional territory. Up to now 5 urban solid waste disposal sites are active in the province of Pesaro and Urbino, 4 in the province of Ancona, 2 in the province of Macerata and 4 in the province of Ascoli Piceno. For more details it could be useful to consult the Accordo Programma Quadro (APQ) of the October 4<sup>th</sup>, 2004, between the Ministry for the economy, the Ministry for the environment and the administrative regional governments of Marche on this topic.

UMBRIA –the regional plants pattern can be summarized as follows:

- 6 waste disposal sites of first category according to Italian laws
- 3 composting plants
- 2 recycling plants
- 3 selection plants for municipal waste

CALABRIA –all urban solid waste disposal sites have been included in a regional plan and daily monitored.

FRIULI- the urban waste incinerator is located in the municipality of Trieste.

LIGURIA – data on disposal sites are constantly monitored by the provincial administrative governments and the regional agency (“Arpal”). Data on authorizations of new plants, given by the provincial administrative governments, are regularly transmitted to the regional administrative governments. Data and maps on working plants are periodically up-dated.

PIEMONTE – all disposal sites are located as follows:

Provincia	Comune - sede operativa	Provincia	Comune - sede operativa	Provincia	Comune - sede operativa
ALESSANDRIA	BASSIGNANA	CUNEO	MAGLIANO ALPI	TORINO	MATTIE
ALESSANDRIA	CASALE MONFERRATO	CUNEO	SOMMARIVA PERNO	TORINO	PIANEZZA
ALESSANDRIA	NOVI LIGURE	CUNEO	VILLAFALLETTO	TORINO	PINEROLO
ALESSANDRIA	TORTONA	NOVARA	BARENGO	TORINO	STRAMBINO
ASTI	VALFENERA	NOVARA	GHEMME	TORINO	TORINO
ASTI	CERRO TANARO	TORINO	CAMBIANO	VERBANIA	DOMODOSSOLA
BIELLA	CAVAGLIA'	TORINO	CASTELLAMONTE	VERCELLI	ALICE CASTELLO
CUNEO	BORGO SAN DALMAZZO	TORINO	CHIVASSO		
CUNEO	FOSSANO	TORINO	GROSSO		

**BOLZANO** - Few towns are provided with municipal dumps while incineration is the most used disposal technique. All the disposals are registered and located by the department for waste management of the provincial administration.

**EMILIA ROMAGNA** - All the provinces are provided with an own dump, with the exception of the province of Rimini. With the provincial plan for waste management (Piano Regionale per la Gestione dei Rifiuti-PPGR) for this province is foreseen the realization of a new dump and a new line for the thermal incinerator that will increase the potentiality from 110-120.000 tons/year to 140-150.000 tons/year.

**LAZIO** - The provided financial support to provincial administration for the development of campaigns for the reduction and improvement of selective collection while no regional programmes have been activated in order to make training courses on this issue.

**VENETO** – the environmentally sound location of urban solid waste disposal sites was done as stated in the regional plan for remediation of contaminated sites adopted with DgRV 25.01.2000, n. 157.

**MOLISE** – all urban solid waste disposal sites of the regional territory are located.

**SARDEGNA** – all urban solid waste disposal sites are environmentally sound located and there is an inventory of the operative plants while dismantled ones are inserted in the list of the contaminated sites of the region.

**TOSCANA** – all disposals and treatment plants of wastes are registered and a table of the plants located in coastal areas is provided.

**TRENTO** –urban solid waste disposal sites are environmentally sound located according to provincial plan for wastes management.

#### **4. The promotion of urban solid waste reduction and recycling**

**BASILICATA** - the context of the POR Basilicata 2000-2006 Measure 1.3, Action A, the finance of the project “Information campaign on waste cycle and their recycling”

(“Campagna di informazione e sensibilizzazione sul ciclo dei rifiuti e relativo recupero da raccolta differenziata”) has been granted and the project is carrying on.

MARCHE - the promotion of urban solid waste reduction and recycling have been activated by the administrative regional governments and other local authorities through many awareness activities. The most important activities are reported below:

- 4 regional recycling institutions
- the publication of a book on waste management for all the schools of the region
- Actions to promote composting from biodegradable substances called “From the table grows a flower” (*“Dalla Tavola nasce un fiore”*)
- projects carried out with the collaboration of the schools and environmental training centers
- To award a prize to the municipalities of the region with the most percentage of wastes separate collection

Moreover the region has joined to the “Prevention Table” of Federambiente and has promoted regional agreements dedicated to agricultural and building wastes.

The region has developed some significant activities of international cooperation on this issue. A very important project “*Progetto Life Paesi Terzi 2002/2003*” known as “*Agency for the integrated waste management in Valona Region*” involved the region of Valona in Albania.

Another project called “*W.A.P. – Waste Management in Ariatic ports*” is addressed to the port wastes and involved besides the ports of Marche regions also the port of Bar (Montenegro) and the ports of Durazzo, Valona and Saranda in Albania.

UMBRIA –the regional administrative government activated several campaigns to awaken the citizens to reduction and recycling of urban solid waste. These campaigns were carried out with the collaboration of municipal administrations involving also the schools.

CAMPANIA – each municipality, which activated separate collection of wastes, organized training programs on this topic. Moreover the government’s commissary carried out informative campaigns to understand benefits deriving from waste treatments and disposal particularly due to thermal incinerator.

CALABRIA – the regional government promoted 3 awareness campaigns as follows:

- “*Differenziamo i rifiuti*” to encourage and introduce citizens to the separate collection of wastes;
- “*Uccelli spazzini nel mondo*” addressed to citizens of coastal areas;



- “*Riciclare per creare*” addressed to young people.

FRIULI – an awareness campaign has been planned on September 2005 in Trieste thanks to an agreement between ACEGAS and Comieco companies. Moreover, in April 2005 the ACEGAS enterprise distributed many awareness pamphlets to promote separate waste collection and to explain the fractions which can be separately collected.

LIGURIA – the project called “Compostiamoci bene” was achieved by the municipality of Genova in collaboration with “Italia nostra” company in order to promote the separate waste collecting. The project involved about 1690 inhabitants and included 101 training courses on this topic. Moreover, an awareness campaign was performed on integrated waste management. This campaign was constituted by two phases: the first one addressed to the schools and the other one to the whole regional territory of about 600.000 inhabitants.

PIEMONTE – the regional government is planning some awareness campaigns.

BOLZANO - In 2004 a campaign was organized to promote the reduction and reuse of urban solid waste, with expositions, the comic “*Isabella la raganella*” for the diffusion of the information in schools, a trademark of eco-compatibility for traders and street parties, etc.

EMILIA ROMAGNA - With the DGR 645/05 the region endorsed the guidelines for Integrated Coastal Zones Management. Amongst others, the aim of the guidelines is to give indications on the reduction of use of resources and on the reduction of production of wastes.

LAZIO - Data on producers of wastes and disposals are organized at national and regional level in a cadastre.

VENETO – through the *eco-tax* L. 529/1995 the regional administration finances all municipalities for the promotion of reduction and recycling of urban solid wastes.

MOLISE – The regional administration instituted the regional centre for environmental education. The centre implemented an awareness campaign involving local authorities, schools, citizens and institution in order to promote the urban solid waste reduction and recycling.

SARDEGNA – the promotion of urban solid waste reduction and recycling is contemplated in every project of separate collection activity. A specific campaign have never been carried out but Measure 1.8 of P.O.R. Sardegna 2000-2006 provides for a programme of training and information aimed, amongst others, at the reduction and reuse of recyclable fractions of urban solid wastes.

TOSCANA – in the framework of the existent legal and planning system are foreseen awareness campaigns aimed at reducing and recycling urban solid wastes. The mentioned activities have already been undertaken in some municipalities of the region.

TRENTO – the provincial administration is promoting urban solid waste reduction and recycling since 2002 through:

- ◆ information of citizens through booklets;
- ◆ promotion and encouragement of separate collection also with the support of the managers of the companies of collection.

**5. The implementation of national training programs proposed to commence in 2002-2003, on effective waste reduction policies and on the environmentally sound management of urban solid waste in coastal area, including options for recycling and environmentally sound elimination**

BASILICATA - the training programs are promoted in the context of the POR Basilicata 2000-2006 Measure 1.3, Action B illustrate the project “Separate collection of municipal wastes in a representative area of Basilicata Region” (“Raccolta differenziata di RSU in un’area rappresentativa della regione Basilicata”).

MARCHE - the region has promoted many courses on this topic as the following:

- Courses on car wrecking activities
- Courses on inert recycling activities
- Courses on agricultural management wastes
- Courses on the tariff application

LIGURIA – the regional administrative governments financed the four provinces in order to organize instructive actions addressed to the population.

VENETO – the regional administration provides financings to the regional agency for environmental protection (ARPAV) for the implementation of national training programs on waste reduction policies and on the environmentally sound management of urban solid, including options for recycling and environmentally sound elimination.

MOLISE – The regional administration instituted the regional centre for environmental education. The centre implemented an awareness campaign involving local authorities, schools, citizens and institution in order to promote the urban solid waste reduction and recycling. Presently regional authorities have not yet activated specific training programs for coastal areas.

TOSCANA – the targets of the regional and municipal regulations and activities undertaken are the reduced production and dangerousness of wastes, improvement of

reusing and recycling percentages, the recovery of energy and the minimization of disposal. However, at a regional level, it is not foreseen the implementation of specific training programs on this issue.

**3. TO DEVELOP NATIONAL PROGRAMS FOR THE ENVIRONMENTALLY SOUND MANAGEMENT OF WASTEWATER AND SOLID WASTE FROM INDUSTRIAL INSTALLATIONS WHICH ARE SOURCES OF BOD.**

National programs for the environmentally sound management of wastewater and solid waste from industrial installations are expected to include the following activities, which have been specified in the SAP:

- 1. The disposal of all wastewater from industrial installations, which are sources of BOD, nutrients and suspended solids, located in areas of concern, in conformity with a national regulation system to be formulated and adopted by 2002;**

UMBRIA – is preparing a census of industrial plants which are sources of BOD, Nutrients and suspended solids located inside the main industrial areas. Some sewage treatment plants have been built in order to serve the above mentioned industrial areas. About 95% of companies discharge in public sewage treatment plants.

PUGLIA – Regional programme on environment safeguard (DGR N. 1440/2003, Asse 8- Linea B) called “Feasibility studies to develop environmental utilities particularly in the sectors of telecommunication, energetic reuse, industrial waste management, and urban and industrial sewage reuse” (“Studi di fattibilità per lo sviluppo di utilities ambientali soprattutto nei settori della comunicazione telematica, del recupero energetico, della gestione dei rifiuti industriali e nel riuso delle acque reflue o di processo industriale”). The amount of 1.400.000,00 € has been granted for this project. Moreover, 7000000,00 € have been granted as stated in the “DGR N. 1440/2003, asse 8- linea C” entitled “The finance of the actions deriving from feasibility studies to develop environmental utilities according to sustainable development” (“Cofinanziameno degli interventi provenienti dagli studi di fattibilità per lo sviluppo di specifiche utilities ambientali a favore dello sviluppo sostenibile”)

PIEMONTE – all the regional discharges are set by the law by decree 152/99.

BOLZANO - every industrial plant source of BOD5 is provided with own treatment plant or is connected to urban wastewater treatment plant. Financial support is given by

the provincial administration and there exist a provincial plan for the depuration of urban wastewater (see also 1.3 and 3.1 above).

EMILIA ROMAGNA - the industrial sector of food processing is the major source of BOD5. In order to be discharged in a surficial water body wastewaters from these plants must be properly pre-treated to reach the limits set by Table 3-Enclose 5-D.Lgs. 152/99 whether in normal area, or to Table 2 of the same decree whether in sensitive area.

LAZIO - regional and national legal framework establishes strict limits for emissions of nutrients. Moreover, the “Piano Regionale di Tutela delle Acque”, the regional plan for water safeguard, set up the reduction of 90% of BOD5 and of 80% of Nitrogen and Phosphorous discharged by the treatment plant whether in sensitive area.

VENETO – the regional government did not provide for specific programs for the disposal of wastewater from industrial installations, which are sources of BOD, nutrients and suspended solids because these are issues of concern already envisaged in the framework of sewage management.

SARDEGNA – in the framework of the enforcement of regional plan for reclaiming of internal waters, the “*Piano Regionale di Risanamento*” stated by Law 319/76 the “*Legge Merli*”, the Council for Environmental Defence, according to Law 135/97, started up an extraordinary plan for wastewater treatment in order to adequate urban liquid discharges to the European Directive 91/271/CEE. The targets will be achieved through financings supplied by the Italian Ministry for Environment and Territory, through the realization and completion of drainage, treatment systems and discharges. 550 millions Euros have been allocated for the mentioned purposes and up till now 94 millions Euros have been financed.

According to L.R. 29/97 the whole territory of Sardegna has been individuated as a single ATO (*ATO-Ambito Territoriale Ottimale*: is the territorial area individuated in order to overcome the fragmentation of water resources management). As stated by Law 388/2000, enforcement of Art. 11 of Law 36/94 “*Legge Galli*”, a programme of urgent actions in the frame of sewage/wastewater treatment system have been developed for the ATO, the “*Piano Stralcio*”. The function of the “*Piano Stralcio*” is to describe infrastructures’ functionality and consistency, provide a list of the existent programmes and projects, individuate critical aspects and give a list of priority actions to undertake in accordance with deadlines and site’s typology. Through the programme of “*Piano Stralcio*” it was possible to obtain an estimation of a financial budget necessary for the most impellent interventions for a total amount of approximately 2.900 Billions of Lire.

Moreover the preparation of the “*Piano Stralcio*” allowed to the regional government to redact the agreement “*Accordo di Programma Quadro-APQ*” between regional and national government on water resources, sewage and treatment systems. Through the agreement the regional administration could have at its disposal 175 millions of Euros for the council for the environment. The fund allowed the start up of the measure 1.1 “*Ciclo Integrato dell’Acqua*” on water management.

Afterwards, according to Law 36/94, it was implemented the territorial plan “*Piano d’Ambito*”, instituted the territorial authority “*Autorità d’Ambito*” and individuated the director of the integrated water service “*Servizio Idrico Integrato*”.

For the sector of sewage and wastewater treatment according to the mentioned “*Piano Stralcio*” financial resources required to achieve the compliance of the systems have been estimated of approximately 1.400 millions of Euros.

The targets of the department for environmental protection of the regional government are:

- Prevention and reduction of pollution and reclaiming of contaminated water bodies;
- Improvement and safeguard of waters’ quality;
- Promotion of sustainable and reduced use of water resources
- Allow the maintenance of self-depurating properties of water bodies and biodiversity.

The mentioned targets are achieved through the fulfilment of the objectives for sewage and wastewater treatment provided by D.Lgs. 152/99.

Being the lack of water a priority the main goal of the regional administration is the safeguard of water resources. Reduction and reuse are therefore promoted. As a result an improvement of the sewage/treatment system would lead to a more efficient treatment, would lead to an improvement of water bodies’ quality, would allow the reuse for irrigation and would protect coastal areas from polluted discharges. That is why many financial investments are done in this direction.

TOSCANA – regional government allocated funds in order to improve wastewaters treatment system and adapt industrial wastewaters treatment system to regulations. Moreover specific agreements with the Italian ministry for Environment have been drawn up to increase the potentiality of industrial treatment plants.

TRENTO – all plant are subjected to the obligation of previous authorization to discharge according to Article 23 of provincial law on pollution *DPGP 26.01.87 n. 1-*

41/Lgs. BOD concentration of the discharges must be compliant with the limits provided by the mentioned law.

## **2. The location of coastal outfalls so as to obtain or maintain agreed environmental quality criteria**

CAMPANIA –the Regional plan for water safeguard (DIgs 152/99), deals with this topic and it will be in force before October 2005.

CALABRIA – the location of coastal outfalls is almost completed.

The locations are related to the authorizations gave by provincial administrative governments.

LIGURIA - the general plan on water reclaiming (*“Piano generale di risanamento”*) was approved in July 1982. The plan included the regional law L.R. 38/82 for management of public sewage discharge and of civil agglomerations which do not discharge in public sewage (*“Disciplina degli scarichi delle pubbliche fognature e degli insediamenti civili che non recapitano in pubblica fognatura”*). The plan was updated in July 1991 and the regional law 38/82 substituted by the regional law 43/95. The content of the plan represents the basis for the provisions set by the Regional plan for water safeguard adopted during 2004.

In these documents are individuated all the coastal outfalls, the waste water treatment plants and the pipelines map. Moreover, in the documents are illustrated the different typologies of the waste water treatment plants and the regional finance have been granted since 1982 according to their planning priority.

The regional law 43/95 indicates the responsible authorities of operation and maintenance of sewage treatment facilities. According to regional legislation responsible authorities, if needed, indicate the time of maintenance plants.

PIEMONTE - all the regional outfalls are registered and located.

EMILIA ROMAGNA - There are no coastal outfalls of industrial waters and every industrial outfall is localized through geographical coordinates.

LAZIO - The *“Piano Regionale di Tutela delle Acque”* foresees as well the localization and registration of the coastal outfalls.

VENETO – outfalls quality of discharges located in proximity of the coast is monitorised annually.

SARDEGNA – the locations of coastal outfalls are registered and the register is constantly updated.

TOSCANA – managers of treatment plants give communication of the exact location to the regional authorities for the creation of a register.

**3. The promotion of primary, secondary and where appropriate and feasible tertiary treatment of BOD wastewater discharged into rivers, estuaries and the sea;**

UMBRIA - Referring to point 3 in the Regional plan for water safeguard, which is almost ready, some improvement measures of industrial sewage treatment plants will be included.

PUGLIA – the “*Accordo Programma Quadro*” on water resources called “*Risorse idriche All. F*” deals with this topic and 993.254,48 € have been allocated for this project.

LIGURIA - the regional plan on water restoring “*Piano generale di risanamento*”, was approved in July 1982. The plan included the regional law L.R. 38/82 on management of public sewage discharge and of civil agglomerations which do not discharge in public sewage called “*Disciplina degli scarichi delle pubbliche fognature e degli insediamenti civili che non recapitano in pubblica fognatura*”. The plan was updated in July 1991 and the regional law L.R. 38/82 substituted by the regional law L.R. 43/95. The context of the plan represents the basis of the provisions set by the Regional plan for water safeguard adopted during 2004.

In these documents are individuated all the coastal outfalls, waste water treatment plants and the pipelines map. Moreover, in the documents are illustrated the different typologies of the waste water treatment plants and the regional finance have been granted since 1982 according to their planning priority.

The regional law L.R. 43/95 indicates the authorities responsible for the operation and maintenance of sewage treatment facilities. According to regional legislation responsible authorities, if needed, indicates the time of maintenance plants.

EMILIA ROMAGNA - All industrial wastewater must be treated with a secondary biological process. Tertiary treatment is required whether the plant is in a sensitive area.

LAZIO - The promotion of primary, secondary and where appropriate and feasible tertiary treatment of BOD wastewater discharged into rivers, estuaries and the sea is the primary aim of the agreement of programme APQ8 on water resources safeguard and integrated management “*Tutela delle acque e gestione integrata delle risorse idriche*”. Through the agreement a total financing of 90 millions of euros have been given.

VENETO – in accordance with the existent legislation most of the plants are equipped with tertiary treatment of wastewater discharges.

SARDEGNA – in the framework of the enforcement of regional plan for reclaiming of internal waters, the “*Piano Regionale di Risanamento*” stated by Law 319/76 the “*Legge Merli*”, the Council for Environmental Defence, according to Law 135/97, started up an extraordinary plan for wastewater treatment in order to adequate urban liquid discharges to the European Directive 91/271/CEE. The targets will be achieved through financings supplied by the Italian Ministry for Environment and Territory, through the realization and completion of drainage, treatment systems and discharges. 550 millions Euros have been allocated for the mentioned purposes and up till now 94 millions Euros have been financed.

According to L.R. 29/97 the whole territory of Sardegna have been individuated as a single ATO (ATO-Ambito Territoriale Ottimale: is the territorial area individuated in order to overcome the fragmentation of water resources management). As stated by Law 388/2000, enforcement of Art. 11 of Law 36/94 “*Legge Galli*”, a programme of urgent actions in the frame of sewage/wastewater treatment system have been developed for the ATO, the “*Piano Stralcio*”. The function of the “*Piano Stralcio*” is to describe infrastructures’ functionality and consistency, provide a list of the existent programmes and projects, individuate critical aspects and give a list of priority actions to undertake in accordance with deadlines and site’s typology. Through the programme of “*Piano Stralcio*” it was possible to obtain an estimation of a financial budget necessary for the most impellent interventions for a total amount of approximately 2.900 Billions of Lire. Moreover the preparation of the “*Piano Stralcio*” allowed to the regional government to redact the agreement “*Accordo di Programma Quadro-APQ*” between regional and national government on water resources, sewage and treatment systems. Through the agreement the regional administration could have at its disposal 175 millions of Euros for the council for the environment. The fund allowed the start up of the measure 1.1 “*Ciclo Integrato dell’Acqua*” on water management.

Afterwards, according to Law 36/94, it was implemented the territorial plan “*Piano d’Ambito*”, instituted the territorial authority “*Autorità d’Ambito*” and individuated the director of the integrated water service “*Servizio Idrico Integrato*”.

For the sector of sewage and wastewater treatment according to the mentioned “*Piano Stralcio*” financial resources required to achieve the compliance of the systems have been estimated of approximately 1.400 millions of Euros.



The targets of the department for environmental protection of the regional government are:

- Prevention and reduction of pollution and reclaiming of contaminated water bodies;
- Improvement and safeguard of waters' quality;
- Promotion of sustainable and reduced use of water resources
- Allow the maintenance of self-depurating properties of water bodies and biodiversity.

The mentioned targets are achieved through the fulfilment of the objectives for sewage and wastewater treatment provided by D.Lgs. 152/99.

Being the lack of water a priority the main goal of the regional administration is the safeguard of water resources. Reduction and reuse are therefore promoted. As a result an improvement of the sewage/treatment system would lead to a more efficient treatment, would lead to an improvement of water bodies' quality, would allow the reuse for irrigation and would protect coastal areas from polluted discharges. That is why many financial investments are done in this direction.

TOSCANA – according to the “*Piano di Tutela delle Acque*” Arno River in a sensitive area, regional authorities are therefore considering the opportunity of providing treatment plants located in the drainage basin of the river with tertiary treatment. The question is presently under evaluation and regional authorities did not define yet criteria and priority actions to undertake.

TRENTO – all the provincial territory of Trento is classified as sensitive area according to European legislation and phosphorus and nitrogen discharges are compliant with limits provided by the mentioned legislation.

#### **4. The sound operation and proper maintenance of facilities, to be promoted through the organization of relevant training programs;**

LIGURIA – see what reported in the chapter 1 point 4

BOLZANO - Training courses on maintenance of plants are held for the operators by the Austrian association ÖVAW.

EMILIA ROMAGNA - Regional administration does not operate directly training programmes but gives financial support to private agencies to promote environmental education all over the regional territory for both private and public participation.

SARDEGNA – sound operation and proper maintenance of facilities is a duty of the department for water resources of the regional government, the “*Servizio IdricoIntegrato*”.

TRENTO – the maintenance of facilities is pursued in accordance with the regulations given in order to obtain the Integrated Environmental Authorization.

**5. The implementation of measures for the reduction and beneficial use of wastewater or other measures appropriate to specific sites such as no-water and low-water solutions, to be facilitated through the organization of relevant training programs and/or workshops;**

CAMPANIA – the Regional plan for water safeguard (Dlgs 152/99), deals with this topic and it will be in force before October 2005.

PIEMONTE - this kind of activities is not promoted by the regional administrative government.

BOLZANO - Reuse and reduction of use of water are promoted through training courses and meetings and according the prescriptions of Art.37 of L.P.8/02.

EMILIA ROMAGNA - Regional administration does not operate directly training programmes but gives financial support to private agencies to promote environmental education all over the regional territory for both private and public participation.

SARDEGNA – the regional administration are foreseen to organize training programs and workshops on reduction and beneficial use of wastewater. In the meanwhile meetings have been done between local authorities in order to promote reuse of treated urban wastewaters.

TOSCANA – presently the regional authorities are evaluating the characteristics of the treatment plants of region to establish which could be useful to operate a reuse of the treated outfalls according to D.Lgs. 185/02.

TRENTO – measures for the reduction and beneficial use of wastewater are undertaken according to regulations of IPPC Directive.

**6. The environmentally sound disposal and/or use (composting, landfilling, etc.) of sludge and other wastes, to be facilitated through the organization of relevant training programs and/or workshops.**

UMBRIA - specific training and information programs have been developed for agricultural workers related to the proper use of agricultural sludge, particularly in the

areas endangered by agricultural nitrogenous compounds. Moreover the administrative regional government is promoting composting of organic fraction of municipal waste.

CAMPANIA – the Regional plan for water safeguard (Dlgs 152/99), deals with this topic and it will be in force before October 2005.

LIGURIA – the project called “Compostiamoci bene” was achieved by the municipality of Genova in collaboration with “Italia nostra” company in order to promote the separate waste collecting. The project involved about 1690 inhabitants and included 101 training courses on this topic. Moreover it must be underlined a project on the use of compost in agricultural production carried out with the collaboration of the regional center of Albenga.

PIEMONTE - this kind of activities is not promoted by the regional administrative government. Anyway data on separate collecting and treatment of the organic fraction are available on the web site ([www.regione.piemonte.it](http://www.regione.piemonte.it)). Moreover a publication on “dirty” organic fraction use is almost completed and will be published on the same web site as soon as possible.

BOLZANO - Reuse of sludge from treatment of gravel is promoted for the refilling of quarries.

EMILIA ROMAGNA - Regional administration does not operate directly training programmes but gives financial support to private agencies to promote environmental education all over the regional territory for both private and public participation.

VENETO – activities related to the environmentally sound disposal and/or use of sludge and other wastes through the organization of relevant training programs and/or workshops are organized by the regional agency for environmental protection (ARPAV). The mentioned activities are comprehensive of a campaign called “*Compost di Qualità*” for the promotion of the reuse of compost.

SARDEGNA – the organization of training programs on environmentally sound disposal of sludge and other wastes, including composting, and on the reuse of wastewaters is foreseen in the framework of the measure 1.8 of POR Sardegna 2000-2006.

TRENTO – the environmentally sound disposal of sludge and other wastes is done according to regulations of IPPC Directive.

#### **4. THE DEVELOPMENT OF NATIONAL PROGRAMS TO CONTROL AIR POLLUTION FROM MOBILE SOURCES**

Taking into consideration the regional policy to be developed on the promotion of measures to implement the Framework Convention on Climate Change (Kyoto Protocol), national authorities are expected to adopt, wherever feasible, measures to control emissions of carbon dioxide, e.g. through the promotion of energy conservation and energy efficiency.

National programs to control air pollution from mobile sources are expected to include the following activities, have been specified in the SAP:

**1. Measures to promote and provide incentives for public transportation;**

UMBRIA – the regional transportation plan analyzed the mobility on a regional level with the main aim to optimize the use of the means of transportation.

Local railways have been improved to promote public transportation.

CAMPANIA – the regional administrative government has not adopted this kind of measures yet but maybe the other local authorities did. Nevertheless, some important measures have been developed in order to reduce emissions of carbon dioxide as follows:

- DGR N.7563 of 30<sup>th</sup> December 2000 entitled “Allocation of funds for the rolling stock renovation of the local public transportation and to buy new buses using non conventional fuel” (“Stanziamiento fondi per il rinnovo del materiale rotabile delle aziende esercenti il trasporto pubblico locale ed acquisto di bus ad alimentazione non convenzionale a basso impatto ambientale”)
- DGR N. 1282 of April 5<sup>th</sup>, 2002 called “Metrocampania project” (“Progetto Metrocampania”) on the improvement of regional railway transport.
- “Metrò del mare Consortium”. The consortium connects different municipalities to the isles located in front of Napoli Gulf. As soon as the project finishes 6 million of inhabitants will be served. Since 2000, 25,5 kilometers of lines and 17 new stations have been opened. Before the end of 2005 more 15 kilometers and 18 stations will be opened all over the region. By 2010 it is foreseen to provide the citizens with a total of 1400 kilometers of lines, 423 stations, 28 parking and 21 exchange points railways – bus.

PUGLIA - the investment plan “*Piano di Investimenti*” adopted through Law 194/98 mentions measures for the promotion of electrical public transportation through the allocation of specific financings.

FRIULI – The regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). In this plan are established the

specific measures regarding transportation. It must be said that through the DGR 986/2000 these measures were already individuated.

Moreover with the DGR 421/2005 the contents of the atmospheric pollution action plan were approved. In the plan are pointed out all the actions that municipalities can adopt in order to reduce atmospheric pollution and to improve the quality life.

LIGURIA –The regional administrative government elaborated during 2002, the following plans and programs in order to face up atmospheric pollution:

- “Activities to support the regional environmental management” (“Attività di supporto alla gestione ambientale regionale”) - Docup Ob2 (2000-2006), Measure 2.6.
- “Carbon Tax” - (DGR 1427 del 30/11/2001)
- “Operations to support the sustainable mobility in the municipality of Genova” (“Interventi radicali per la mobilità sostenibile nel Comune di Genova”) - (DD 95/SIAR/00 e DD 1275/IAR/02)
- The municipality of Genova joint the plan called “car sharing” (“Adesione del Comune di Genova alla Iniziativa Car Sharing”) - (D.D. 495/SIAR/00; D.D.85/SIAR/00)
- The municipality of Genova joint the program on Mobility Management promoted by the Ministry for environment and territory - (D.D. 84/SIAR/00; Decreti 27/3/1998 e 20/12/2000)
- The municipalities of Genova and La Spezia joint the program on low environmental impact of fuel promoted by the Ministry for environment and territory - (Decreto n. 83 del 20/12/2000.
- “Operations to promote the sustainable mobility in the municipality of Genova in the framework of the Plan for environmental defence” (“Interventi a favore della mobilità sostenibile nell'ambito del Programma stralcio di tutela ambientale presso il Comune di Genova”) - D.D. 24/11/1999, n. 495, e D.D. 28/12/1999, n. 603
- “Check of gas emissions in the municipality of Genova” (“Controllo delle emissioni dei gas di scarico Bollino Blu presso il Comune di Genova”) - DM 28/02/1994 Ordinanza del sindaco n. 122/04
- “To promote the bicycle use carrying out cycle tracks” (“Incentivazione dell'uso della bicicletta tramite la realizzazione di piste ciclabili”) - D.G.R. 1440/99

- La Spezia Municipal ordinance on general traffic restriction to enter the city” (“Ordinanza del Comune di La Spezia di chiusura del traffico” - n° 2548 of the December 2<sup>nd</sup>, 2003.

Moreover the regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). The plan established the specific measures to improve quality air on the regional territory and to reduce greenhouse gas emissions.

PIEMONTE – each year finances are provided to improve local public transportation and to renovate the rolling stock of the local public transportation. Frequent communication campaigns promote the use of the local public transportation instead of private car.

Provisions on mobility are included in the “Regional plan on air restoring and quality air safeguard” (“Piano regionale per il risanamento e la tutela della qualità dell’aria”), approved by the regional law N. 43/2000, and in the addresses to carry out the “Action plans” (“Piani di Azione - art. 7 dlgs 351/1999) issued through the D.G.R. n. 14-7623 of November 11<sup>th</sup>, 2002. These provisions aim to promote the collective transportation in order to reduce the traffic in the inhabited centres, to promote the renovation of the public and private car pool, to promote low environmental impact transportations, to improve traffic management.

BOLZANO – the province activated several campaigns to promote the use of alternative energies and public transportation.

EMILIA ROMAGNA – in order to promote conservation and an efficient use of energy the regional government activated a campaign called “Caldaia pulita”. Through a web site, manifests, booklets, advertisings and a road truck information were disseminate all over the regional territory in order to involve and introduce people to correct and conscious use of hot-water heaters.

Measures to promote and provide incentives for public transportation were adopted in 2000 through the regional integrated plan for public transportation (PRIT) LR 30/98. Targets set for 2010, according to the provisions of Kyoto Protocol, are the decrease of CO<sub>2</sub> emissions of 21.5% and the reduction of use of energy of 12.6% for urban centers. With DPGR 204/02, 215/03, 263/04 regional governments submitted with local administration agreement programmes for the improvement of air quality for 2002, 2003, 2004. Amongst the other provisions undertaken by the plan an investment of 200 million of euros in order to activate investments with local authorities for a total amount

of 500 million of euros. Investments are designated to the renewal of public transportation and to the implementation of rail transport.

LAZIO – measures to promote and provide incentives for public transportation have been undertaken by the regional administration through the improvement of the fleet of public transports and by through the campaigns for the reduction of passes' price.

VENETO – the regional policy for public transportation underlined the need for improvements of infrastructures and public transportation in order to reduce the use of private transports and give a better accessibility to urban centers. Procedures have been established by L.R. n. 25/1998 in order to encourage the use of public transportation. These procedures have to be supported by campaigns and incentives for the promotion low-emission vehicles and by the regulation of urban traffic and parking areas.

LOMBARDIA – many provisions have been introduced with the regional law 31/96 in order to control and reduce air pollution from mobile sources. In urban centers citizens have been encouraged to use public transportation through the improvement and the implementation of the services, especially railways and undergrounds. Particularly extensions are foreseen of the lines MM1, MM2, MM3; moreover is foreseen the new line MM5 and the connection MM1 between Milano and Monza; 6 new tram lines and a new system of light trains between Brescia and Valtrompia and between Bergamo and Albino.

Further programs of actions for the improvement of railways are the quadruplication of the lines Milano – Pioltello, Cadorna - Bovisa and Pioltello – Treviglio; the duplication of the lines Bergamo – Treveiglio and Milano – Mortara; the development of the lines Colico –Chiavenna and Lecco – Tirano; the realization of the new routes P.ta Vittoria – Lambro Rogoredo and Milano Central Station – Bovisa; the renewal and development of the line Saronno – Seregno, Saronno – Busto.

TOSCANA – with the deliberation 56/02 the regional council approved the investments program for the renewal of trains managed by *TRENITALIA S.p.A.*.

Whit deliberations 291/99 and 169/04 have been allocated financings for the purchase by *La Ferrovia Italiana* of new electric trains “*Minuetto*”.

TRENTO – a delegation act have been adopted on sustainable mobility with the provincial decision of 28/07/2000 n.1948. Investments have been planned for a total amount of 15M euros for the purchasing of 64 methane supplied buses and 20 trains. Moreover 40M of euros have been allocated for the conversion of the railway Valsugana in a surface subway.

VAL D'AOSTA – the regional government undertook the following measures to promote and provide incentives for public transportation:

- ♦ Regional plan for traffic management of 1998, yearly updated.
- ♦ New plan for air quality reclaiming, drawn up by the regional agency for environmental protection-ARPA. The plan provides for many activities for the reduction of air pollution as encouragement and promotion of the use of public transportation.

## **2. Measures for the promotion of improved traffic management, giving priority to the use of public transport;**

UMBRIA – some integrated urban traffic management systems have been undertaken on a municipal level.

They are all focused on general traffic restriction to enter the city center in order to increase public transportation. For example the municipality of Perugia is carrying out a project to connect the city center to the suburbs through an electric train (“Minimetro”).

CAMPANIA – the regional administrative government has not adopted this kind of measures yet but maybe the other local authorities did. Nevertheless, some important measures have been developed in order to reduce emissions of carbon dioxide as follows:

- DGR N.7563 of 30<sup>th</sup> December 2000 entitled “Allocation of funds for the rolling stock renovation of the local public transportation and to buy new buses using non conventional fuel” (“Stanziamiento fondi per il rinnovo del materiale rotabile delle aziende esercenti il trasporto pubblico locale ed acquisto di bus ad alimentazione non convenzionale a basso impatto ambientale”)
- DGR N. 1282 of April 5<sup>th</sup>, 2002 called “Metrocampania project” (“Progetto Metrocampania”) on the improvement of regional railway transport.
- “Metrò del mare Consortium”. The consortium connects different municipalities to the isles located in front of Napoli Gulf. As soon as the project finishes 6 million of inhabitants will be served. Since 2000, 25,5 kilometers of lines and 17 new stations have been opened. Before the end of 2005 more 15 kilometers and 18 stations will be opened all over the region. By 2010 it is foreseen to provide the citizens with a total of 1400 kilometers of lines, 423 stations, 28 parking and 21 exchange points railways – bus.

PUGLIA – the “POR Puglia 2000-2006, misura 5.2, azione 3 called “Actions to improve the mobility and public transportation in order to reduce atmospheric pollution also



using the best available techniques” (“Interventi di miglioramento funzionale della mobilità e del trasporto urbano a livello interno, ai fini della riduzione dell’inquinamento atmosferico attraverso lo sviluppo delle B.A.T”). The amount of 31.119.000,00 € has been granted for this project.

FRIULI – The regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). In this plan are established the specific measures regarding transportation. It must be said that through the DGR 986/2000 these measures were already individuated.

Moreover with the DGR 421/2005 the contents of the atmospheric pollution action plan were approved. In the plan are pointed out all the actions that municipalities can adopt in order to reduce atmospheric pollution and to improve the quality life.

LIGURIA –The regional administrative government elaborated during 2002, the following plans and programs in order to face up atmospheric pollution.

- “Activities to support the regional environmental management” (“Attività di supporto alla gestione ambientale regionale”) - Docup Ob2 (2000-2006), Measure 2.6.
- “Carbon Tax” - (DGR 1427 del 30/11/2001)
- “Operations to support the sustainable mobility in the municipality of Genova” (“Interventi radicali per la mobilità sostenibile nel Comune di Genova”) - (DD 95/SIAR/00 e DD 1275/IAR/02)
- The municipality of Genova joint the plan called “car sharing” (“Adesione del Comune di Genova alla Iniziativa Car Sharing”) - (D.D. 495/SIAR/00; D.D.85/SIAR/00)
- The municipality of Genova joint the program on Mobility Management promoted by the Ministry for environment and territory - (D.D. 84/SIAR/00; Decreti 27/3/1998 e 20/12/2000)
- The municipalities of Genova and La Spezia joint the program on low environmental impact of fuel promoted by the Ministry for environment and territory - (Decreto n. 83 del 20/12/2000.
- “Operations to promote the sustainable mobility in the municipality of Genova in the framework of the Plan for environmental defence” (“Interventi a favore della mobilità sostenibile nell'ambito del Programma stralcio di tutela ambientale presso il Comune di Genova”) - D.D. 24/11/1999, n. 495, e D.D. 28/12/1999, n. 603

- “Check of gas emissions in the municipality of Genova” (“Controllo delle emissioni dei gas di scarico Bollino Blu presso il Comune di Genova”) - DM 28/02/1994 Ordinanza del sindaco n. 122/04
- “To promote the bicycle use carrying out cycle tracks” (“Incentivazione dell'uso della bicicletta tramite la realizzazione di piste ciclabili”) - D.G.R. 1440/99
- La Spezia Municipal ordinance on general traffic restriction to enter the city” (“Ordinanza del Comune di La Spezia di chiusura del traffico” - n° 2548 of the December 2<sup>nd</sup>, 2003.

Moreover the regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). The plan established the specific measures to improve quality air on the regional territory and to reduce greenhouse gas emissions.

PIEMONTE – in the main regional municipalities reserved buses lanes were carried out and in the urban agglomerations of more than 10.000 inhabitants limited traffic area for individual transportation are under planning according to the D.G.R. n. 14-7623 of November 11<sup>th</sup>, 2002 and to the addresses to carry out the “Action plans” (article 7 dlgs 351/1999)

EMILIA ROMAGNA - Traffic management has been improved giving priority to the use of public transport by the introduction of limited traffic zones in urban centers with more than 50.000 inhabitants with a minimum urban surface of 10%.

LAZIO - Promotion of improved traffic management, giving priority to the use of public transport has been pursued by the realization of bus lanes and exchange parking areas.

VENETO – in framework of the implementation and promotion of public transportation the regional administration favored accessibility, security and quality of vehicles with particular attention to the reduction of the negative impacts of vehicles on the environment. Re-qualification of public transportation, application of telematic control and experimentation of alternative ways of transportation in historical centers are the primary actions undertaken in order to combat traffic jam and air pollution in urban centers. Moreover important measures have been undertaken aimed at the improvement of railway transport.

LOMBARDIA – Measures for the promotion of improved traffic management have been undertaken by the regional administration through the development of a traffic lights and bus lanes system that gives priority to public transports. Moreover a system of direct call of the bus from bus stops has been activated.

In the framework of the document UP Ob2 2000-2006 the regional administration established the following two measures of financings for local authorities for the promotion of sustainable mobility in urban centres:

- *Measure 3.5: “Promotion of local Agenda 21 and of other instruments of environmental sustainability”* (ddg n. 3448 del 08/03/2005, BURL n. 13 del 1 aprile 2005, 2° supplemento straordinario). The announcement is addressed to local authorities and provides for provisions related to plans and programmes for sustainable mobility and traffic management aimed at the reduction of the polluting impact of public transports through the coordination and optimization of the services.
- *Measure 3.1: “Valorisation and sustainable use of protected areas”* (ddg n. 23385 del 28/12/2004, BURL n. 2 del 10 gennaio 2005, serie ordinaria). The announcement is addressed to local authorities and provides for actions related to the realization of infrastructures and to the implementation of the services aimed at the achievement of a sustainable mobility.

TOSCANA – in the framework of the creation of urban plans for improved mobility “*Piani Urbani per la Mobilità*” for the triennium 2002-2004, the regional conference for services the “*Conferenza dei Servizi*” established the allocation of 21.000.000 euros for the improvement of public transportation by means of bus lanes and more efficient routes. The implementation of the plan has already been completed and new plans for the triennium 2005-2007 have been elaborated. The plans establish the allocation of 39.000.000 euros for the improvement, renewal or realization of infrastructures for public transportation.

TRENTO – a delegation act have been adopted on sustainable mobility with the provincial decision of 28/07/2000 n.1948. The act promotes, among other, the realization of parking area and bus lanes.

VAL D’AOSTA – the regional government undertook the following measures to promote and provide incentives for public transportation:

- ♦ Regional plan for traffic management of 1998, yearly updated.
- ♦ New plan for air quality reclaiming, drawn up by the regional agency for environmental protection-ARPA. The plan provides for many activities for the reduction of air pollution as encouragement and promotion of the use of public transportation.

### **3. Measures for the promotion of lead-free petrol, also containing low level aromatic hydrocarbons;**

ABRUZZO - the Measures for the promotion of lead-free petrol, also containing low level aromatic hydrocarbons, measures to promote increased regional and domestic introduction of natural gas, measures to promote the introduction of gaseous fuel or other alternative forms of energy to substitute diesel fuel in public transportation, particularly buses, measures to support and encourage the participation of public transport services (points 3, 5, 6 and 7) has been enforced, through the Regional Deliberazione n.1228 (November 26<sup>th</sup> 2004), a financial program so-called “Program to finance the companies for public transportation in order to provide vehicles with methane fuel” (“Programma di finanziamento di impianti di rifornimento per il metano dedicati al parco rotabile delle aziende di trasporto pubblico locale”). The main goals of the program are to promote the use of methane fuel in public transportation and to create centers of methane distribution to locate near the companies for public transportation.

CAMPANIA – the regional administrative government has not adopted this kind of measures yet but maybe the other local authorities did. Nevertheless, some important measures have been developed in order to reduce emissions of carbon dioxide as follows:

- DGR N.7563 of 30<sup>th</sup> December 2000 entitled “Allocation of funds for the rolling stock renovation of the local public transportation and to buy new buses using non conventional fuel” (“Stanziamiento fondi per il rinnovo del materiale rotabile delle aziende esercenti il trasporto pubblico locale ed acquisto di bus ad alimentazione non convenzionale a basso impatto ambientale”)
- DGR N. 1282 of April 5<sup>th</sup>, 2002 called “Metrocampania project” (“Progetto Metrocampania”) on the improvement of regional railway transport.
- “Metrolò del mare Consortium”. The consortium connects different municipalities to the isles located in front of Napoli Gulf. As soon as the project finishes 6 million of inhabitants will be served. Since 2000, 25,5 kilometers of lines and 17 new stations have been opened. Before the end of 2005 more 15 kilometers and 18 stations will be opened all over the region. By 2010 it is foreseen to provide the citizens with a total of 1400 kilometers of lines, 423 stations, 28 parking and 21 exchange points railways – bus.

PUGLIA – the “Finance plan” (Piano di Investimenti” ex.Law 194/98) deals with the improvement actions in the public transportation. Moreover, according to art. 17 DPR

203/88, the regional administrative government gave the authorization for biodiesel fuel production

FRIULI – The regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). In this plan are established the specific measures regarding transportation. It must be said that through the DGR 986/2000 these measures were already individuated.

Moreover with the DGR 421/2005 the contents of the atmospheric pollution action plan were approved. In the plan are pointed out all the actions that municipalities can adopt in order to reduce atmospheric pollution and to improve the quality of life.

LIGURIA –The regional administrative government elaborated during 2002, the following plans and programs in order to face up atmospheric pollution.

- “Activities to support the regional environmental management” (“Attività di supporto alla gestione ambientale regionale”) - Docup Ob2 (2000-2006), Measure 2.6.
- “Carbon Tax” - (DGR 1427 del 30/11/2001)
- “Operations to support the sustainable mobility in the municipality of Genova” (“Interventi radicali per la mobilità sostenibile nel Comune di Genova”) - (DD 95/SIAR/00 e DD 1275/IAR/02)
- The municipality of Genova joint the plan called “car sharing” (“Adesione del Comune di Genova alla Iniziativa Car Sharing”) - (D.D. 495/SIAR/00; D.D.85/SIAR/00)
- The municipality of Genova joint the program on Mobility Management promoted by the Ministry for environment and territory - (D.D. 84/SIAR/00; Decreti 27/3/1998 e 20/12/2000)
- The municipalities of Genova and La Spezia joint the program on low environmental impact of fuel promoted by the Ministry for environment and territory - (Decreto n. 83 del 20/12/2000).
- “Operations to promote the sustainable mobility in the municipality of Genova in the framework of the Plan for environmental defence” (“Interventi a favore della mobilità sostenibile nell'ambito del Programma stralcio di tutela ambientale presso il Comune di Genova”) - D.D. 24/11/1999, n. 495, e D.D. 28/12/1999, n. 603
- “Check of gas emissions in the municipality of Genova” (“Controllo delle emissioni dei gas di scarico Bollino Blu presso il Comune di Genova”) - DM 28/02/1994 Ordinanza del sindaco n. 122/04

- “To promote the bicycle use carrying out cycle tracks” (“Incentivazione dell'uso della bicicletta tramite la realizzazione di piste ciclabili”) - D.G.R. 1440/99
- La Spezia Municipal ordinance on general traffic restriction to enter the city” (“Ordinanza del Comune di La Spezia di chiusura del traffico” - n° 2548 of the December 2<sup>nd</sup>, 2003.

Moreover the regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). The plan established the specific measures to improve quality air on the regional territory and to reduce greenhouse gas emissions.

PIEMONTE – According to the regional law 43/2000 and to the D.G.R. n. 14-7623 of November 11<sup>th</sup>, 2002, the regional administrative government set a incentive program to promote the use of methane and gas fuel as follows:

- To promote the introduction of gaseous fuel, methane fuel and low environmental impact fuel in public transportation. The amount of 5.000.000 € has been granted for the three years period 2002 – 2004.
- To increase the methane distribution system. The amount of 4.950.000 € has been granted for the three years period 2002 – 2004 in order to carry out 33 methane distribution plants.
- Economic incentives to buy methane buses. The amount of 1.350.000 € has been granted for year 2004
- Economic incentives to buy methane or gaseous vehicles and to replace old-technology vehicles before three years by the date of registration. The amount of 2.500.000 € has been granted for year 2005

EMILIA ROMAGNA - Measures for the promotion of lead-free petrol, also containing low level aromatic hydrocarbons and measures for the improved inspection and maintenance of vehicles and the replacement of old-technology vehicles through economic incentives were carried out with the campaign “Bollino blu” and with DGR 68/04.

LOMBARDIA – In 2001 the region subscribed with IMET and APAT the agreement “*Accordo di programma quadro ambiente ed energia*” and in 2002 subscribed an integrative act for the promotion and encouragement to the use of combustibles with low environmental impact as desulphured oil (with a concentration of sulphur  $\leq 10$  p.p.m) and biodiesel both for domestic heating and transportation. Technical protocols on this

measure were subscribed by IMET on December 30<sup>th</sup>, 2004; while the measure was approved with D.G.R. 20640/05 (Announcement B.U.R.L. 21 febbraio 2005).

TOSCANA – in order to reduce emissions of pollutants the deliberation of the regional council D.G.R. 54/03 established limits of emission for vehicles and trains to be purchased for the improvement of potentiality of public transports.

TRENTO – Measures for the promotion of lead-free petrol, also containing low level aromatic hydrocarbons are undertaken in order to observe European directives.

#### **4. Measures for the improved inspection and maintenance of vehicles and the replacement of old-technology vehicles through economic incentives;**

ABRUZZO - through two Regional Deliberations n. 1162/01 and 253/02 have been located 32 municipalities of the region endangered by atmospheric pollution according to the legislative decree 163/99. Two projects have been addressed to these municipalities.

The first one is aimed to substitute traditional fuel in public and private transportation with methane fuel. For this project has been started a regional agreement with the administrative municipalities and the c agency in order to activate the financing.

The second project well known as “Methane project” (“Progetto metano”) deals with contribution for the company located in the 32 municipalities to buy new commercial vehicles using methane fuel or bio-fuel.

At the moment the two project have not been enforced by the local administration, yet.

UMBRIA – the regional administrative government is analyzing the possibility substitute traditional fuel with methane fuel. In this project are involved also 4 regional companies of public transportation.

CAMPANIA – the regional administrative government has not adopted this kind of measures yet but maybe the other local authorities did. Nevertheless, some important measures have been developed in order to reduce emissions of carbon dioxide as follows:

- DGR N.7563 of 30<sup>th</sup> December 2000 entitled “Allocation of funds for the rolling stock renovation of the local public transportation and to buy new buses using non conventional fuel” (“Stanziamento fondi per il rinnovo del materiale rotabile delle aziende esercenti il trasporto pubblico locale ed acquisto di bus ad alimentazione non convenzionale a basso impatto ambientale”)
- DGR N. 1282 of April 5<sup>th</sup>, 2002 called “Metrocampania project” (“Progetto Metrocampania”) on the improvement of regional railway transport.

▪ “Metrò del mare Consortium”. The consortium connects different municipalities to the isles located in front of Napoli Gulf. As soon as the project finishes 6 million of inhabitants will be served. Since 2000, 25,5 kilometers of lines and 17 new stations have been opened. Before the end of 2005 more 15 kilometers and 18 stations will be opened all over the region. By 2010 it is foreseen to provide the citizens with a total of 1400 kilometers of lines, 423 stations, 28 parking and 21 exchange points railways – bus.

FRIULI – The regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). In this plan are established the specific measures regarding transportation. It must be said that trough the DGR 986/2000 these measures were already individuated.

Moreover with the DGR 421/2005 the contents of the atmospheric pollution action plan were approved. In the plan are pointed out all the actions that municipalities can adopt in order to reduce atmospheric pollution and to improve the quality life.

PUGLIA – the regional administrative government developed a program called “Carbon Tax” in order to use public transportation with low environmental impact. The “Regional program on environment safeguard asse 8, linea A” called “Actions to promote the use of public transportation with low environmental impact” (“Interventi per l’incentivazione all’ammodernamento del parco degli autoveicoli circolanti nel territorio regionale, con autoveicoli a più basso impatto ambientale”). The amount of 4.500.000,00 € has been granted for this project. Also the investment plan “*Piano di Investimenti*”-ex.Law 194/98- deals with this topic.

LIGURIA –The regional administrative government elaborated during 2002, the following plans and programs in order to face up atmospheric pollution.

- “Activities to support the regional environmental management” (“Attività di supporto alla gestione ambientale regionale”) - Docup Ob2 (2000-2006), Measure 2.6.
- “Carbon Tax” - (DGR 1427 del 30/11/2001)
- “Operations to support the sustainable mobility in the municipality of Genova” (“Interventi radicali per la mobilità sostenibile nel Comune di Genova”) - (DD 95/SIAR/00 e DD 1275/IAR/02)
- The municipality of Genova joint the plan called “car sharing” (“Adesione del Comune di Genova alla Iniziativa Car Sharing”) - (D.D. 495/SIAR/00; D.D.85/SIAR/00)



- The municipality of Genova joint the program on Mobility Management promoted by the Ministry for environment and territory - (D.D. 84/SIAR/00; Decreti 27/3/1998 e 20/12/2000)
- The municipalities of Genova and La Spezia joint the program on low environmental impact of fuel promoted by the Ministry for environment and territory - (Decreto n. 83 del 20/12/2000.
- “Operations to promote the sustainable mobility in the municipality of Genova in the framework of the Plan for environmental defence” (“Interventi a favore della mobilità sostenibile nell'ambito del Programma stralcio di tutela ambientale presso il Comune di Genova”) - D.D. 24/11/1999, n. 495, e D.D. 28/12/1999, n. 603
- “Check of gas emissions in the municipality of Genova” (“Controllo delle emissioni dei gas di scarico Bollino Blu presso il Comune di Genova”) - DM 28/02/1994 Ordinanza del sindaco n. 122/04
- “To promote the bicycle use carrying out cycle tracks” (“Incentivazione dell'uso della bicicletta tramite la realizzazione di piste ciclabili”) - D.G.R. 1440/99
- La Spezia Municipal ordinance on general traffic restriction to enter the city” (“Ordinanza del Comune di La Spezia di chiusura del traffico” - n° 2548 of the December 2<sup>nd</sup>, 2003.

Moreover the regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). The plan established the specific measures to improve quality air on the regional territory and to reduce greenhouse gas emissions.

- PIEMONTE – according to the regional law 43/2000 checks of gas emissions must be done all over the regional territory.

During 2004 the regional administrative government promoted a communication campaign called “Guida alla guida e bollino blu”. Two forms inform motorists about the possibility to save fuel and to have a safe driving thanks to a right maintenance of their vehicles. In the garages, which joint the campaign, additional checks are made in order to improve the vehicles safety and to save fuel.

“Financial plans for local public transportation” finance yearly the renovation and increasing of the vehicles for local public transportation.

LAZIO – with Art. 40 of L.R. 9/05, the regional administration have allocated economic incentives for a total amount of 4 millions euros in order to replace old-technology

mopeds. The law provides for agreements between constructors and commercial association.

VENETO – the most important economic incentives for the promotion of public transportation are those related to the improvement of the quality of network and of the service, including comfort, security, velocity, efficiency, accessibility and management.

Regional administration activated important financings through the investment plans of 2000-2003, 2002-2004 and 2004-2005 for a total amount of 211.800.000,00 Euros that will allow the purchase of 1.320 new buses to substitute the vehicles older than 15 years.

LOMBARDIA – The regional administration allocates incentives for car trading and renewal of obsolete vehicles by substitution with Euro 3 and Euro 4 ones. Incentives are higher whether the new vehicle is methane or propane powered. Transformation of fuel vehicles in methane/propane powered is encouraged too by means of financings given by the government. Moreover, as in the other regions of the country, an annual control on exhaust emissions is compulsory for every vehicle.

TOSCANA – Measures for the improved inspection and maintenance of vehicles, the replacement of old-technology vehicles aimed, amongst others, at the reduction of PM10 emissions through economic incentives have been undertaken with the agreement of October 10<sup>th</sup>, 2003 between 16 municipalities and the related provinces. In the framework of the agreement were allocated 10.000.000 of euros.

TRENTO – article 30 of the provincial law 11 marzo 2005, n. 3 provided for the allocation of funds for the purchase of low environmental impact vehicles for public transportation. Moreover the agreement between public and private stakeholders for the triennium 2004-2006 gave the chance to improve the fleet of public transports.

VAL D'AOSTA –the regional law 27 marzo 1991, n. 11 provided for the allocation of funds for the purchase of low environmental impact vehicles for public transportation.

## **5. Measures to promote increased regional and domestic introduction of natural gas;**

UMBRIA – the regional administrative government is analyzing the possibility substitute traditional fuel with methane fuel. In this project are involved also 4 regional companies of public transportation.

CAMPANIA – the regional administrative government has not adopted this kind of measures yet but maybe the other local authorities did. Nevertheless, some important measures have been developed in order to reduce emissions of carbon dioxide as follows:

- DGR N.7563 of 30<sup>th</sup> December 2000 entitled “Allocation of funds for the rolling stock renovation of the local public transportation and to buy new buses using non conventional fuel” (“Stanziamiento fondi per il rinnovo del materiale rotabile delle aziende esercenti il trasporto pubblico locale ed acquisto di bus ad alimentazione non convenzionale a basso impatto ambientale”)

- DGR N. 1282 of April 5<sup>th</sup>, 2002 called “Metrocampania project” (“Progetto Metrocampania”) on the improvement of regional railway transport.

- “Metrò del mare Consortium”. The consortium connects different municipalities to the isles located in front of Napoli Gulf. As soon as the project finishes 6 million of inhabitants will be served. Since 2000, 25,5 kilometers of lines and 17 new stations have been opened. Before the end of 2005 more 15 kilometers and 18 stations will be opened all over the region. By 2010 it is foreseen to provide the citizens with a total of 1400 kilometers of lines, 423 stations, 28 parking and 21 exchange points railways – bus.

FRIULI – The regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). In this plan are established the specific measures regarding transportation. It must be said that trough the DGR 986/2000 these measures were already individuated.

Moreover with the DGR 421/2005 the contents of the atmospheric pollution action plan were approved. In the plan are pointed out all the actions that municipalities can adopt in order to reduce atmospheric pollution and to improve the quality life.

LIGURIA –The regional administrative government elaborated during 2002, the following plans and programs in order to face up atmospheric pollution.

- “Activities to support the regional environmental management” (“Attività di supporto alla gestione ambientale regionale”) - Docup Ob2 (2000-2006), Measure 2.6.
- “Carbon Tax” - (DGR 1427 del 30/11/2001)
- “Operations to support the sustainable mobility in the municipality of Genova” (“Interventi radicali per la mobilità sostenibile nel Comune di Genova”) - (DD 95/SIAR/00 e DD 1275/IAR/02)
- The municipality of Genova joint the plan called “car sharing” (“Adesione del Comune di Genova alla Iniziativa Car Sharing”) - (D.D. 495/SIAR/00; D.D.85/SIAR/00)

- The municipality of Genova joint the program on Mobility Management promoted by the Ministry for environment and territory - (D.D. 84/SIAR/00; Decreti 27/3/1998 e 20/12/2000)
- The municipalities of Genova and La Spezia joint the program on low environmental impact of fuel promoted by the Ministry for environment and territory - (Decreto n. 83 del 20/12/2000.
- “Operations to promote the sustainable mobility in the municipality of Genova in the framework of the Plan for environmental defence” (“Interventi a favore della mobilità sostenibile nell'ambito del Programma stralcio di tutela ambientale presso il Comune di Genova”) - D.D. 24/11/1999, n. 495, e D.D. 28/12/1999, n. 603
- “Check of gas emissions in the municipality of Genova” (“Controllo delle emissioni dei gas di scarico Bollino Blu presso il Comune di Genova”) - DM 28/02/1994 Ordinanza del sindaco n. 122/04
- “To promote the bicycle use carrying out cycle tracks” (“Incentivazione dell'uso della bicicletta tramite la realizzazione di piste ciclabili”) - D.G.R. 1440/99
- La Spezia Municipal ordinance on general traffic restriction to enter the city” (“Ordinanza del Comune di La Spezia di chiusura del traffico” - n° 2548 of the December 2<sup>nd</sup>, 2003.

Moreover the regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). The plan established the specific measures to improve quality air on the regional territory and to reduce greenhouse gas emissions.

PIEMONTE – According to the regional law 43/2000 and to the D.G.R. n. 14-7623 of November 11<sup>th</sup>, 2002, the regional administrative government set a incentive program to promote the use of methane and gas fuel as follows:

- To promote the introduction of gaseous fuel, methane fuel and low environmental impact fuel in public transportation. The amount of 5.000.000 € has been granted for the three years period 2002 – 2004.
- To increase the methane distribution system. The amount of 4.950.000 € has been granted for the three years period 2002 – 2004 in order to carr out 33 methane distribution plants.
- Economic incentives to buy methane buses. The amount of 1.350.000 € has been granted for year 2004

- Economic incentives to buy methane or gaseous vehicles and to replace old-technology vehicles before three years by the date of registration. The amount of 2.500.000 € has been granted for year 2005

LAZIO - The process of methanization have been undertaken many years ago in order to improve domestic use of natural gas.

VENETO – the regional plan for the safeguard of atmosphere, the “*Piano Regionale di Tutela e Risanamento dell’Atmosfera*” elaborated according to D. Lgs 351/1999 and to D.M. 60/2002, individuated the municipalities that obtained the incentives established by the operative plan of the convention “*Progetto Metano*” between IMET and FIAT S.p.A. during 2001 for the promotion of methane. Moreover, according to D.G.R. 4143/03, the same municipalities received a total amount of 1.900.000,00 Euros to undertake the following list actions to combat atmospheric pollution established by the D.G.R.:

- Transformation of oil supplied vehicles owned by public enterprises in methane, LPG or electric- supplied.
- Promote the adoption of methane supplied taxis.
- Promote the adoption of methane for commercial vehicles.

D.G.R. 4369/04 established financings for a total of 1.633.722,27 euros for the promotion of the substitution of fuel mopeds with methane ones.

LOMBARDIA – Being the issue of prevention of atmospheric pollution of primary concern for the regional authorities, with D.G.R. 8529/02 the region allocated financings to the owners of taxis for the purchase of a new vehicle methane or propane powered or for the transformation of the old ones. The use of methane/propane is encouraged as well by the introduction of discounts for refuelling.

The most evident obstacle for the diffusion of methane powered vehicles is the lack of gas stations. The D.G.R. 8529/02 provides as well for the improvement of the regional network of distribution through financial support given to enterprises and municipalities for the realization or the implementation of more gas stations. It is foreseen that by the end of 2004 there will be 50 gas stations widespread all over the regional territory.

TOSCANA – measures to promote increased regional commercial transport through the introduction of vehicles supplied with natural gas have been undertaken with the agreement of November 24<sup>th</sup>, 2004 between municipal authorities, *Piaggio S.p.A.*, *FIAT Auto S.p.A.*, *UNRAE*, *Federchimica*, *Assogasliquidi*, *Consorzio Ecogas*, *Federmetano* and commercial association.

TRENTO – in order to encourage the development of methane the agreement on air quality for 2004 provided for the creation of a network of methane stations in 11 municipalities while the plan for energy allocated funds for the improvement of efficiency of domestic heating plants, incentivating the use of natural gas and district heating.

VAL D'AOSTA – with regional law 24 dicembre 1996, n. 44 “*Concessione di contributi regionali per l'incentivazione all'utilizzo del gas metano*”, the regional government allocated funds for the contribution of private and public stakeholders in order to adopt methane.

#### **6. Measures to promote the introduction of gaseous fuel or other alternative forms of energy to substitute diesel fuel in public transportation, particularly buses;**

UMBRIA – the regional administrative government is analyzing the possibility substitute traditional fuel with methane fuel. In this project are involved also 4 regional companies of public transportation.

CAMPANIA – the regional administrative government has not adopted this kind of measures yet but maybe the other local authorities did. Nevertheless, some important measures have been developed in order to reduce emissions of carbon dioxide as follows:

- DGR N.7563 of 30<sup>th</sup> December 2000 entitled “Allocation of funds for the rolling stock renovation of the local public transportation and to buy new buses using non conventional fuel” (“Stanziamiento fondi per il rinnovo del materiale rotabile delle aziende esercenti il trasporto pubblico locale ed acquisto di bus ad alimentazione non convenzionale a basso impatto ambientale”)
- DGR N. 1282 of April 5<sup>th</sup>, 2002 called “Metrocampania project” (“Progetto Metrocampania”) on the improvement of regional railway transport.
- “Metrò del mare Consortium”. The consortium connects different municipalities to the isles located in front of Napoli Gulf. As soon as the project finishes 6 million of inhabitants will be served. Since 2000, 25,5 kilometers of lines and 17 new stations have been opened. Before the end of 2005 more 15 kilometers and 18 stations will be opened all over the region. By 2010 it is foreseen to provide the citizens with a total of 1400 kilometers of lines, 423 stations, 28 parking and 21 exchange points railways – bus.

PUGLIA – the regional administrative government developed a program called “Carbon Tax” in order to increase the use of public transportation and to promote electrical vehicles.

FRIULI – The regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). In this plan are established the specific measures regarding transportation. It must be said that through the DGR 986/2000 these measures were already individuated.

Moreover with the DGR 421/2005 the contents of the atmospheric pollution action plan were approved. In the plan are pointed out all the actions that municipalities can adopt in order to reduce atmospheric pollution and to improve the quality of life.

LIGURIA –The regional administrative government elaborated during 2002 the following plans and programs in order to face up atmospheric pollution.

- *“Attività di supporto alla gestione ambientale regionale”* – program of activities to support the regional environmental management - Docup Ob2 (2000-2006), Measure 2.6.
- *“Carbon Tax”* - (DGR 1427 del 30/11/2001)
- *“Interventi radicali per la mobilità sostenibile nel Comune di Genova”*- operations to support the sustainable mobility in the municipality of Genova - (DD 95/SIAR/00 e DD 1275/IAR/02)
- *“Adesione del Comune di Genova all’Iniziativa Car Sharing* - the municipality of Genova joint the plan called “car sharing”) - (D.D. 495/SIAR/00; D.D.85/SIAR/00)
- The municipality of Genova joint the program on Mobility Management promoted by the Ministry for Environment and Territory - (D.D. 84/SIAR/00; Decreti 27/3/1998 e 20/12/2000)
- The municipalities of Genova and La Spezia joint the program on low environmental impact of fuel promoted by the Ministry for environment and territory - (Decreto n. 83 del 20/12/2000).
- *“Interventi a favore della mobilità sostenibile nell’ambito del Programma stralcio di tutela ambientale presso il Comune di Genova”* - operations to promote the sustainable mobility in the municipality of Genova in the framework of the Plan for environmental defence - D.D. 24/11/1999, n. 495, e D.D. 28/12/1999, n. 603

- “*Controllo delle emissioni dei gas di scarico Bollino Blu presso il Comune di Genova*” -monitoring on gas emissions in the municipality of Genova - DM 28/02/1994 Ordinanza del sindaco n. 122/04
- “*Incentivazione dell'uso della bicicletta tramite la realizzazione di piste ciclabili*” - promote the bicycle use carrying out cycle tracks - D.G.R. 1440/99
- “*Ordinanza del Comune di La Spezia di chiusura del traffico*” - municipal ordinance on general traffic restriction to enter the city - n° 2548 of December 2<sup>nd</sup>, 2003.

Moreover the regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). The plan established the specific measures to improve quality air on the regional territory and to reduce greenhouse gas emissions.

PIEMONTE – as illustrated above “Financial plans for local public transportation” finance yearly the renovation and increasing of the vehicles for local public transportation.

Economic contributions (20% of the total amount of each car) are available to promote the taxis renovation and rental cars renovation for the five-year period 2003–2007 according to the regional law n. 14 of July 2<sup>nd</sup>, 2003.

BOLZANO - The province gave financial support for the adoption of particulate filters and for the adoption of methane powered engines either for private or public transportation together with the improvement of methane stations.

EMILIA ROMAGNA - The promotion of regional and domestic use of natural gas was done with the introduction of methane. The process of substitution of old plants with methane ones has been almost completed, more specifically all combustible oil plants were substituted with methane plants realized with BAT according to European directives.

LAZIO - Measures to promote the introduction of gaseous fuel as methane have been adopted for the city of Rome and other municipalities of the region with the project “*Progetto metano*”. With the project an agreement has been established in 2001 between *IMET*, *Fiat S.p.A.* and *Unione Petrolifera* in order to promote methane as alternative form of combustible for road transportation.

VENETO – amongst other activities for the promotion of low environmental impact vehicles, the regional administration activated important financings for the purchase of new buses through the investment plans of 2002-2004 and 2004-2005, 80% of which



assigned to unconventional powered vehicles. The most used form of energy for new buses is methane with the exception of the province of Vicenza where it was adopted propane gas.

LOMBARDIA – Measures to promote the introduction of gaseous fuel or other alternative forms of energy to substitute diesel fuel in public transportation have been undertaken through D.G.R. 10243/02. The deliberation defined criteria for the assignment to local authorities of financings for the substitution of obsolete buses with electricity/methane/propane supplied ones or with traditional vehicles having a low environmental impact (i.e. eco-diesel supplied with sulphur emissions  $\leq 10$  ppm and in accordance with Euro 4 norms).

Moreover D.G.R. 14956/03 defined criteria, deadlines, technical prescriptions and conditions for the assignment of financings to local authorities for the equipment of oil supplied public vehicles with filtering systems for exhaust emissions.

Regional administration, according to Law 194/98 on financing programmes for the period 2003-2017, allocated 113,8 millions of Euros for the renewal of public buses. In addition 12 millions of Euros were invested for the purchase of eco-diesel/methane and electricity supplied buses according to Law 16/02. Finally 8 millions of Euro are going to be assigned for the experimentation of hydrogen as further alternative supply.

TRENTO – a delegation act have been adopted on sustainable mobility with the provincial decision of 28/07/2000 n.1948. Investments have been planned for a total amount of 15M euros for the purchasing of 64 methane supplied buses and 20 trains. Moreover 40M of euros have been allocated for the conversion of the railway Valsugana in a surface subway. In order to encourage the development of methane the agreement on air quality for 2004 provided for the creation of a network of methane stations in 11 municipalities while the plan for energy allocated funds for the improvement of efficiency of domestic heating plants, incentivating the use of natural gas and district heating.

## **7. Measures to support and encourage the participation of public transport services in the above activities**

UMBRIA – the regional administrative government is analyzing the possibility substitute traditional fuel with methane fuel. In this project are involved also 4 regional companies of public transportation.

CAMPANIA – the regional administrative government has not adopted this kind of measures yet but maybe the other local authorities did. Nevertheless, some important

measures have been developed in order to reduce emissions of carbon dioxide as follows:

- DGR N.7563 of 30<sup>th</sup> December 2000 entitled “Allocation of funds for the rolling stock renovation of the local public transportation and to buy new buses using non conventional fuel” (“Stanziamiento fondi per il rinnovo del materiale rotabile delle aziende esercenti il trasporto pubblico locale ed acquisto di bus ad alimentazione non convenzionale a basso impatto ambientale”)
- DGR N. 1282 of April 5<sup>th</sup>, 2002 called “Metrocampania project” (“Progetto Metrocampania”) on the improvement of regional railway transport.
- “Metrò del mare Consortium”. The consortium connects different municipalities to the isles located in front of Napoli Gulf. As soon as the project finishes 6 million of inhabitants will be served. Since 2000, 25,5 kilometers of lines and 17 new stations have been opened. Before the end of 2005 more 15 kilometers and 18 stations will be opened all over the region. By 2010 it is foreseen to provide the citizens with a total of 1400 kilometers of lines, 423 stations, 28 parking and 21 exchange points railways – bus.

FRIULI – The regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). In this plan are established the specific measures regarding transportation. It must be said that trough the DGR 986/2000 these measures were already individuated.

Moreover with the DGR 421/2005 the contents of the atmospheric pollution action plan were approved. In the plan are pointed out all the actions that municipalities can adopt in order to reduce atmospheric pollution and to improve the quality life.

LIGURIA –The regional administrative government elaborated during 2002, the following plans and programs in order to face up atmospheric pollution.

- “Activities to support the regional environmental management” (“Attività di supporto alla gestione ambientale regionale”) - Docup Ob2 (2000-2006), Measure 2.6.
- “Carbon Tax” - (DGR 1427 del 30/11/2001)
- “Operations to support the sustainable mobility in the municipality of Genova” (“Interventi radicali per la mobilità sostenibile nel Comune di Genova”) - (DD 95/SIAR/00 e DD 1275/IAR/02)
- The municipality of Genova joint the plan called “car sharing” (“Adesione del Comune di Genova alla Iniziativa Car Sharing”) - (D.D. 495/SIAR/00; D.D.85/SIAR/00)

- The municipality of Genova joint the program on Mobility Management promoted by the Ministry for environment and territory - (D.D. 84/SIAR/00; Decreti 27/3/1998 e 20/12/2000)
- The municipalities of Genova and La Spezia joint the program on low environmental impact of fuel promoted by the Ministry for environment and territory - (Decreto n. 83 del 20/12/2000.
- “Operations to promote the sustainable mobility in the municipality of Genova in the framework of the Plan for environmental defence” (“Interventi a favore della mobilità sostenibile nell'ambito del Programma stralcio di tutela ambientale presso il Comune di Genova”) - D.D. 24/11/1999, n. 495, e D.D. 28/12/1999, n. 603
- “Check of gas emissions in the municipality of Genova” (“Controllo delle emissioni dei gas di scarico Bollino Blu presso il Comune di Genova”) - DM 28/02/1994 Ordinanza del sindaco n. 122/04
- “To promote the bicycle use carrying out cycle tracks” (“Incentivazione dell'uso della bicicletta tramite la realizzazione di piste ciclabili”) - D.G.R. 1440/99
- La Spezia Municipal ordinance on general traffic restriction to enter the city” (“Ordinanza del Comune di La Spezia di chiusura del traffico” - n° 2548 of the December 2<sup>nd</sup>, 2003.

Moreover the regional administrative government has almost completed the “General plan on air restoring” (“Piano generale di risanamento”). The plan established the specific measures to improve quality air on the regional territory and to reduce greenhouse gas emissions.

PIEMONTE – the regional administrative government promoted and supplied the technical support to municipal companies for public transportation in order to build methane distribution plants. Up to now two plants (Alessandria and Novara) were built while the four plants (Torino, Ivrea, Asti and Vercelli) are under planning.

BOLZANO - The province promoted as well the realization of new bio-compatible buildings or thermal isolation of old ones and the realization of biomass combustion thermal plants.

APPA (Regional Agency for Environmental Protection of Bolzano Province) manages a station for monitoring of CO<sub>2</sub> in coordination with the carboeurope, flunet e global terrestrial observing system. The aim of the network is to quantify the absorption of CO<sub>2</sub>

by alpine ecosystem through the method of eddy covariance and the validation of the method.

LAZIO - Besides financings have been given by the regional administration for the renewal of public transport and the equipment with *EURO 4* engines and for the improvement of electric transports.

VENETO – the participation of public transport services to the policy of sustainable mobility in urban centers promoted by the regional administration was supported and encouraged through numerous financings. Amongst others, 360.000 Euros were allocated throughout the municipalities of the region for the purchasing of electric bicycles; moreover D.G.R. n. 1924/2004 allocated additional 600.000,00 Euros for this purpose. An investment of 170.000,00 Euros for the purchasing of electric vehicles have been proposed by the municipality of Venice through a pilot project in order to improve and encourage the use of exchange-parking areas of Mestre.

An awareness campaign was promoted on exhaust emissions' control directed to citizens of the major urban centers of the region giving detailed information on depolluting actions undertaken by the local administrations.

LOMBARDIA –The deliberation D.G.R. 10243/02 defined criteria for the assignment to local authorities of financings for the substitution of obsolete buses with electricity/methane/propane supplied ones or with traditional vehicles having a low environmental impact (i.e. eco-diesel supplied with sulphur emissions  $\leq 10$  ppm and in accordance with Euro 4 norms).

In order to encourage the participation of public transport services in the activities related to the promotion of sustainable mobility the regional administration emitted an announcement and selected and financed 17 projects involving 21 enterprises and 35.000 operators. Financings were addressed to activities of car-pooling, encouragement of telecommuting, promotion of collective taxi service, optimization plans for travels home-work place, promotion of bicycles and mopeds, improvement of bus shelters.

##### **5. TO PREPARE NATIONAL PROGRAMS FOR THE REDUCTION AND CONTROL OF POLLUTION BY THE HEAVY METALS, MERCURY, CADMIUM AND LEAD.**

National programs for the reduction and control of inputs of the heavy metals mercury, cadmium and lead are expected to include the following activities, which have been specified in the SAP:

**1. The adoption at the national level by 2005 at the latest and application of the common measures for preventing mercury pollution adopted by the Parties in 1987 (releases into the sea max. conc. 0.050 mg/l);**

SICILIA – on the regional territory are present 3 areas which show a severe environmental risk such as the industrial area of Siracusa, the industrial area of Gela and the Comprensorio del Mela. In these areas are present the most important industrial concentration of the region prevalently petroleum refining and petrol chemical plants. For Siracusa and Gela they have been developed the reclamation plans while for the Comprensorio del Mela the plan is still under compilation. The areas of Siracusa and Gela have been identified as contaminated sites of national interest according to the Ministerial Decree 471/99. For these sites the process characterization and data validation is still going on.

FRIULI – in the municipalities of Muzzana del Turgnano, Carlino, Marano Lagunare, S. Giorgio di Nogaro, Cervignano and Torviscosa, collect and treatment of urban and industrial wastewater have been carried out thanks to a submarine pipeline which crosses the lagoon and discharges into the sea. In this way industrial waste water containing heavy metals are intercepted before the discharge into the lagoon.

For the company called “Industrie chimiche Caffaro S.p.A.- Torviscosa” according to the Accordo Programma Quadro on water management and safeguard (enforcement of the European directive 76/464/CEE) it is foreseen the building of a chloro-soda plant instead of the existing plant provided with mercury cells. Concerning Grado and Marano lagoon, the governmental commissary has activated a project to build a treatment plant for the lagoon sediments. The plant installation will be carried out by the two consortia called “Depurazione Laguna” and “Aussa- Corno”, respectively. The plant together with the “Montefalcone plant (Gorizia)” could treat all the regional dredged materials.

LIGURIA – till now no measures have been undertaken to control of inputs of the heavy metals. Anyway in the “Regional plan for water safeguard” was required to include data on natural concentrations of heavy metals in sediments. These kinds of data can be very useful to understand whether the source of pollution is human or natural.

Moreover the regional environmental agency supplies the necessary controls on industrial sectors.

PIEMONTE – The use of phosphate fertilizers with low concentration of cadmium is set by the “Integrated production plan” included in the regional developing plan PSR 2000-2006.

BOLZANO – concentrations of mercury are validated and are compliant with laws limits for surface waters.

EMILIA ROMAGNA – referring to liquid emissions of heavy metals with DM 367/03 quality standards have been indicated at national level for hazardous substances. According to the decree hazardous substance must be eliminated or strongly reduced by 2021. While by 2008 monitoring programme will end to define water quality referring to the above mentioned standards.

Soil matrix pollution by heavy metals must be referred to the use of sludge from wastewaters treatment plants in agriculture. Regional decision DGR 2773/04 (enforcement D.Lgs.99/92) gives regulations on this issue.

Mesures of control and prevention of pollution from Cd and Hg are mostly based on a system of authorizations that must be obtained by the plant's administrator by 2006, as stated by D.Lgs. 59/2005 (enforcement of 96/61/CE). In order to obtain the authorization plant must be provided with BATs.

VENETO – the reduction and control of pollution by the heavy metals, mercury, cadmium and lead, and particularly the control of the respect of emission limits for mercury, is already comprehended in the processes of waste water treatment.

SARDEGNA – According to the decree of the Italian Ministry for Environment and Territory D.M. 367/03 it will be prepared by local administrations the register of hazardous substances. The monitoring of waters' quality has already been undertaken but some problems have been encountered because limits established by the decree are often too low to be measured by the instruments.

TOSCANA – in the framework of the agreement between regional government and Italian Ministry for the Environment interventions have been planned in order to improve the efficiency of industrial treatment plant with the purpose of reducing the emissions of hazardous substances, included those of heavy metals, anticipating the deadlines of D.M. 367/03.

**2. The adoption at the national level by 2005 at the latest and application of the pollution prevention and control measures for cadmium and cadmium compounds adopted by the Parties in 1989 (releases into the sea max. conc. 0.2 mg/l);**

SICILIA – on the regional territory are present 3 areas which show a severe environmental risk such as the industrial area of Siracusa, the industrial area of Gela and the Comprensorio del Mela. In these areas are present the most industrial concentration

of the region prevalently petroleum refining and petrol chemical plants. For Siracusa and Gela they have been developed the Reclamation plans while for the Comprensorio del Mela the plan is still compiling. The areas of Siracusa and Gela have been identified as contaminated sites of national interest according to the Ministerial Decree 471/99. For these sites the process to characterize and validate data is still going on.

PUGLIA – the regional administrative government has adopted control measures for cadmium and cadmium compounds through the DGR N. 633 of April 19<sup>th</sup>, 2005 called “To promote studies of sludge, marine intrusion and marine environment” (“Promozione di studi nei settori dei fanghi di depurazione, dell’intrusione salina e degli ecosistemi marini”.)

FRIULI – in the framework of the Interreg III project, it has been activated the regional project called “Progetto Isonzo” to evaluate the environmental quality of the river related to the presence of mercury.

LIGURIA – till now no measures have been undertaken. Anyway in the “Regional plan for water safeguard” was required to include data on natural concentrations of heavy metals in the stream sediment. These kinds of data can be very useful to understand if it is human or natural pollution.

Moreover the necessary controls are made by the regional agency for environmental protection.

PIEMONTE – according to article 43 of Legislative Decree 152/99, the “Regional water bodies monitoring plan” was approved through the DGR n.46 of March 19<sup>th</sup>, 2001. The monitoring plan provides for the obligatory elimination of heavy metals such as cadmium and mercury.

EMILIA ROMAGNA – DM 367/03 indicated quality standards for liquid emissions of hazardous substances at national level, included those of heavy metals. According to the decree hazardous substance must be eliminated or strongly reduced by 2021. While by 2008 a monitoring programme will end to define water quality referring to the above mentioned standards.

Soil matrix pollution by heavy metals must be referred to the use of sludge from wastewaters treatment plants in agriculture. Regional decision DGR 2773/04 (enforcement D.Lgs.99/92) gives regulations on this issue.

Measures of control and prevention of pollution from Cd and Hg are mostly based on a system of authorizations that must be obtained by the plant’s administrator by 2006, as stated by D.Lgs. 59/2005 (enforcement of 96/61/CE). In order to obtain the authorization plant must be provided with BATs.

LAZIO – Pollution prevention and control measures for cadmium and cadmium compounds are pursued through monitoring campaigns carried out by the regional agency for environmental protection ARPA Lazio along the regional coastline.

VENETO – the reduction and control of pollution by the heavy metals, mercury, cadmium and lead, and particularly the control of the respect of emission limits for mercury, is already comprehended in the processes of waste water treatment.

SARDEGNA – According to the decree of the Italian Ministry for Environment and Territory D.M. 367/03 it will be prepared by local administrations the register of hazardous substances. The monitoring of waters' quality has already been undertaken but some problems have been encountered because limits established by the decree are often too low to be measured by the instruments.

TOSCANA – according to the agreement drawn up between the regional government and the Italian Ministry for the Environment a monitoring program on sediments and biota have been started up in 1997 and will end on March 3<sup>rd</sup>, 2006.

### **3. Legal framework for the adoption and application by 2005 at the latest in the industries of the alkaline chloride electrolysis sector**

PUGLIA – in the regional territory do not exist industries of the alkaline chloride electrolysis sector.

FRIULI – this issue is dealt with in line with national legislation on hazardous wastes.

LIGURIA – referring to this topic till now no measures have been undertaken. Anyway in the “Regional plan for water safeguard” was required to include data on natural concentrations of heavy metals in the stream sediment. These kinds of data can be very useful to understand if it is human or natural pollution.

Moreover the regional environmental agency supplies the necessary checks due to industrial sectors.

PIEMONTE - the only industrial plant is an IPPC plant. Moreover the plant established an agreement with the IMET, with the regional, provincial and municipal administrative governments, and with the regional environmental agency.

BOLZANO - In the province there are no industries of the alkaline chloride electrolysis sector. Anyway the province has reference law for these kind of industries L.P. 8/02 (absorption of D.Lgs. 152/99).

EMILIA ROMAGNA – Legal framework for the industries of the alkaline chloride electrolysis sector is represented by Table 3A, Enclose 5 of D.Lgs. 152/99. But it must



be underlined that in Emilia Romagna there are not industrial plants using processes of alkaline chloride electrolysis.

LAZIO – in the regional territory do not exist industries of the alkaline chloride electrolysis sector.

SARDEGNA – Legal framework for the industries of the alkaline chloride electrolysis sector is represented by Table 3A, Enclose 5 of D.Lgs. 152/99.

TOSCANA – Legal framework for the industries of the alkaline chloride electrolysis sector is represented by Table 3A, Enclose 5 of D.Lgs. 152/99.

TRENTO – in the regional territory do not exist industries of the alkaline chloride electrolysis sector.

**6. TO PREPARE NATIONAL PROGRAMS FOR THE REDUCTION AND CONTROL OF POLLUTION BY THE FOLLOWING ORGANOHALOGEN COMPOUNDS:**

- Halogenated Aliphatic Hydrocarbons (chlorinated solvents, chlorinated paraffins)
- Halogenated Aromatic Hydrocarbons [Chlorobenzenes, polychlorinated naphthalenes, polybrominated diphenyl ethers (PBDEs) and polybrominated biphenyls (PBBs)]
- Chlorinated Phenolic compounds
- Organohalogenated pesticides

National programs for the reduction and control of pollution by the above organohalogen compounds are expected to include the following activities, which have been specified in the SAP:

**1. To adopt at the national level and apply by 2005 at the latest, the common measures for the control of pollution by organohalogen compounds adopted by the Parties;**

SICILIA – on the regional territory are present 3 areas which show a severe environmental risk such as the industrial area of Siracusa, the industrial area of Gela and the Comprensorio del Mela. In these areas are present the most industrial concentration of the region prevalently petroleum refining and petrol chemical plants. For Siracusa and Gela they have been developed the Reclamation plans while for the Comprensorio del Mela the plan is still compiling. The areas of Siracusa and Gela have been identified as contaminated sites of national interest according to the Ministerial Decree 471/99. For these sites the process to characterize and validate data is still going on.

UMBRIA – in the Regional plan for water safeguard are described monitoring and control actions on a set of hazardous substances which are present in the industrial and urban wastewater as stated by DM 367/03.

FRIULI – According to D.M. 367/200 called “*Regolamento concernente la fissazione di standard di qualità nell’ambiente acquatico per le sostanze pericolose, ai sensi dell’art. 3, comma 4, del D. Lgs. 11 maggio 1999, n.152*”, the action plan of the regional agency for environmental protection provides for specific actions such as samples and analyses which have to be carried out by the regional departments.

LIGURIA – Controls needed according to national regulations on water resources are performed by the regional agency for environmental protection.

EMILIA ROMAGNA – referring to liquid emissions with DM 367/03 quality standards have been indicated at national level for hazardous substances, included organohalogen compounds. According to the decree hazardous substance must be eliminated or strongly reduced by 2021. While by 2008 a monitoring programme will end defining water quality referring to the above mentioned standards.

Soil matrix pollution must be referred to the use of sludge from wastewaters treatment plants in agriculture. Regional decision DGR 2773/04 (enforcement D.Lgs.99/92) gives regulations on this issue.

Measures of control and prevention of pollution are mostly based on a system of authorizations that must be obtained by the plant’s administrator by 2006, as stated by D.Lgs. 59/2005 (enforcement of 96/61/CE). In order to obtain the authorization plant must be provided with BATs.

Referring to atmospheric emissions, with Deliberation 969/1999 the regional administration adopted a unified code on BAT, providing concentration limits for emissions for authorization to discharge in atmosphere. For every activity, if use of organohalogen compounds cannot be avoided, is recommended the close-cycle processing and the lowering of emissions.

MOLISE – the presence of organohalogen compounds is periodically investigated in surface waters by the regional agency for environmental protection.

SARDEGNA – According to the decree of the Italian Ministry for Environment and Territory D.M. 367/03 it will be prepared by local administrations the register of hazardous substances. The monitoring of waters’ quality has already been undertaken but some problems have been encountered because limits established by the decree are often too low to be measured by the instruments.

TOSCANA – there are national and regional monitoring programs on waters quality, sediments and biota.

In the framework of the agreement between regional government and Italian Ministry for the Environment interventions have been planned in order to improve the efficiency of industrial treatment plant with the purpose of reducing the emissions of hazardous substances, included those of heavy metals, anticipating the deadlines of D. Lgs. 367/03. According to the agreement drawn up between the regional government and the Italian Ministry for the Environment a monitoring program on sediments and biota have been started up in 1997 and will end on March 3<sup>rd</sup>, 2006.

TRENTO – common measures for the control of pollution by organohalogen compounds are adopted according to D.M. 06.11.2003 n. 367 while wastewaters are monitored in order to promote further control actions on emission of contaminants at source.

VAL D’AOSTA – activities responsible for the discharge of organohalogen compounds must obtain previous authorization according to deliberation n. 371 del 14/02/2005, adoption of articles 6, 12, 15, 7 e 8 o d.p.r. 24 maggio 1988, n. 203.

## **2. To reduce the use of short-chained chlorinated paraffins in accordance with the LBS Protocol and internationally agreed provisions for the safeguarding of the environment and human health;**

LIGURIA – Controls needed according to national regulations on water resources are performed by the regional agency for environmental protection.

PIEMONTE – the investigation of pesticides and VOC is recommended by “Regional water bodies monitoring plan” approved through the DGR n.46-2495 of March 19<sup>th</sup>, 2001. Pesticides are clustered into three groups according to Corine Land Cover as follows:

- Fito 1 –Not rice- growing agricultural areas (illustrated in table 1)
- Fito 2 - Rice- growing agricultural areas
- Fito 3 - Not rice- growing agricultural areas down rice- growing basins

Following the Agreement of May, 8 2003 between Ministry for Health, Ministry for the Environment and Territory and the regional administrative governments the regional law DGR 15-14594 have been enforced through the three-year (2003-2005) plan “Plan to control and evaluate the possible effects deriving from pesticides utilization on environmental vulnerable divisions”

Regional plan on Pesticides research are yearly carried out as per minister’s decree of August 9<sup>th</sup>, 2002 (DM09/08/2002).

TRENTO – in the regional territory there are no industries using short-chained chlorinated paraffins.

**3. To regulate, by the year 2005 at the latest, releases of organochlorines by the paper and paper pulp industries**

SICILIA – it must be said that paper sector is not relevant on the regional territory.

PUGLIA – in the regional territory do not exist these kinds of plants.

LIGURIA – Controls needed according to national regulations on water resources are performed by the regional agency for environmental protection.

PIEMONTE – the limits are fixed by the table 3 of the decree by law 152/99.

BOLZANO – The province did not establish limits for organochlorines.

EMILIA ROMAGNA – Concentration limits for organochlorines emissions are:

$\leq 1$  mg /L for surface waters

$\leq 2$  mg/L for sewers

MOLISE – in the regional territory there are no paper or pulp industries.

TOSCANA – general regulations on industrial wastewaters discharge quality are given in Table 3 of D. Lgs. 152/99, but not specifically referred to the sector of paper production.

TRENTO – in the regional territory there are no paper industries using organochlorines. The concentration limit for chlorinated solvents is 0,5 mg/L.

**4. Limiting discharges measured as AOX (adsorbable organic halogen) to 1 kg per ton of paper pulp produced and by reducing it further in accordance with internationally agreed provisions**

LIGURIA – Controls needed according to national regulations on water resources are performed by the regional agency for environmental protection.

MOLISE – in the regional territory there are no paper or pulp industries.

TOSCANA – limits are given by D.Lgs. 152/99 but not specifically referring to the amount of paper and pulp produced.

**5. Promotion of BEP and BAT and the promotion of alternative bleaching to the use of molecular chlorine;**

LIGURIA – Controls needed according to national regulations on water resources are performed by the regional agency for environmental protection.

PIEMONTE – paper plants have to adopt the best available techniques.

EMILIA ROMAGNA – promotion of BEP and BAT and the promotion of alternative bleaching to the use of molecular chlorine is compulsory for companies that must obtain the Integrated Environmental Authorization according to D.Lgs. 59/05 (substitution of D.Lgs. 372/99).

TRENTO – BEP and BAT are promoted for industries subject to IPPC Directive as regional paper industries.

**6. To reduce and control the manufacture of PBDEs and PBBs in accordance with the LBS Protocol and other regionally and internationally agreed provisions;**

LIGURIA – Regarding waters, no necessity was individuated to adopt these kinds of measures. The regional environmental agency carries out the necessary controls but emission limits have not been established.

EMILIA ROMAGNA – up to now no provisions have been undertaken in order to reduce and control the manufacture and use of PBDEs and PBBs by the regional authorities.

TRENTO – there are no industries of manufacture of PBDEs and PBBs.

**7. To reduce and control the manufacture and use of certain pesticides, such as lindane, 2,4-D and 2,5-T herbicides, and tri- tetra- and penta- chlorophenols, used in the treatment of wood, in accordance with the LBS Protocol and other regionally and internationally agreed provisions for the safeguarding of the environment and human health.**

FRIULI – according to D.M. 14-3-2001 use of lindane is forbidden.

According to the “plan for country developing” (“Piano di Sviluppo Rurale, misura F1, A1”) the 2,4-D is a forbidden substance. The supply of 2,5-T must be disposed off before 31<sup>st</sup> December 2003.

The tri- tetra- and penta- chlorophenols are substances used for wood treatment. Up to now, the regional administrative government carries out the certification of forest management in line with the PEFC system entitled “Program for Endorsement of Forest Certification plans”. This procedure allows checking the right forest management according to the sustainable developing.

Up to now about 80.000 ha were certified and it is foreseen an increasing of the area.

UMBRIA – the regional plan for water safeguard provides that some hazardous substances for Umbria such as 2,4D, Lindano, Tri and Pentaclorofenolo must be investigated.

PIEMONTE - use of lindane is forbidden as per national provisions

EMILIA ROMAGNA – Up to now no provisions have been undertaken in order to reduce and control the manufacture and use of lindane, 2,4-D and 2,5-T herbicides, and tri- tetra- and penta- chlorophenols by the regional authorities.

TRENTO – only few kilograms of lindane and 2,4 D are used and up to now no provisions have been undertaken in order to reduce and control the manufacture and use of these substances.

## ***7. UPDATING AND ADOPTING OF NATIONAL REGULATIONS ON SEWAGE DISCHARGES TO THE SEA AND RIVERS***

National regulations on sewage discharges into the sea and rivers are expected to be updated taking into account the provisions of the LBS Protocol, particularly Annex II and, where appropriate, the common measures on sewage discharges into the sea and rivers already adopted by the Contracting Parties. Regional guidelines for sewage treatment and disposal, environmental quality criteria and standards will assist Mediterranean countries to establish national legislation according to existing conditions. The work on the process for updating the regulations will start in the period 2001-2002. Parties requiring assistance in the formulation of updated regulations, will be eligible for expert legal and/or technical assistance to be provided through the project.

UMBRIA – Yes, In the region is never allowed the sewage discharge into the rivers.

Provisional technical directives which deal with this topic are in force. The new regional technical directives, as stated in Art. 38 D.Lgs. 152/99, have been almost planned and they will come into force before December 31<sup>st</sup>, 2005.

FRIULI – This topic is dealt with by the regional administration according to national legislation.

PIEMONTE – this topic is regulated by the national provisions of D.Lgs. 152/99 and D.Lgs. 22/97.

BOLZANO – national regulations on sewage discharges to the sea and rivers were absorbed with L.P. 8/02

EMILIA ROMAGNA - direct discharges of sewage to the sea and rivers is regulated at national level by D.Lgs. 152/99 and need previous authorization according to limits of Enclose 5 of the decree.

Indirect discharges of sewage are considered as liquid wastes and their disposal is regulated through D.Lgs. 22/97 which forbids the discharge into surficial water bodies.

Diversified limits are set for domestic-industrial-urban wastewaters.

Sewage coming from industrial farms is classified as industrial wastewater according to D.Lgs. 152/99. The region of Emilia Romagna has a high density of farms and, producing high concentrations of nitrogen, wastewaters must be reused for agricultural purposes according to L.R. 50/95 and D.G.R. 570/97.

VENETO – the regional administration adopted national regulations on sewage discharges to the sea and rivers through the plans for water's safeguard "*Piano regionale di Risanamento delle Acque*" and "*Piano di Tutela delle Acque*".

SARDEGNA – direct discharges of sewage to the sea and rivers is regulated at national level by D.Lgs. 152/99 and needs previous authorization according to limits of Enclose 5 of the decree.

Indirect discharges of sewage are considered as liquid wastes and their disposal is regulated through D.Lgs. 22/97 which forbids the discharge into surficial water bodies.

Diversified limits are set for domestic-industrial-urban wastewaters.

The regional government of Sardegna adopted the national regulations on these issues.

TOSCANA – the regional government adopted national regulations on sewage discharges to the sea and rivers (D. Lgs. 152/99) and enacted regional regulations through regional law L.R. 64/2001 and deliberation C.R.T. 6/2005.

TRENTO – the regional government adopted national regulations on sewage discharges to the sea and rivers (D. Lgs. 152/99).

VAL D'AOSTA – the region do not discharge sewage into rivers.

#### **8. ESTABLISHING A SYSTEM OF PREVIOUS AUTHORIZATION BY COMPETENT NATIONAL AUTHORITIES FOR WORKS WHICH CAUSE PHYSICAL ALTERATIONS OF THE NATURAL STATE OF THE COASTLINE OR THE DEGRADATION OF COASTAL HABITATS**

The preparation of national regulations will be initiated in the biennium 2001-2002, for the establishment of a system of previous authorisation by competent national authorities for projects having a potential impact on the natural state of the coastline or on coastal habitats.

PUGLIA – According to the article 35 of the Italian decree D.Lgs. 152 /99, the regional administrative government must give the authorization on dumping and handling of materials in marine waters.

LIGURIA – The regional administrative government disciplined this topic through the regional law L.R. 13/99. According to this law the regional administrative government has to define the regional standards to plan coastal defence and nourishments and has to approve coastal defence and nourishments operations except the seasonal operations. The regional administrative government produced the following documents:

- *“Criteri generali da osservarsi nella progettazione degli interventi stagionali di ripascimento degli arenili - Delibera n. 253 of February 15<sup>th</sup>, 2005”*: the document provides general standards for the planning of seasonal coastal nourishments and sets up technical standards to operate in an environmentally sound way. Particularly, the seasonal coastal nourishments foresee less of 10 mc per meter of shoreline.
- *“Discipline del procedimento relativo all’approvazione degli interventi stagionali di ripascimento degli arenili” - Regolamento regionale n. 6 of October 23<sup>rd</sup>, 2002”*: the document provides standards for the authorization of seasonal coastal nourishments operations.
- *“Criteri generali inerenti la progettazione e l’esecuzione delle opere di difesa della costa e degli abitati costieri e di ripascimento degli arenili - Delibera n. 222 of February 28<sup>th</sup>, 2003”*: the document provides standards to plan and carry out seasonal coastal defence and nourishment operations and indicates the necessary technical contents which a coastal defence and nourishment planning needs in order to be technically approved. Referring to coastal operations, the guidelines set the technical standards to plan analyses of the environmental impacts according to the regional 38/98. The mentioned guidelines refer to the final planning set by the law 109/94 and the relative results foreseen by the article 25 comma 2 of the decree by the President of the Republic N. 554/99.

The municipal administrative government has to approve seasonal coastal defence and nourishments operations.

EMILIA ROMAGNA – works which cause physical alterations of the natural state of the coastline or the degradation of coastal habitats are subject to the procedure of VIA and to the screening verification according L.R. 25/99.

LAZIO – works which cause physical alterations of the natural state of the coastline or the degradation of coastal habitats must obtain previous authorization by the regional administration as stated by the national decree DPR 12/4/1996.



The regional administration instituted the commission ICZM (Integrated Coastal Zone Management) to enforce the L.R. 1/2001 “*Programma integrato di interventi per lo sviluppo del litorale del Lazio*”.

VENETO – the system of previous authorization for works which cause physical alterations of the natural state of the coastline or the degradation of coastal habitats is regulated by the Regional Law n. 10/1999.

TOSCANA – competences on authorization for works which cause physical alterations of the natural state of the coastline or the degradation of coastal habitats are mentioned in Article 35 of D. Lgs. 152/99. The region of Toscana through the regional law n. 19/2003 assigned these competences to the provincial administration.

**9. PHASING OUT THE USE OF THE NINE PESTICIDES, EXCEPT FOR THOSE FOR WHICH WHO RECOMMENDATIONS RELATED TO THE SAFEGUARDING OF HUMAN LIFE SUGGEST OTHERWISE**

A report on the implementation of this activity according to the requirements of the SAP will be prepared and submitted, through the Secretariat, to the Contracting Parties. Requests by the Parties may be made for expert legal and/or technical assistance from the project in the timely implementation of this action.

UMBRIA – In the framework of the Regional plan for water safeguard, the regional governments is identifying pesticides vulnerable areas. After this step the actions necessary for the reduction of pesticides use will be carried out.

The first individuation of critical areaa for pesticides is foreseen before 31<sup>st</sup> December 2005.

PUGLIA - The regional administrative government approved a regional program DGR. 1292 of October 17<sup>th</sup>, 2000 called “Agricultural and environmental plan” (“Programma agroambientale”).

FRIULI – The "plan for country developing" ("Piano di Sviluppo Rurale, misura F") promotes the environmentally sound exploitation of agricultural. Particularly, the measure called “Reduction of Pesticides use” (“Sensibile riduzione dell’impiego di concimi e fitofarmaci, azione F1, A1”) foresees the possibility for the users to receive assistance in order to adopt the prescription for the adequate use of pesticides as stated in “Decreto del Direttore centrale delle Direzione centrale delle risorse agricole, naturali, forestali e montagna”.

PIEMONTE - the “agricultural and environmental measures” included in the regional developing plan PSR 2000-2006 provides for the reduction of use of pesticides and for the organic integrated production. Vulnerable pesticides areas were individuated through DCR 287-20269 of June 17<sup>th</sup>, 2003.

BOLZANO – 80% of the producers of fruit participates to the AGRIOS programme for the fight to the use of pesticides.

EMILIA ROMAGNA – phasing out the use of the nine pesticides has been carried out since the beginning of 1990 through several programmes and projects.

- On May 2003 the agreement between national and regional administrative governments on the enforcement of Triennial National Plans for sanitary and environmental control led to the Regional Plan 2004-2008 for the control and reduction of the use of phytosanitary products even through the dissemination of information on the toxicity of certain substances in wastewaters.
- The project “Produzione integrata” promotes a technique of integrated production through the use of the most modern techniques of cultivation and conservation. Guidelines are provided to technicians and agricultures in order to be able to follow the recommendations of the project. The initiatives related to the project are:
  - integrated production (enforcement of CE regulation 1257/99)
  - financial support given for technical assistance according to L.R. 28/98 and to CE regulation 2200/96.
  - adoption of the trade mark of quality “*Qualità Controllata*” according to L.R. 28/99 for vegetables
  - The region has a phytosanitary office for the control, phytosanitary certification and study of plants.
  - The region promotes organic cultivations.

The previous initiatives interested a total regional surface of 18,08% and led to a reduction of selling and use of R and Xn.

TRENTO – a draft of agreement between producers in force since 1989 ratifies the use of low environmental impact pesticides.

VAL D’AOSTA – in this region very small amounts of pesticides are used and specific provisions recommended by national regulations have been adopted.

## **10. PROHIBITING THE MANUFACTURE, TRADE AND NEW USES OF PCBS**

A report on the adoption of national regulation prohibiting the manufacture, trade and new uses of PCBs according to the requirements of the SAP will be prepared and submitted, through the Secretariat, to the Contracting Parties. Requests by the Parties may be made for expert technical and/or legal assistance from the project in the timely implementation of this action.

**BASILICATA** – The program called “Decontamination and disposal of PCB containing devices” (“Programma per la decontaminazione e lo smaltimento degli apparecchi contenenti PCB soggetti ad inventario e non soggetti ad inventario”) has been approved through the DGR 852 of the 29<sup>th</sup> September 2002.

**MARCHE** – Since 2004 the region has developed a plan on management of PCB containing wastes. The plan provides for a gradual reduction of PCB wastes by the holders with a specific target of 100% by 2009. The Regional agency has developed an inventory and supplies the periodic up-dating.

**UMBRIA** – In the regional plan on special waste management is reported the regional integrated plan on decontamination, collecting and disposal of PCB containing devices. The regional administrative government in collaboration with the regional agency have established a specific disposal deadline of December 2010, for devices which contain PCB in concentrations higher than 0,005% and for devices which contain PCB in concentrations between 0,005% – 0,05%.

**PUGLIA** – 200.000,00 € have been allocated through the regional program on environmental safeguard (DGR N. 1440/2003, asse 7- linea B) called “Regional plan for PCB decontamination” (“Piano regionale per la decontaminazione da PCB”).

**CALABRIA** – 3 plans have been developed on PCB and PCT according to Italian legislation.

**FRIULI** - The program called “Collecting and disposal of PCB containing devices not subject to inventory” (“Programma per la raccolta e lo smaltimento degli apparecchi contenenti PCB non soggetti ad inventario”), developed on the basis of the dlgs n.209/1999, has been approved through June 30<sup>th</sup>, 2004 DPR 0226.

Furthermore, the program called “Decontamination and disposal of PCB containing devices subject to inventory” (“Programma per la decontaminazione e lo smaltimento degli apparecchi contenenti PCB soggetti ad inventario”), developed on the basis of the dlgs n.209/1999, has been approved through the DGR 950/2005 of the May 6<sup>th</sup>, 2005.

**LIGURIA** – The program called “Decontamination and disposal of PCB containing devices subject to inventory” (“Programma per la decontaminazione e lo smaltimento degli apparecchi contenenti PCB soggetti ad inventario”) and the plan called “Collecting

and disposal of PCB containing devices not subject to inventory” were taken in through the regional law 856, approved on August 2<sup>nd</sup>, 2004. The mentioned plans set the regional deadlines in order to respect the targets for PCB disposal as requested by the Legislative Decree 209/99 and the European Community Directive 96/59/CE.

BOLZANO – according to D. Lgs. 209/99 the province is provided with the inventory of PCBs.

EMILIA ROMAGNA – regional plans prohibit the manufacture, trade and new uses of PCBs according to directive 96/59/CE. Provincial administrations are in charge of the redaction of sectoral plans and actions on this issue.

MOLISE – according to D.G.R. 133/04 the regional administration adopted a regional plan for the collection, decontamination and environmentally sound disposal of devices containing PCB and PCB itself, both subject and not subject to inventory as supplied by Directive 96/59/CE and by Art. 4, Paragraph 1 of D.Lgs. 209/99.

SARDEGNA – there is a program for decontamination and disposal of devices containing PCB subject to inventory according to Art. 3, Paragraphs 1,2 of D.Lgs. 209/99. The regional plan for hazardous wastes management has been adjusted following the decree and adopted with D.G.R. 3947/02.

TRENTO – the regional government adopted a program for the decontamination of PCB containing devices according to G.P. 12.07.02 n. 1608.

VAL D’AOSTA – the regional government adopted a program for the decontamination of PCB containing devices and for the environmentally sound disposal of PCB.

## ***11. PROVISION FOR REGIONAL MANAGEMENT CONCERNING STORAGE, REUSE AND DISCHARGE OF LUB OILS , BATTERIES AND CHEMICALS SUBSTANCES RELATED TO BATTERY PRODUCTION***

MARCHE – a collecting system for lub oils and batteries is active on the regional territory carried out by national Consortium. Particularly, lub oils and batteries produced by ships are included in the “Port Plans (ex D.lgs 182/03)” approved by the regional governments and in the “W.A.P. – Waste Management in Adriatic ports” illustrated in point 2 above.

FRIULI – Up to now it is not foreseen a regional management regarding this topic, but lub oils and batteries are collected at a national level by the consorzia COOU and COBAT.

LIGURIA – collecting and reuse of used lubricating oil and batteries is duty of Compulsory Consortia for Used Lubricating Oil and Batteries.

Referring to used lubricating oil, an agreement between the Regional Administrative Government and the Compulsory Consortium was formerly established in order to improve collecting operations.

BOLZANO – management of lub oils and batteries is carried out at national level by the respective cinsortia.

LAZIO – in the last years plants were realized for storage and reuse of used lub oils and plants for the storage of exhaust batteries containing lead.

MOLISE – disposal and collection of hazardous wastes, including oil and lead batteries, are regulated by regional and provincial plans but mainly by the national consortia COOU and COBAT.

TRENTO – according to national regulation the regional collectors of used batteries are associated to the national consortium COBAT.

## ***12. ADOPTION OF MONITORING CAMPAIGN ON STORMWATER RUNOFF RELATED TO INDUSTRIAL AREAS***

LIGURIA - The University of Genova is planning a study to characterize the stormwater runoff of some industrial agglomerations. The results of this study will be used to discipline the rain water treatment on a regional level. On the basis of these results, the regional administrative government will establish more monitoring activities which have to be carried out by the industrial managers.

PIEMONTE – regional provisions on stormwater runoff are under planning by the regional administrative government.

BOLZANO – previous authorization for stormwater runoff discharge is needed for small and medium industrial plants, while for big ones analytic controls are pursued.

EMILIA ROMAGNA – according to D.G.R. 286/2005, enforcement of Art. 39 of D.Lgs. 152/99, the administrative government of the region regulates the discharge of first rain and washing waters from industrial areas. According to D.G.R. 286/2005 the administrator of the plant must manage an amount of 50 m<sup>3</sup>/Ha of repeal surface.

TRENTO – all wastewaters are monitored according to article 14 of the regional plan for water safeguard, but there are no specific provisions for stormwater runoff.

## **2.4 Sectoral Plans**

Sectoral plans represent the relevant provisions adopted on a regional level such as regional plans, guidelines, common measures, environmental quality criteria, emission/effluent limits, capacity building activities etc. and take into consideration the administrative regions plans.

This chapter is the result of the elaborations of information collected through the questionnaires reported in chapter 2.3.

Information was clustered in sectors according to priority areas for action to control pollution from land based sources identified in the SAP. For each sector, the main provisions were identified at regional and national level. The synergy between national and regional informative framework collected allowed pointing out the deadlines and targets set by the regional administrative governments to be achieved for each issue according to SAP targets.

According to the guidelines for the preparation of NAPs (UNEP (DEC)/MED/GEF/WG.245/3), Italy has decided to adopt a sectoral environmental plan approach to combat the pollution, therefore Sectoral Plans can be considered at the same level as NAPs.

## a) Urban environment

### **2.4.1 Sewage management**

#### 2.4.1.1 *SAP Targets*

Issue	Targets	
	2005	2025
Municipal sewage	dispose sewage from cities > 100000 in conformity with LBS	dispose all sewage in conformity with LBS

#### 2.4.1.2 *Legal framework and provisions adopted*

The **Legislative Decree 152/99** “Italian water framework law” provided for all the regulations on sewage management and established measures for the reduction of pollutants and safeguard of water resources through the setting of emission limit values in surface waters, in marine waters and in soil for a list of pollutants and through the reorganization of the entire regulatory structure concerning the water sector.

General limits set by Legislative Decree 152/99 are applicable to wastewater discharge nationwide.

Specifically, Table 3 of Enclose 5 sets emission limits for surface water and sewers. These values may be varied by the regional governments, with the exception of the hazardous substances listed in Table 5 of the same enclose.

All national water must be classified on the basis of criteria for quality standards defined in Legislative Decree 152/99. The classification is aimed to the gradual improvement of water quality nationwide. In particular, the decree identifies areas of the country that require specific pollution prevention and remediation measures.

Legislative Decree 152/99 dictates as well general provisions for the development of systems of measure and control of the discharges, according to typology of the receiving water body (soil, subsoil, groundwater, surface water, bodies of water in sensitive areas, sewer systems).

According to Article 45 of D.Lgs.152/99, all discharge must be authorized in advanced.

All the regional administrative governments had to implement the regional plan for water safeguard “*Piano di tutela*” in order to achieve and maintain the goals related to the environmental

quality. According to Article 44 of the decree entitled “*Piano di tutela*”, the deadline for the adoption of the “*Piano di tutela*” by regional administrative governments was December 31<sup>st</sup>, 2004.

Regarding sewage system Article 27 states that urban centres with more than 15.000 inhabitants must be connected to a sewage system by 2000, urban centres with a number of inhabitants between 2.000 and 15.000 must be connected to a sewage system by 2005 and, whether located in the drainage basin of a sensitive area, urban centres with more 10.000 inhabitants must be connected to a sewage system.

Regarding discharge on surficial water bodies Article 31, states that urban centres with more than 15.000 inhabitants must be provided with a secondary treatment plant by 2000, moreover it states that urban centres with a number of inhabitants between 10.000 and 15.000 must be provided with a secondary treatment plant by 2005.

Particularly, Abruzzo, Emilia Romagna and Lazio Regions adopted the regional plan for water safeguard “*Piano di tutela*” through the DGR 103/04, the DGR 633/04 and the DGR 676/04, respectively.

Friuli and Liguria regions are provided with the general plan on water restoring “*Piano generale di risanamento*” according to the national repealed law 319/76 of May 10th, 1976. The content of the plan represents the basis of the provisions set by the Regional plan for water safeguard adopted during 2004. Regional administrative government of Friuli, through the program on water restoring, promoted the project in order to centralize the management of treatment plants through the creation of a network under a single consortium.

In the regional territory of Basilicata, even if urban agglomerations of more than 10.000 inhabitants do not exist, the sewer system has been created for more than 10.000 equivalent inhabitants.

In Puglia the amount of 9.500.000,00 € has been invested for new plants to serve tourist coastal agglomerations.

In Emilia since 1983, Regional Law 7/83 and Regional Law 42/86 for the protection of Adriatic Sea required the connection to sewage system for all urban centres located on coastal areas.

The system of authorization established by the D.Lgs. 152/99 allowed the development of an active management of coastal outfalls, such as monitoring and registration of coastal outfalls.

The implementation of monitoring campaigns and controls is provided by the “*Piano di tutela*” or by “*Piano generale di risanamento*” and are carried out by the regional environmental agencies (ARPA). For instance, over 1.000 controls are carried out on every typology of discharge by ARPA Lazio. ARPA Basilicata has located and registered the whole regional system of the outfalls and not only the coastal outfalls.



In accordance with national regulations Regional environmental agencies are even in charge to control the quality of effluent wastewaters, for the beneficial reuses of sewage effluents and sludge.

The decree established the proper stage of treatment (primary, secondary and tertiary) of sewage on the basis of the area typology (normal/sensitive) of the receiving waterbodies. Article 32 of Legislative Decree 152/99 ratifies that urban centres with more than 10.000 inhabitants, whether located in sensitive areas or in the drainage basin of a sensitive area, must supply wastewater treatment plants with a tertiary treatment system for removal of nutrients if the removal percentage of 75 % is not ensured by the secondary treatment. Criteria for the definition of area typology are stated by Art.5 of Directive 91/271/CEE while limits are those of Enclose I-Table 2 of Directive 91/271/CEE. For instance, since Umbria, Bolzano and Emilia Romagna are located in sensitive areas the sewage treatment plants for urban agglomerations of more than 10.000/20.000 inhabitants will be all provided with tertiary treatment by 2008/2015, respectively.

Moreover, Legislative Decree 152/99 states that the administrator of the treatment plant is responsible for the satisfactory operation and maintenance of sewage treatment facilities while controls on discharges concentrations are made by the regional agency for environmental protection.

Provisions aimed to the promotion of wastewaters reuse are introduced by Article 26 of the Legislative Decree 152/99. The provisions of the “*Piano di tutela*”, which is a draft of the “*Piani d’Ambito*”, represent the main instrument regarding this topic. Measures related to the reuse of treated effluents have to be actuated through the “Area plans” (“*Piani d’Ambito*”) of the Integrated Water System (“*Servizio Idrico Integrato*”) according to the Italian Law 36/94 known as “*Legge Galli*”. In the framework of the “Area plans”, each area authority has to evaluate the possibility to build and carry out new plants for the reuse of treated effluents and the possibility to include these operations in the “Area plans”.

Referring to environmentally sound treatment of combined domestic and compatible industrial effluents the treatment of wastewaters from industrial plants in urban wastewaters treatment plants is forbidden according to Legislative Decree 152/99 and to DGR 1053/2003. Whether compatible, under a specific authorization (Enclose 5, Table 3, D.Lgs. 152/99) and after a proper pre-treatment industrial wastewaters can be discharged in the urban sewer.

The separate collection of first rain water and municipal wastewater and treatment of the first rain water considered particularly polluting is regulated by Article 39 of the decree 152/99.

The environmentally sound disposal and/or use (composting, landfilling etc.) of sewage sludge is regulated by the Italian Decree 99/1992, while the prohibition of sludge discharge into water in the Protocol Area is set by the article 48 of the Legislative Decree 152/99.

The plan proposed by the government for the legislative decree resulting from the delegation received with Law 308/04 includes the major topics dealt with by the previous Legislative Decree 152/99.

#### *2.4.1.3 Level of compliance with SAP targets and proposals for the National Action Plan*

Measures and provisions required by the SAP related to sewage management are in line with those adopted on a regional and national level through the existing legal framework widely illustrated in the previous chapters.

As illustrated in details, Legislative Decree 152/99 is comprehensive of all the measures, limits, deadlines and targets required for an environmentally sound management of sewage at national level.

From the analysis carried out comes out that the level of implementation of the objectives established by Legislative Decree 152/99 is generally satisfactory. Sewage system coverage, location of discharges, treatment plants management and controls network developed by the system of regional agencies ARPA are in good compliance with SAP targets and deadlines.

More efforts could be done by regional administrative governments in order to implement awareness campaigns and training courses for both public and technicians and promote a policy of sensibilization for the safeguard of water resources.

Development and improvement of the whole sewage management are of primary concern of Legislative Decree 152/99 and highlighted by the outline for the legislative decree derived from 308/04. The outline provides as well valid instruments of constant revision of the “*Piano di tutela*” compiled by the regional governments and ensures an efficient control and monitoring system. The mentioned criteria will guarantee a gradual increase in time of the level of compliance with the SAP targets and deadlines.

## 2.4.2 Urban solid waste management

### 2.4.2.1 SAP Targets

Issue	Targets	
	2005	2025
Urban solid waste	solid waste management system in cities > 100000	solid waste management for all urban agglomerations

### 2.4.2.2 Legal framework and provisions adopted

The **Legislative Decree n. 22/97** called “**Decreto Ronchi**” “Implementation of Directive n. 91/156/CEE about waste, of Directive n. 91/689/CEE about hazardous waste and of Directive 94/62/CE about packaging and packaging waste” has been issued on February 5<sup>th</sup>, 1997. It has been the framework law on waste for Italy for several years.

At the end of 2004, **Law 308/04** gave to Government the delegation (the powers) to rationalize and simplify most of environmental legislation through the enacting of a decree. Concerning waste management, particularly, though maintaining the same contents, the new decree will be a revision of the former waste decree with the introduction of the principles of free competition among private companies in the management of urban waste, moving from a former prescriptive approach to a performance approach. The outline for the new legislative decree is now under revision and the new rules will enter into force before the end of year 2005.

The present legislation, defined the consortium for exhausted lub oil, the consortium for use lead batteries, the consortium for hospital wastes, amianthus waste and waste transport and the consortium for recovery and recycling of packaging materials.

The consortium for recovery and recycling of packaging materials CONAI has 14.000 industrial and commercial firm memberships and its activities are based on the principle of “shared responsibility” among companies, administrations and citizens. CONAI manages packaging waste to carry out the “polluter-pays principle” and the “producer responsibility principle”.

The **Legislative Decree n. 36/03** (13th January 2003) “Implementation of the directive 1999/31/CE on the landfill of waste” fixed a reduction to 173 kg/year per head for the amount of biodegradable waste going to landfill; this goal was already reached in 2002 (163/kg/inhabitant/year), 6 years before the target year 2007 (with a reduction of the bio-waste

going to landfill compared to 1995 of 32%, a much higher performance than the one stated by the EU Directive, 15%).

The landfill disposal was also strongly reduced; these results combine the two pathways of the increase in separate collection and the reception of the Directive.

The **Decree 203/2003**, in application of the Law 448/2001, states that public bodies and companies with prevailing public capital are required to buy at least 30% of goods made of recycled material.

The goal of the decree is to create a market for recycled goods: this includes traditional materials, as paper, C&D waste, textile and metals.

A Public Register has been established where producers can insert their production, and where all the companies and public bodies concerned have to find at least 30% of their supply.

The decree implementation is starting with the definition of the technical aspects of the recycled materials and goods. At present, four “ordinances” for the 30% implementation have already been issued: in the field of textiles (traditionally recycled in Italy since the XVI century), paper, wood and plastics. The sector of biowaste and biological treatments is developed in these days.

#### *2.4.2.3 Level of compliance with SAP targets and proposals for the National Action Plan*

From the analysis of the national and regional legal framework, provisions and measures adopted on wastes management it comes out that in the last few years the Italian Government has adopted all the European Directives (landfills, end of life vehicles, waste from ships, incinerators), new rules were also designed for hospital wastes, amianthus wastes and waste transports. Moreover the Italian Government is adopting the WEEE (Waste Electrical and Electronic Equipment) and RoHS (Restriction of Hazardous Substances) directives.

The revision of the Italian WFD (Waste Framework Directive) Legislative Decree n. 22/97, through the mentioned decree enforcement of the delegation law 308/04, brings out the big effort made by the Italian government in order to improve the already existent system of waste management.

The concurrence of the strong reduction of the increase in waste production and the increase of separate collection produced a substantial reduction of the waste do be disposed at national level even though a part of Italy, especially the south, has lagged behind showing a slower trend of improvement in the results obtained (for details see chapters 2.1.2 and 4.1.2 of “2. *National Diagnostic Analysis for Italy*”). Anyway it can be said that results obtained through the synergy between Regional Plans for Waste Management and environmental education activity promoted by

local authorities are satisfactory and in compliance with the targets of SAP, if we consider that rules in force provide for a waste management system for all urban centres.

Moreover the revision of the Italian WFD provides for minimum percentages for separate collection and deadlines to be reached by the regional territorial areas as follows:

- 35% of separate collection by 2006;
- 40% of separate collection by 2008;
- 60% of separate collection by 2012.

Article 200 of the decree provides for a territorial organization in order to overcome the fragmentary management by means of an Integrated Waste Management system. This helps the achievement of homogeneous results over the national territory and will presumably help the improvement of management in the areas of southern Italy through a more self-sufficient management. Available results of the implementation of the system show an increase in the percentage of separate collection, recovery and recycling with a consequent decrease of unseparate collection. To these improvements do not entails an increase of the cost of the management.

On the other hand, while institutional integration has improved, co-ordination among different administrations is not very well established, particularly at technical level. Therefore it seems to be of primary concern to improve such co-ordination and exploit the system of decentralization of waste management in order to ensure a more efficient performance.

In order to delve into the argument it can be underlined for example the important role given by the new regulations to consortia for collection of wastes. The organization of the consortium CONAI, for instance, will be changed reducing one of the most important negativities, the development of separate collection only in some areas of the country; the goals stated by the packaging directive were reached at national level with a consequent strong reduction of the packaging waste going to disposal.

For packaging waste, the targets of recovery and recycling set in 1997 to be reached within 2002 were:

	<b>Objectives Min</b>	<b>Objectives Max</b>
a) Packaging waste to be recovered as material or energy	50%	65%
b) Packaging waste to be recycled	25%	45%
c) Each packaging material to be recycled	15%	25%

Italy reached all the targets, even if it was done at different levels in the different parts of Italy: lower results achieved in the South will be corrected thanks to delegation law 308/2004.

Besides the targets achieved through the Legislative Decree n. 36/03 mentioned in the previous paragraph, some relevant initiatives concerning the promotion of the policy of reducing, recycling and reusing throughout the industrial sectors have been undertaken:

- The Eco-prize to design high environmental compatibility packaging and to use recycling raw materials, in particular for cellulose;
- Information campaigns to increase the packaging market: eco-packaging gallery, ecopackaging supply/offer system.

Many of the most important international and Italian companies have undertaken in the recent years actions aimed to reducing waste production. Therefore it can be said that this is an issue of primary concern for national companies; presently the trends show an active participation of commercial and industrial stakeholders and a positive improvement in the results obtained.

Standing the principle that if separate collection and recovery operations are not finalised and that it may result unuseful and expensive if there is no market for the goods made of recycled material the Decree 203/2003 states that public bodies and companies with prevailing public capital are required to buy at least 30% of goods made of recycled material. This means that the implementation of the rule is not limited to public administration, but also to many companies, public utilities and many others.

The most important economic instrument for the reduction of wastes to be disposed is the tax on landfills that has been applied for several years. The use of the landfill tax and the setting of new rules, as the reception of the landfill directive, resulted in a strong reduction of the waste to be disposed.

Some Voluntary Agreements have been launched about specific waste components: wood ties impregnated of toxic substances, pesticide products packaging, toners for printers and photocopiers, dismissed telegraph poles and disposable mono-use cameras. A large number of Voluntary Agreements are run at regional and local level, e.g. for agricultural waste, inert waste (discards of building materials), quality compost and used domestic appliances.

To carry out the Regional Plans for Waste Management, Local Administrations must define Local Plans for Separate Collection. In the field of Local Agenda 21 (LA21) processes, the waste reduction, recycling and good management is a usual issue; many local fora are involved in these processes.

The Italian Ministry for Environment and Territory promoted the dissemination of LA21 funding specific projects. Between 2000 and 2002, funds amounted to 25.9M € and involved 226 local administrations.

An example of regional management of wastes is provided in chapter 5 of the Appendix for the region of Lombardia, with all the details provided by the regional government on conventions and projects undertaken.

In order to promote environmental education the Italian Ministry for Environment and Territory, in 1996, set up the National System of Information and Environmental Education to provide for the establishment of a network with regional and municipal agencies for information and environmental education.

In this area some national projects of information and communication about waste can be worthwhile mentioned as best practices:

- “*Separateli!*” (“Separate them!”)
- “*L’Italia che ricicla*” (“The Recycling Italy”)

Moreover, the Regional Agencies for Environmental Protection (ARPAs) developed several initiatives of communication and information at local level, addressed to operators and citizens in the field of urban and industrial waste.

## 2.4.3 Air pollution

### 2.4.3.1 SAP Targets

Issue	Targets	
	2005	2025
Air Pollution	cities > 100000 ambient air quality conform to standards	cities ambient air quality conform to standards

### 2.4.3.2 Legal framework and provisions adopted

The national legal framework on the issues related to reduction of air pollution in urban centres proposed by SAP is quite fragmentary and there isn't a single law comprehensive of all the activities recommended, but from the examination of the existing laws and decrees it can be stated that they tackle with all the topics proposed. Hereafter a brief summary of the national legal provisions is presented; more details will be given on regional activities related to the reduction of air pollution undertaken as competences are decentralized and often regional administration adopt unhomogeneous provisions also depending on the level of development of urban centres and their contamination.

- **DM 28/02/1994** provides for the control and monitoring of gaseous emissions in the municipalities.
- **Law 194/98** provides for investment plans to be developed by regional administrations for the period 2003-2017 in order to implement actions for the promotion of public transportation with low environmental impact.
- **Legislative Decree 163/99** "*Attuazione della direttiva 96/62/CE in materia di valutazione e di gestione della qualità dell'aria ambiente*", adoption of Directive 96/62/CE. The decree provides for the establishment of quality standards for atmosphere, the individuation of criteria for the maintenance of quality standards, the dissemination of information and technical instruments for the maintenance of quality standards, the location of regional municipalities endangered by atmospheric pollution.



- **Legislative Decree 351/99 and D.M. 60/2002** provides for the implementation of a regional plan for the safeguard of atmosphere, the “*Piano Regionale di Tutela e Risanamento dell’Atmosfera*”. These provisions are addressed to promoting the improvement of traffic management, to promoting of collective transportation in order to reduce traffic in urban centres and renovation of the public and private vehicles with low environmental impact.
- **Decree n. 83 del 20/12/2000** provides for the implementation of a program on low environmental impact of fuel promoted by the Italian Ministry for Environment and Territory.
- **Law 16/02** provides for the allocation of funds for the purchase of eco-diesel/methane and electricity supplied buses.

According to **Kyoto Protocol** Italy must achieve during 2008-2012 the reduction of at least 5% of anthropogenic greenhouse gases. Targets set for 2010 for urban centers by the Protocol are the decrease of CO<sub>2</sub> emissions of 21.5% and the reduction of use of energy of 12.6%.

**Regional provisions** take into account those provided by national legal framework and by Kyoto Protocol as follows.

According to Legislative Decree 163/99 the regional government of Abruzzo located 32 municipalities endangered by atmospheric pollution and prepared two projects addressed to these municipalities. The first project have been developed for the substitution of traditional fuel in public and private transportation with methane fuel; the second to contribute to the purchase of new commercial vehicles using methane fuel or bio-fuel for the public transportation companies located in the 32 municipalities.

The main goals of the projects are to promote the use of methane fuel in public transportation and to locate new methane station near the companies of public transportation.

The region of Umbria adopted provisions focused on restriction of traffic in the city center. Therefore the regional government developed programmes in order to increase public transportation and connect the city center of Perugia, the biggest urban centre of the region, to the suburbs through an electric train.

According to Law 194/98 the region of Puglia implemented an investment plan for the promotion of electrical public transportation through the allocation of financings and an investment plan for the promotion of biodiesel production. Moreover it was instituted a “Carbon Tax” in order to use public transportation with low environmental impact.

The region of Liguria adopted the following plans and provisions and programs in order to face up atmospheric pollution:

- ◆ “Activities to support the regional environmental management”
- ◆ “Carbon Tax”
- ◆ “Operations to support the sustainable mobility in the municipality of Genova”
- ◆ “Car sharing”
- ◆ “Promotion of the bicycle use carrying out cycle tracks”
- ◆ “General plan on air restoring”
- ◆ “Control of gas emissions in the municipality of Genova”

Many provisions on mobility and financings to local authorities for the improvement of public transportation and promotion of awareness campaigns have been pursued by the regional governments of Piemonte, Emilia Romagna, Veneto, Lazio, Toscana and Lombardia. The mentioned regions are among the most industrialized regions of Italy and most of the biggest cities of the territory are in these regions. It can be stated that the most important hot spots for air pollution caused by urban centres are the cities of Torino (Piemonte), Bologna (Emilia Romagna), Milano (Lombardia), Firenze (Toscana) and Roma (Lazio). For each of these cities the regional governments arranged specific measures of traffic management and air pollution control. Details are given in chapter 2.3 above; here will be mentioned the most significative ones.

- Reduction of traffic in city centres:
  - ◆ Restricted traffic areas in urban centers with more than 50.000 inhabitants with a minimum urban surface of 10%;
- Encouragement and incentivation of use of public transports:
  - ◆ Traffic lights and bus lanes system that gives priority to public transports;
  - ◆ System of direct call of the bus from bus stops;
  - ◆ Coordination and optimization of the services;
  - ◆ Improvement of the quality of network and of the service, including comfort, security, velocity, efficiency, accessibility and management;
  - ◆ Allocation of financings for the realization of infrastructures and to the implementation of the services and bus lanes;
  - ◆ Campaigns for the reduction of passes’ price and exchange parking areas;
- Reduction of emissions of CO<sub>2</sub>:
  - ◆ Campaign “Bollino blu”: an annual control on exhaust emissions compulsory for every vehicle;
  - ◆ Promotion and encouragement to the use of combustibles with low environmental impact as desulphured oil and bio-diesel, methane, propane or electricity for transportation;

- ◆ Improvement of methane distribution system;
  - ◆ Measures and economic incentives for the improved inspection and maintenance of vehicles, the replacement of old-technology vehicles aimed, amongst others, at the reduction of CO<sub>2</sub> and PM10 emissions;
- General provisions:
- ◆ Financings addressed to activities of car-pooling, encouragement of telecommuting, promotion of collective taxi service, promotion of bicycles and mopeds, improvement of bus shelters;
  - ◆ Improvement of railway transport;
  - ◆ Substitution of oil plants with methane plants realized with BAT according to European directives.

Actions undertaken in order to improve mobility and public transportation and to reduce atmospheric pollution foresee also the use of the best available techniques.

#### 2.4.3.3 *Level of compliance with SAP targets and proposals for the National Action Plan*

Objectives provided by SAP in order to reduce air pollution are quite vague; nevertheless SAP specifies activities that should be undertaken to control and reduce emissions of carbon dioxide suggesting for instance the promotion of energy conservation and energy efficiency.

Taking into consideration measures provided by SAP the actions suggested for the National Action Plan are directed to:

- the promotion of a more efficient use of energies also through a stronger campaign for the introduction of electricity supplied vehicles especially in city centres;
- the improvement of public transportation and traffic management;
- the promotion of lead-free petrol and gaseous fuels instead of diesel;
- the replacement of old-technology vehicles by promoting alternative combustibles (biofuels); the replacement of old vehicles with low CO<sub>2</sub> emissions vehicles (lower than 145 gr.CO<sub>2</sub>/km)
- the promotion of natural gas and the improvement of the network of methane stations near urban centres.

It must be underlined that concerning air pollution the process of implementation of the National Action Plan will be strongly influenced by the adoption of provisions set out by the

Framework Convention on Climate Change (Kyoto Protocol). According to Kyoto Protocol Italy must achieve during 2008-2012 the reduction of at least 6,5% of anthropogenic greenhouse gases.

As seen in the previous paragraph many of the above mentioned measures have already been undertaken by the regional authorities responsible for the management and control of air pollution. On the other hand these measures are not homogeneously implemented on the national territory or the results achieved do not guarantee a constant improvement of air quality in time.

Taking into account the previous considerations the following actions are proposed for the National Action Plan:

- ◆ complete the implementation of regional plans to control air pollution, especially in southern regions;
- ◆ improve the network of air quality monitoring and reach a geographical uniformity in order to have a general supervision of air quality on the national territory;
- ◆ undertake measures related to transport in urban centres in order to reduce ambient levels of particulate matter, ozone and CO<sub>2</sub>;
- ◆ increase the allocation of funds for the improvement of urban infrastructures and the substitution of obsolete vehicles with low emission combustibles supplied, low CO<sub>2</sub> emissions vehicles (lower than 145 gr.CO<sub>2</sub>/km) or with electricity supplied ones;
- ◆ promote further actions to develop the use of low emission combustibles as biofuels, eco-diesel and methane;
- ◆ improve the network of methane stations in proximity of urban centres in order to encourage the purchase of methane supplied vehicles, especially for commercial activities.

## b) Industrial development

### 2.4.4 Toxic, persistent and liable to bioaccumulate substances

#### 2.4.4.1 SAP Targets

Issue	Targets		
	2005	2010	2025
2) TPB - POPs	50% reduce of inputs  collect and dispose all PCBs	Phase out inputs of POPs	
		25% reduction of PAH inputs	phase out inputs of PAH
- Heavy metals (Hg, Cd, Pb)	85% reduction	50% reduction	phase out discharges emissions & losses
- organo Hg, Pb, Tin compounds	phase out organo Hg	50% reduction of dischar- ges	phase out organo Pb, organo Sn
- zinc, copper, chromium		reduce dischar- ges	eliminate discharges

#### 2.4.4.2 Legal framework and provisions adopted

According to provisions given by Article 3, Paragraph 4 of Legislative Decree 152/99, the Italian Ministry for Environment and Territory (IMET) issued the **Ministerial Decree 367/03** on dangerous substances “*Regolamento concernente la fissazione di standard di qualità nell’ambiente acquatico per le sostanze pericolose*”. In line with the provisions of the “Dangerous Substances Directive 76/464/EC” the decree regulates environmental quality standards (EQS) for surface waters, included marine coastal waters, for 160 single substances and sets up two deadlines for the

achievement of EQS: the short-term deadline (2008) is foreseen by the Legislative Decree 152/99 and the long-term deadline (2015) is in line with the provisions of the European Water Framework Directive 2000/60/EEC (all European water bodies have to achieve the “good chemical and ecological status” within this date). Moreover, among the mentioned 160, the decree identifies many substances to be eliminated or strongly reduced by 2021. This Decree provides as well prescriptions for the achievement of these goals as the application of the Best Available Technologies for industrial point sources and the development of action plans to be implemented by the regional agencies for environmental protection (ARPAs). The mentioned action plan includes activities such as monitoring of water quality through the periodical collection of samples and laboratory analyses to be carried out by the regional departments and its aim is to have a constant updating of information on regional water bodies’ level of contamination.

Regional monitoring programmes on water bodies have already been started by regional authorities and will end by 2008. Afterward, it will be possible to establish water quality of monitored water bodies referring to the standards provided by the decree and by Legislative Decree 152/99.

Table 1 below reports limits of emission and deadlines for the substances identified by SAP as toxic, persistent and liable to bioaccumulate (TPBs): organochlorines (pesticides, PCBs, hexachlorobenzene), Poly Aromatic Hydrocarbons (PAH) and heavy metals and organometallic compounds. The table was drawn out by Table 1-Enclose A of Ministerial Decree 367/03 and by Table 3-Enclose 5 of Legislative Decree 152/99.

Following the symbology of decree Decree 367/03 D, L and M indicate respectively limits for surface waters, lagoons and marine waters. Letters P and PP indicate respectively prior substances and dangerous prior substances indicated by Decision n. 2455/2001/CE of the European Parliament. For PCBs are intended the most dangerous compounds for human health (PCB 28, PCB 52, PCB 77, PCB 81, PCB 101, PCB 118, PCB 126, PCB 128, PCB 138, PCB 153, PCB 156, PCB 169, PCB 180).

According to Article 1-Paragraph 8 of the decree for dangerous substances of table 1 marked with symbol **PP** must be reached by January 1<sup>st</sup>, 2021 the natural concentration level whether of natural origin, while the concentration must tend to zero whether of the substance is of anthropogenic origin.

Prior substances of table 1 marked with symbol **P** are subjected to specific limits of emission. For these substances Paragraph 4-Enclose A of the decree states that deadlines for the achievement of the limits vary according to the different chemical and physical characteristics of pollutants and of the receiving systems.

<b><u>Toxic, Persistent and Liable to Bioaccumulate substances</u></b>		
	<b>-A- 2015 (µg/L)</b>	<b>-B- 2008 (µg/L)</b>
<b>Persistent Organic Pollutants (POPs)</b>		
<b>Organochlorines</b>		
i. Pesticides		
DDT	0,00002	0,0002
Aldrin	0,00005	0,0001
Dieldrin	0,00005	0,0001
Endrin	0,00006	0,0006
Chlordane	0,00006	0,0006
Heptachlor	0,00001	0,0001
Hexachlorobenzene (PP)	-	0,0003
ii. Industrial chemicals		
PCBs	-	0,0006
<b>Poly aromatic hydrocarbons (PAH)</b>		
Total PAH (PP)	0,005	0,02 D
		0,015 M-L
<b>Metals</b>		
<b>Heavy metals</b>		
Mercury (PP)	0,02 D	0,05 D
	0,003 M-L	0,03 M-L
Cadmium (PP)	0,1 D	1 D
	0,03 M-L	0,2 M-L
Lead (P)	0,4 D	2 D
	0,06 M-L	0,15 M-L
<b>Organometallic compounds</b>		
Dibutilstagno catione	0,001	0,01
Tetrabutilstagno	0,0001	0,001
Tributilstagno (compounds) (PP)	0,0001	0,001
Tributilstagno (catione) (PP)	0,0001	0,001
Trifenilstagno	0,0005	0,005
Dicloruro di butilstagno	0,001	0,01
<b>Other metals</b>		
Zinc	≤ 0,5 mg/L surface water	
	≤ 1 mg/L drain water	
Copper	≤ 0,1 mg/L surface water	
	≤ 0,4 1 mg/L drain water	
Chromium	1,5 D	4 D
	0,5 M-L	0,7 M-L

**Table 1: Emission limits for TPBs**

Source: Enclose A-Table 1 DM 376/03, Enclose 5-Table 3 D.Lgs. 152/99

Regional controls, monitoring and data collection on organochlorines are carried out according to **Legislative Decree 152/99**. The presence of these substances is just occasionally discovered if not specifically investigated and it is often not related to their regional real uses, for that reason on the May, 8 2003 was made an agreement between the Italian Ministry for Health, the Ministry for the Environment and Territory and the regional administrative governments. The agreement established the adoption of a three-year plan (2003-2005) called “Plan for control and evaluation of the possible effects deriving from pesticides utilization on environmental vulnerable divisions”. This agreement represents the starting point for the realization of a control system on the national management of data related to the presence of pesticides in water bodies. According to this agreement the results of the regional monitoring plan have to be collected, elaborated and evaluated by the Agency for Environmental Protection and Technical Services (APAT). At the end of each year APAT has to write a report on the provisional results and send it to the Ministries. The results of the monitoring referring to 2003 represent the first official and national document on the presence of pesticides in water bodies (for details see chapters 2.1.3 and 4.1.3 of “2. *National Diagnostic Analysis for Italy*”).

Directive 96/59/CE on the disposal of polychlorinated biphenyls and poly-chlorinated terphenyls PCB/PCT, has been absorbed through the Italian decree **Legislative Decree 209/99**. According to this Decree all the holders of PCB containing devices with more than 5 dm<sup>3</sup> of PCB have to communicate concentrations of PCB to the regional or provincial administrative governments to allow the compilation of an inventory. Moreover the decree establishes specific disposal deadlines:

- ◆ December 2010 for devices which contain PCB in concentrations more than 0,05%;
- ◆ End life-cycle for devices which contain PCB in concentrations between 0,005-0,05%, after having demonstrated the good functioning.

Directive 96/59/CE has then been passed into **D.M. 11th October 2001** which has set up how PCB containing devices have to be used until their disposal.

#### 2.4.4.3 *Level of compliance with SAP targets and proposals for the National Action Plan*

From the analysis of the national legal framework carried out in the previous paragraph results that Ministerial Decree 367/03 regulates environmental quality standard (EQS) in surface waters, included marine coastal waters, for all the dangerous substances indicated by SAP as toxic, persistent and liable to bioaccumulate. For these substances the decree sets up limits of emission



and deadlines. Two deadlines are fixed for the achievement of EQS: the short-term (2008) deadline was provided by the Legislative Decree 152/99 and the long-term (2015) deadline is in line with the provisions of the European Water Framework Directive 2000/60/EEC. A third deadline (2021) is introduced for many substances to be eliminated or strongly reduced.

In line with the policy of implementation of SAP and of National Action Plans, Ministerial Decree 367/03 states that the key element for the achievement of the above mentioned targets is the adoption of BAT for industrial plants responsible for the discharge of the targeted pollutants. Moreover all the industrial activities involved in the process of reduction or phase out of toxic, persistent and liable to bioaccumulate substances are among those included in Enclose I in Legislative Decree 59/05 “*Attuazione integrale della direttiva 96/61/CE relativa alla prevenzione e riduzione integrate dell’inquinamento*” adoption of European Directive 96/61/CE on integrated prevention and reduction of pollution.

Regional governments are carrying out the implementation of the mentioned measures as follows:

- ◆ Most of the regions are preparing the register of hazardous substances.
- ◆ All the regions are carrying out the tre-year monitoring programme that by 2008 will provide water quality according to the standards of Legislative Decree 152/99.
- ◆ Most of the regions are preparing “Regional plan for water safeguard” including data on natural concentrations of heavy metals in sediments, very useful to understand whether the source of pollution is human or natural.
- ◆ Some regional governments are promoting for chemical industry sector the substitution of existing plants provided with mercury cells with a Chloro-soda plant.
- ◆ Some regional governments included in the regional the developing plan “Integrated production plan” promoting the use of phosphate fertilizers with low concentration of cadmium.
- ◆ Some regions are anticipating the deadlines of D.M. 367/03 through agreements between regional government and Italian Ministry for the Environment to improve the efficiency of industrial treatment.
- ◆ Regional governments are identifying vulnerable areas for pesticides.
- ◆ Some regions are developing the “Agricultural and environmental plan”.
- ◆ Some regions are developing a programme for reduction of pesticides use which foresees the possibility for the users to receive technical and economic support in order to reduce and substitute pesticides also implementing organic cultures.

Among the activities undertaken by regional governments and results obtained it is also useful to mention that:

- ◆ All the administrative regions of the country are carrying out the programme of “Decontamination and disposal of PCB containing devices” with the target of 100% safe disposal and the deadline of December 2010, for devices which contain concentrations of PCB higher than 0,005%. Moreover, all regional plans prohibit the manufacture, trade and new uses of PCBs according to directive 96/59/CE and to Legislative Decree 209/99.
- ◆ Some regional governments declared that concentrations of mercury validated through the monitoring campaign undertaken are compliant with laws limits for surface waters.
- ◆ The sector alkaline chloride electrolysis is not developed on the national territory.

From a general assessment of the legal framework on TBP substances and considering that all the administrative regions governments are carrying out several activities in order to reduce or phase out inputs of these substances, it can be affirmed that this synergy will lead to the achievement of SAP targets for 2025. Deadlines of the Italian Legislative Decree 367/03 (2008 and 2015) do not correspond to those provided by SAP (2005 and 2025) but it is reasonable to consider that the respect of the deadlines provided by the decree will establish a trend of reduction of the inputs that will allow as well to respect deadlines proposed by SAP. Moreover, from the analysis of table 1, it can be observed that for some substances (e.g. hexachlorobenzene, PAH, mercury, cadmium and tin) deadlines set up by the decree anticipate those proposed by SAP. Italian central and regional governments are also carrying out many of the activities recommended by SAP as the register of hazardous substances and of PCBs while guidelines for BAT and BEP have already been implemented and represent a solid support for their application. Finally Table 3/A-Enclose 5 to Legislative Decree 152/99 provide emission limits for product unit referred to production process for most of TPBs as recommended by SAP.

## 2.4.5 Organohalogen compounds

### 2.4.5.1 SAP Targets

Issue	Targets		
	2005	2010	2025
3) - Organohalogen compounds		reduce discharges	eliminate discharges
- Halogenated Aromatic hydrocarbons			
- Halogenated aliphatic hydrocarbons			
- Chlorinated phenolic compounds			
- Organohalogen pesticides			

### 2.4.5.2 Legal framework and provisions adopted

As mentioned in paragraph 2.4.4.2 above, general regulations on quality of industrial wastewaters discharged and concentration limits for dangerous substances are given by tables enclosed to **Ministerial Decree 367/03** and to **Legislative Decree 152/99**. These limits are not specifically referred to the sector of paper production, known as one of sectors making the largest use of organochlorines and adsorbable organic halogen.

According to Ministerial Decree 367/03 many regions activated plans and provisions in order to reduce the use of certain pesticides, such as lindane, 2,4-D and 2,5-T herbicides, and tri-tetra- and penta- chlorophenols, used in the treatment of wood.

For instance, in the region of Friuli Venezia Giulia, according to D.M. 14/3/2001, the use of Lindane is forbidden. While the regional plan for rural developing "*Piano di Sviluppo Rurale, misura F1, A1*" forbids the use of 2,4-D. The plan provides as well for the phase out of 2,5-T. The regional administrative government of Friuli Venezia Giulia carries out as well the "Program for

Endorsement of Forest Certification plans”, aimed at the certification of the forest management and at the monitoring of the use of tri, tetra and penta-chlorophenols used for wood treatment.

The regional administration of Umbria Region, through the plan for water safeguard “*Piano di Tutela delle Acque*” activated a system of investigation and control for 2,4-D, Lindane, Tri and Penta-chlorophenols.

Referring to atmospheric emissions a positive exemple is the one given by Emilia Romagna Region. Through Deliberation 969/1999 the regional government adopted a unified code on BAT, providing concentration limits for emissions for authorization to discharge in atmosphere. For every activity, if use of organohalogen compounds cannot be avoided, it recommends the close-cycle processing and the reduction of emissions.

It is believed that the most important contribute to the phase out of organohalogen compounds is the promotion of BEP and BAT and the promotion of alternative technologies having lower environmental impact than traditional ones. In Italy the pomotion of BEP and BAT is undertaken according to **Legislative Decree 59/05** (substitution of Legislative Decree 372/99) enforcement of IPPC Directive, which states that an industrial plant must adopt BEP and BAT in order to receive the Integrated Environmental Authorization.

#### 2.4.5.3 *Level of compliance with SAP targets and proposals for the National Action Plan*

In order to state the level of compliance with SAP targets for the issue of organohalogen compounds, first of all it must be underlined that Ministerial Decree 367/03 established regulations for quality standars of water bodies and emission limits related to dangerous substances, included organohalogen compounds. According to the decree most of the dangerous substances must be eliminated or strongly reduced by 2021. Moreover Legislative Decree 59/05, enforcement of IPPC Directive, provides for the need to equip indusrial plants with BEP and BAT in order to obtain the Integrated Environmental Authorization and states that by 2006 all plants must have received the authorization.

According to the mentioned regulations it can be affirmed that measures and provisions undertaken by national and regional governments and authorities thorough the existent legal framework and regional plans and monitoring programmes, will lead to the achievement of SAP target of elimination of organohalogen compounds in 2021.

On the other hand is known that the major sources of these compounds are the industrial sectors of organic and inorganic chemicals; more specifically, paper and pulp industries make use of important quantities of organochlorines and adsorbable organic halogen.

The analysis of legal provisions in force brings out that there are not specific limits of emission for paper and pulp industry, even though Legislative Decree 152/99 provides for emission limits related to some specific industrial processes. Emission limits for liquid discharges established by Legislative Decree 152/99 are restrictive but more efforts should be done in order to encourage the adoption of provisions aimed at providing plants with BAT as stated by Legislative Decree 59/05. Moreover it should be taken into account that paper and pulp industries are not homogeneously located over the national territory, therefore provisions and measures addressed at reducing and gradually eliminating the emissions of organohalogen compounds from this industrial sector should be implemented at regional level after the individuation of the hot spots for this issue and the location of the major industrial areas.

Finally it is believed that Legislative Decree 59/05 and guidelines for BATs and BEPs provided by the decree are the most important instrument for the achievement of the targets fixed by SAP but more support should be supplied by governments to local authorities and stakeholders in order to accelerate the process of adoption of these technologies.

Reduction of Tri, Tetra and Penta Chlorophenols employed in treatment of wood should be encouraged and promoted according to European and international laws, for example following the example of the administration of Friuli Venezia Giulia Region which through the “Program for Endorsement of Forest Certification plans” carries out a monitoring of the activities related to wood processing.

## 2.4.6 Radioactive substances

### 2.4.6.1 SAP Targets

Issue	Targets		
	2005	2010	2025
4) Radio-active substances			eliminate inputs

### 2.4.6.2 Legal framework and provisions adopted

In Italy energy production from nuclear processes was banned with the **constitutional referendum of 1987** and nuclear activities were abolished with the exception of research and medical ones. The four nuclear plants operative on the national territory were then closed with the related combustible production plants, presently their dismantling is under conclusion. Nowadays only four reactors are operative for research purposes.

**Legislative Decree 241/00** ratifies norms for technicians and for regional and national institutions in order to manage the risk of exposure to radiations from both natural (NORM-Naturally Occurring Radioactive Materials) and industrial sources.

On the other hand, even if in Italy there are not operative nuclear plants, the decommissioning of the old plants with their radioactive wastes, the presence of urban centres near the plants and the exposure for technical operators to ionising radiations make the question of radioprotection a delicate and relevant subject of study and highlights the concern of management of nuclear wastes.

Full information on quantity, quality and location of radioactive wastes, solid and liquid, on the Italian territory at regional level is available according to provisions provided by **Legislative Decree 230/95**.

It must be underlined that at the present time in Italy are taking place the operations of dismantling of nuclear plants, therefore data on quantity of radioactive wastes stored are dynamic and is presumable an increase of the values in the future years.

**Legislative Decrees 230/95** and **257/01** provide for rules on authorization to use of radioactive isotopes and thresholds limits. The decrees are applied to the following structures:

- Radiation plants
- Sterilizing plants
- Industrial accelerators
- PETs cyclotrons
- Accelerators for scientific research
- Smelting plants
- Radioactive wastes disposals
- Hospitals

#### *2.4.6.3 Level of compliance with SAP targets and National Action Plan*

From the examination of National Diagnostic Analysis for Italy and from the comparison between the legal framework on radioactive substances in force and SAP targets, providing for the elimination of inputs by 2025, it can be stated that radioactive substances are not an issue of concern for Italy. Energy production through nuclear processes was banned in 1987, matching with much advance SAP target for 2025. On the other hand management of the remaining activities, mostly medical and research, is properly and safely organized both for environmental and human health.

## 2.4.7 Nutrients and suspended solids

### 2.4.7.1 SAP Targets

Issue	Targets		
	2005	2010	2025
5) Nutrients and suspended solids - Urban and industrial waste water		50% reduction from industry	all waste disposed according to LBS protocol
- Agriculture			reduce inputs
-Atmo-spheric emissions			

### 2.4.7.2 Legal framework and provisions adopted

Following the methodology proposed by SAP target areas of action for the issue of pollution by nutrients and suspended solids are:

- ◆ Urban and industrial wastewater
- ◆ Agriculture
- ◆ Atmospheric emissions

It must be underlined in this context that no targets or deadlines are established by SAP related to atmospheric emissions of nutrients and suspended solids.

As widely mentioned in the previous chapters **Legislative Decree 152/99** absorbed European Directive 91/271/CEE on urban wastewater treatment and European Directive



91/676/CEE on safeguard of waters from contamination by nitrates caused by agriculture. From the analysis of the decree can be stated that it tackles entirely the issue proposed by SAP for nutrients and suspended solids by urban and industrial wastewaters and by agriculture.

Article 2, Paragraph “t” of the decree gives the definition for the term *eutrophication* which means increasing of nutrients, intended as nitrogen and phosphorus compounds, causing a growth of seaweeds and a perturbation of water quality parameters. Paragraph “ee” of the same article of the decree states that with the *primary treatment* of wastewater it must be achieved a reduction of the concentration of BOD<sub>5</sub> of 20% and a reduction of the concentration of suspended solids of 50%.

The theme of sensitive areas is covered by Article 18 of the decree, while Enclose 6 provides criteria for their identification according to typologies specified by Directive 91/271/CEE.. Article 32 ratifies that urban centres with more than 10.000 inhabitants, whether located in sensitive areas or in the drainage basin of a sensitive area must provide wastewater treatment plants with a tertiary treatment system for removal of nutrients whether the removal percentage of 75 % is not ensured by the secondary treatment. A list of the national sensitive areas with the related regional legal framework is provided in chapter 2.1.3.

Article 19 of Legislative Decree 152/99 gives regulations for areas endangered by agricultural activity and particularly by nitrates, while Enclose 7/A-I provides criteria for the identification of these areas. According to the decree sewage from industrial farms, producing high concentrations of nitrogen, is classified as industrial wastewater.

The decree established as well the proper stage of treatment (primary, secondary or tertiary) depending on area typology (normal, sensitive, endangered by agricultural activity) of the receiving waterbody.

Provisions given by the decree are absorbed by regional administrations through regional plans and provisions reported in details in chapter 2.3.

Hereafter are reported some of the information provided by regional governments on the issue of nutrients and suspended solids.

The regional government of Umbria is preparing a census of industrial plants which represent important sources of BOD, nutrients and suspended solids located in the main industrial areas. Since agriculture activities give a high contribute on contamination by nutrients, specific training and information programs have been developed for agricultural workers related to the proper use of agricultural sludge, particularly in the areas endangered by agricultural nitrogenous compounds.

The regional plan for water safeguard of Lazio Region set up the reduction of 90% of BOD<sub>5</sub> and of 80% of nitrogen and phosphorus discharged by the treatment plants located in a sensitive area and established strict limits for emissions of nutrients in normal areas.

All the regional territory of Emilia Romagna is in the drainage basin of a sensitive area, therefore, according to Legislative Decree 152/99, all urban centres with more than 10.000/20.000 equivalent inhabitants must implement appropriate phosphorus and nitrogen treatment (e.g. tertiary treatment) systems by year 2008/2015 respectively.

Finally Legislative Decree 152/99 provides for the implementation of monitoring campaigns to establish coastal water quality through a classification method, based on the average value assumed by TRIX factor along a coastal sector (for details see “2. *National Diagnostic Analysis for Italy*”, Chapter 2.1.6).

Emissions of pollutants from industrial plants, included those of nutrients and suspended solids, are subject to the IPPC directive (Integrated Pollution Prevention and Control), absorbed in Italy through **Legislative Decree 59/05**. According to the decree by 2007 all industrial plants must obtain the environmental licence, demonstrating that management of the environmental pollution is compliant with the best available techniques. When introducing changes in the existing installation, the managers will have to acquire the environmental licence prior to the beginning of operation; in case of new plants, prior to beginning the construction of the plant.

#### 2.4.7.3 *Level of compliance with SAP targets and proposals for the National Action Plan*

As seen in the previous chapter the national legal framework for industrial and urban wastewater is represented by Legislative Decree 152/99. The decree deals therefore even with the discharge of nutrients.

High concentrations of nutrients in waterbodies can cause eutrophication, with consequent effects of proliferation of planktonic biomass, discolouration of the water, reduction of water transparency, reduction of dissolved oxygen in deeper waters and, in extreme cases, occurrence of toxic algal species.

Urban and industrial effluents are important nutrient loads, especially when untreated or not properly treated. Monitoring campaigns carried out along Italian coasts brought out that many coastal areas in the vicinity of urban centres which do not efficiently operate a wastewater treatment are receiving important loads of nutrients. Rivers are also important transporters of nutrients and suspended solids since they drain basins with agricultural activities and urban centres; in Italy elevated concentrations of nitrogen and phosphorous are found in the intensely cultivated river basins of Arno and Po Rivers (e.g. discharges of nutrients by the the Po River cause eutrophication of the north Adriatic Sea).

The major sources of nutrients and suspended solids are urban and industrial wastewater from agriculture, farming, food processing and chemical industry not properly treated.

Taking into account the national legal provisions on these issues reported in the previous chapter and the related level of implementation, it must be mentioned that, according to Legislative Decree 59/05, through the environmental authorization and the adoption of BAT at national level, by 2007 it will be enacted a considerable reduction of emission of nutrients by industrial activities. On the other hand, for what concerns urban wastewaters, the implementation of Legislative Decree 152/99, through the application of tertiary treatment, allows the improvement of water quality, especially in sensitive covering a high percentage of the national territory.

In order to achieve by 2010 the target of reducing of 50% the discharges of nutrients and suspended solids as stated by SAP, the National Action Plan must take into account the following activities for urban and industrial wastewaters:

- Promotion, even with financial support, of tertiary treatment for industrial wastewaters in order to strongly reduce discharges of nutrients.
- Introduction in the regional plans of deadlines and projects for more efficient industrial treatment plants.
- Since in many cases it is difficult to discriminate between nutrients derived from agricultural runoffs and nutrients derived from discharges of domestic and industrial wastewaters, it is needful to reduce the contamination at source. This could be achieved once again through the application of BAT, also according to typology area of the receiving water body, and tertiary treatment for urban wastewater.

Finally, an important weakness of the national water management sector is the missed enforcement of the Water Framework Directive 2000/60/CE into national legal system.

Therefore the efficiency of Italian water sector should be increased even through legislative reforms and innovations related to the implementation of the Directive. Moreover actions are needed in order to reach an integrated management of water resources overlapping the fragmentation among different regional and local public bodies. On this purpose central government should promote the implementation of the Directive, support regional governments and encourage agreements between institutions, also through financial investments and with a major involvement of private stakeholders and public participation. More economical efforts are needed in order to provide professional training of experts and administrators.

## 2.4.8 Hazardous Wastes

### 2.4.8.1 SAP Targets

Issue	Targets		
	2005	2010	2025
6) Hazardous wastes		20% reduction of generation of hazardous waste 50% safely disposed	dispose in safe environmental sound manner
- Obsolete chemicals	collect and dispose in a safe environmental manager		
- Luboil	50% collect and dispose in a safe environmental manner		
- Batteries		20% reduction of generation 50% disposed in an environmental manner	dispose all batteries in an environmental manner

### 2.4.8.2 Legal framework and provisions adopted

Legislative Decree n. 22/97 in force called “*Decreto Ronchi*” is, among other things, the implementation of Directive n. 91/689/CEE about hazardous wastes, the decree is therefore comprehensive of all the measures undertaken by the national government on hazardous wastes management. As already mentioned in paragraph 2.4.2 on urban wastes management, at the end of 2004, law 308/04 gave to Government the delegation to rationalize and simplify most of environmental legislation through the enacting of a decree. Presently the draft of the decree is under revision, it will introduce the principles of free competition among private companies in the

management of wastes, moving from a former prescriptive approach to a performance approach, for the rest it can be said that principles and contents are the same of the former Legislative Decree n. 22/97.

The main features of Legislative Decree n. 22/97 have been extensively explained in paragraph 2.4.5 on urban wastes, and the same criteria are pursued for hazardous wastes but it is useful to underline some specificity of this issue by mentioning that it established the institution the consortium for exhausted lub oil, the consortium for use lead batteries and the consortia for hospital wastes, amianthus waste and waste transport. Moreover the Italian Government is adopting the WEEE (Waste Electrical and Electronic Equipment) and RoHS (Restriction of Hazardous Substances) directives.

Measure aimed at the prevention, reduction and limitation of hazardousness of wastes are stated by Article 3 of Legislative Decree n. 22/97 and by articles 178, 179 and 180 of the draft for the new decree on environmental issues.

Measure aimed to the reuse or safe disposal of hazardous wastes are stated by Articles 4 and five of Legislative Decree n. 22/97 and by articles 181 and 182 of the draft for the new decree on environmental issues.

The decree establishes also that hazardous wastes must not be mixed with not hazardous ones and that their disposal must be previously authorized according to indications of Ministry for the Environment and of Ministry for Health. Moreover it establishes that limits for emissions of incinerators supplied with hazardous wastes cannot be higher than those fixed by European directives 89/369/CEE, 89/429/CEE and 94/67/CE. A complete list of the substances conferring properties of hazardousness to wastes is provided in Encloses D, G, H and I of the decree.

#### *2.4.8.3 Level of compliance with SAP targets and proposals for the National Action Plan*

Comparing SAP targets for hazardous wastes management with national legal framework and with the results obtained in the last years after the entry in force of the Legislative Decree 22/97, a first positive experience coming from the two Consortia born for the recycling of exhausted oils and vehicles lead batteries, must be mentioned.

- **Coou**, the **exhausted oils** consortium, has increased its collection from 44 to 202 thousand tons between 1984 and 2003, increasing the share of “collected to sold product” from 8 to 35%. If the percentage of exhausted oil which is burned during consumption is taken into consideration, a satisfactory 90% target has been achieved. Also considering its capacity to

fulfil the European Directives requirements, Italy can be considered a best practice in this domain.

Coou's activities are financed by a special contribution to the Consortium (the rate has grown from 3.5 € in 1984 to 53.50 € in 2004 per ton introduced in the market). All producers and importers have to contribute to the Consortium; but the collection itself is free and the Consortium is non-profit.

- **Cobat**, the **lead batteries** consortium, has increased its collection from 135 to 192 thousand tons between 1991 and 2003. This is considered to be a 100% achievement.

Cobat activities are financed by a special surcharge applied on each battery sold to the public. Cobat also is a non-profit consortium. It must ensure the collection, stocking and recycling of lead batteries, or an environmentally sound elimination when recycling is not economically feasible. All sectors involved (producers and importers, retailers, collectors and recyclers) are part of the consortium under the supervision of the Ministries for Environment and for Production Activities.

These two examples of success are representative of the good organization of the system of collecting exhausted lub oils and batteries and of the efforts made in order to promote the policy of safe disposal. On the contrary, an important amount of wastes (even hazardous wastes) is still stored in plants not operating a proper recovery. Therefore, on the one hand, it can be said that presently the management of lub oils and lead batteries and percentages of collection achieved are compliant with SAP targets; on the other hand, according to the evaluations made by the Wastes Management Service of the Italian Agency for Environmental Protection, a large quantity of hazardous wastes is still sent abroad for a proper treatment.

It would then be desirable to implement provisions and investments in order to provide plants with a proper complex technology for the treatment of all the typologies of wastes and reduce the percentage of exporting. This improvement could be made through the allocation of funds for the development of BATs, with a consequent reduction of the production of hazardous wastes at source.

### 3. Team of national experts for NAPs

The document was prepared by the experts nominated by UNEP (United Nations Environment Programme) Ms. Simonetta Piccinini and Ms. Claudia Di Fiore under the supervision of the head of the Coastal Defence Service of APAT (Agency for Environmental Protection and Technical Services) Mr. Stefano Corsini and with the collaboration of the officers of IMET (Italian Ministry for the Environment and Territory) Ms. Annalidia Pansini and Ms. Fiamma Valentino.

National Action Plans represent the third step after the preparation of the Baseline Budget and the National Diagnostic Analysis for Italy which were drawn up with the contribution of the following team of national experts:

1. APAT (Agency for Environmental Protection and Technical Services)
  - Department of the Inland and Marine Waters Protection:
    - Coastal Defence Service: Mr. Stefano Corsini and Ms. Angela Barbano
    - Resources Protection Service: Mr. Claudio Fabiani, Ms. Silvana Salvati
  - Department of the Environment and Environmental Metrology:
    - Sustainable Development and Environmental Pressures Service: Mr. De Lauretis and Mr. Liburdi
    - IPPC Service: Mr. Alfredo Pini
    - Atmospheric Pollution and Urban Environment Service: Ms. Anna Maria Caricchia
    - Waste Service: Ms. Rosanna Laraia
  - Department of Nuclear, Technological and Industrial Risk:
    - Technological Risk Service: Mr. Luciano Seller
2. IMET (Italian Ministry for the Environment and Territory)
  - Department of Environmental Research and Development: Ms. Federica Sprovieri
  - Department of Life Quality: Mr. Mario Carere
  - Department of Nature Protection: Mr. Angelo Ciasca
  - Department of Environmental Safeguard: Ms. Anna Perinelli
3. ICRAM (Central Institute for Marine Research)
  - Environmental quality monitoring department: Mr. Franco Giovanardi

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APAT, 2005 – “*Report on urban wastewater disposal (91/271/CEE – article 16)*”.

Agency for Environmental Protection and Technical Services (APAT), 2004. “*Annual report on urban solid wastes*”

Agency for Environmental Protection and Technical Services (APAT), 2004. “*Annual report on hazardous wastes*”

Agency for Environmental Protection and Technical Services (APAT), 2003. “*Plan for control and evaluation of the possible effects deriving from pesticides utilization on environmental vulnerable divisions (Agreement of May, 8 2003 between Ministry for Health, Ministry for the Environment and Territory and the regional administrative governments)*”

Agency for Environmental Protection and Technical Services (APAT), 2003. “*Environmental Data Yearbook*”

August 2005 – “*2. National Diagnostic Analysis for Italy*”.

Tokyo, April 2005, 3R Portfolio – “*Country: Italy, 1: Good Practices to Promote the 3Rs*”.

Conclusions of the conference organized by Gruppo 183 association and the IEFÉ Bocconi institute, in Milan the 30 th of May 2005. Drafted by Chiara Sorisi for Gruppo 183 – “*Public participation and the implementation of the European Water Framework Directive 2000/60 in Italy*”.



# APPENDIX

## 1. Emilia Romagna: location of wastewater treatment plants and outfalls

Figura A1-6 Ubicazione dello scarico degli impianti di trattamento delle acque reflue di potenzialità  $\geq 2.000$  AE e degli Agglomerati di consistenza superiore a 10.000 AE

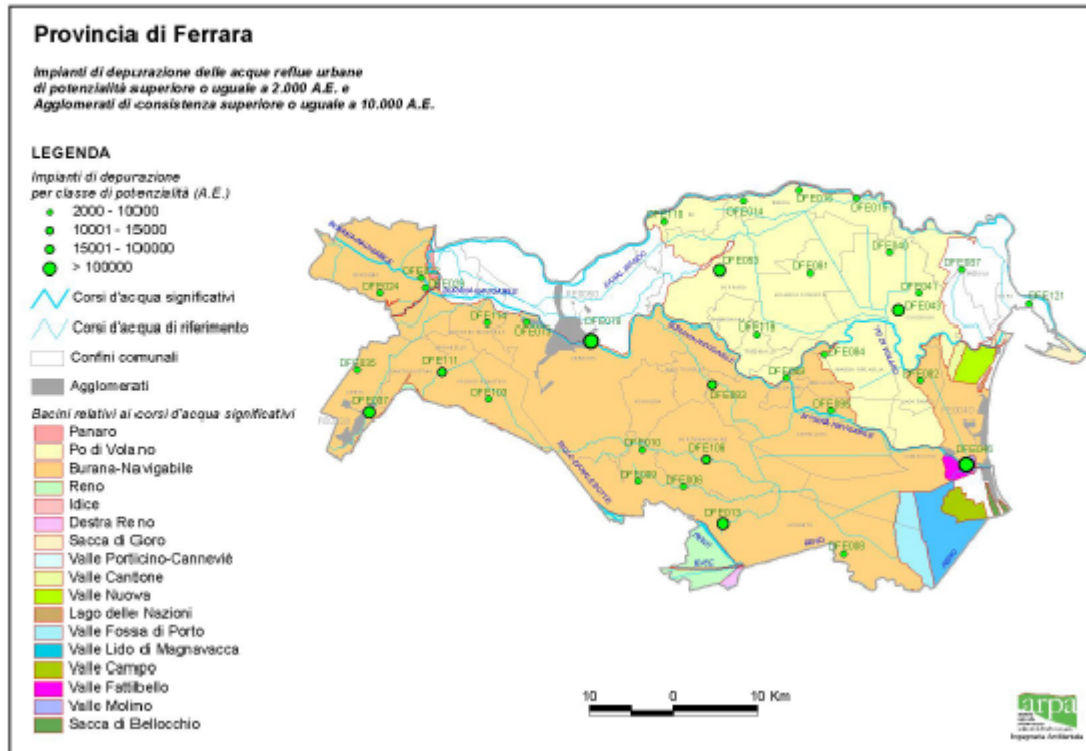


Figura A1-7 Ubicazione dello scarico degli impianti di trattamento delle acque reflue di potenzialità  $\geq 2.000$  AE e degli Agglomerati di consistenza superiore a 10.000 AE

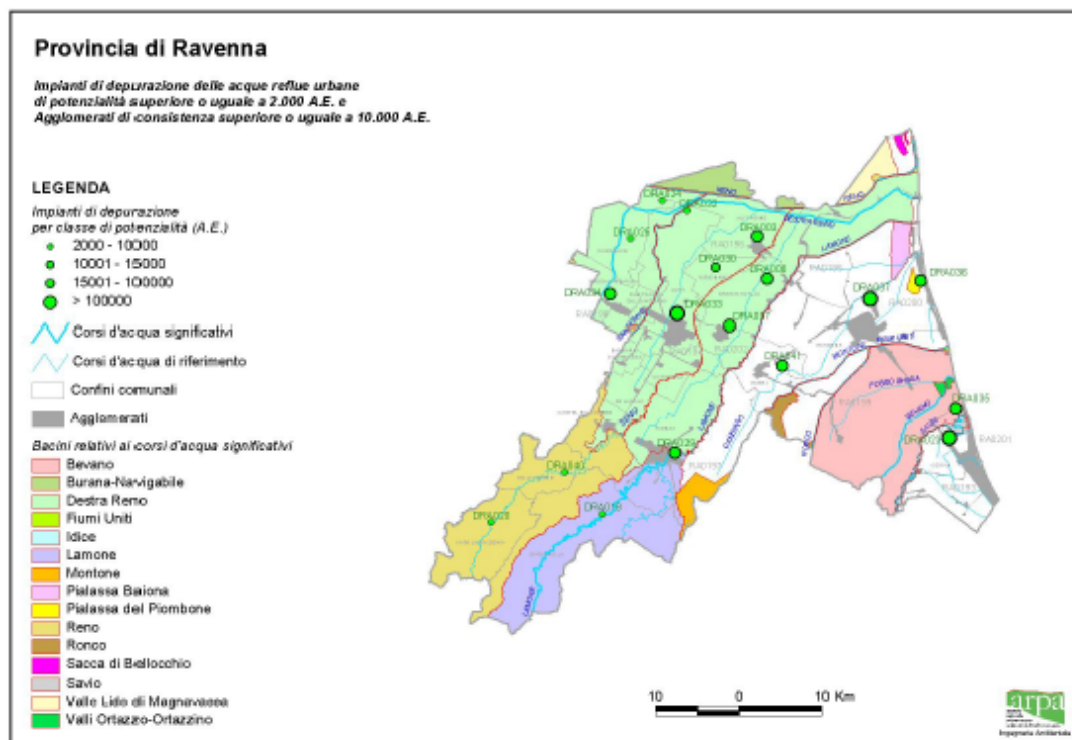


Figura A1-9 Ubicazione dello scarico degli impianti di trattamento delle acque reflue di potenzialità  $\geq 2.000$  AE e degli Agglomerati di consistenza superiore a 10.000 AE

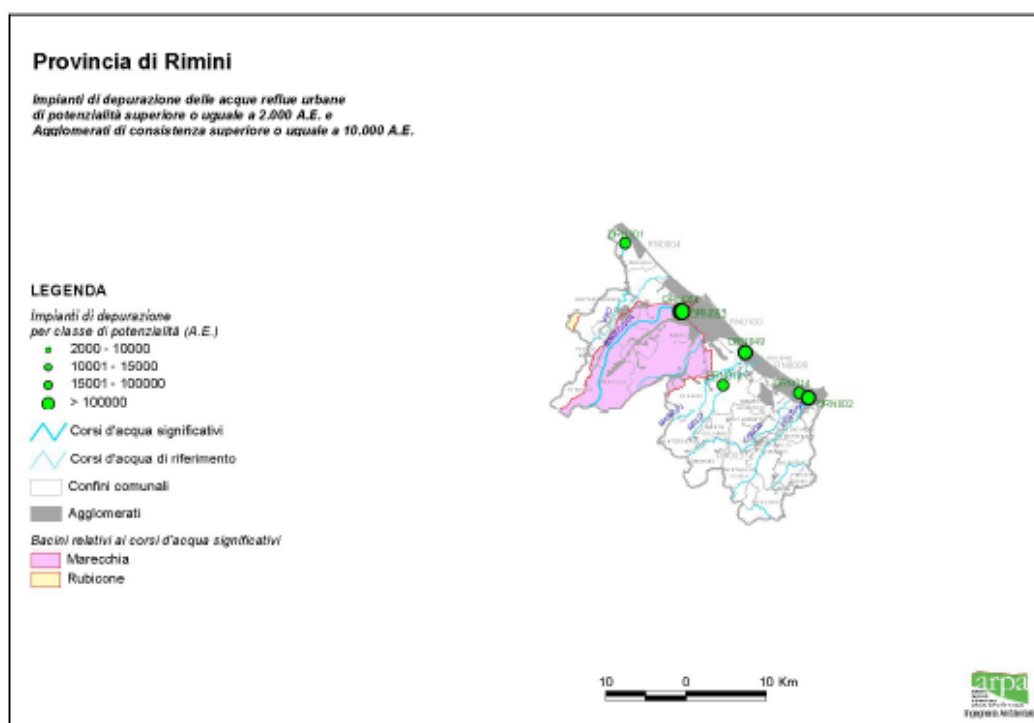
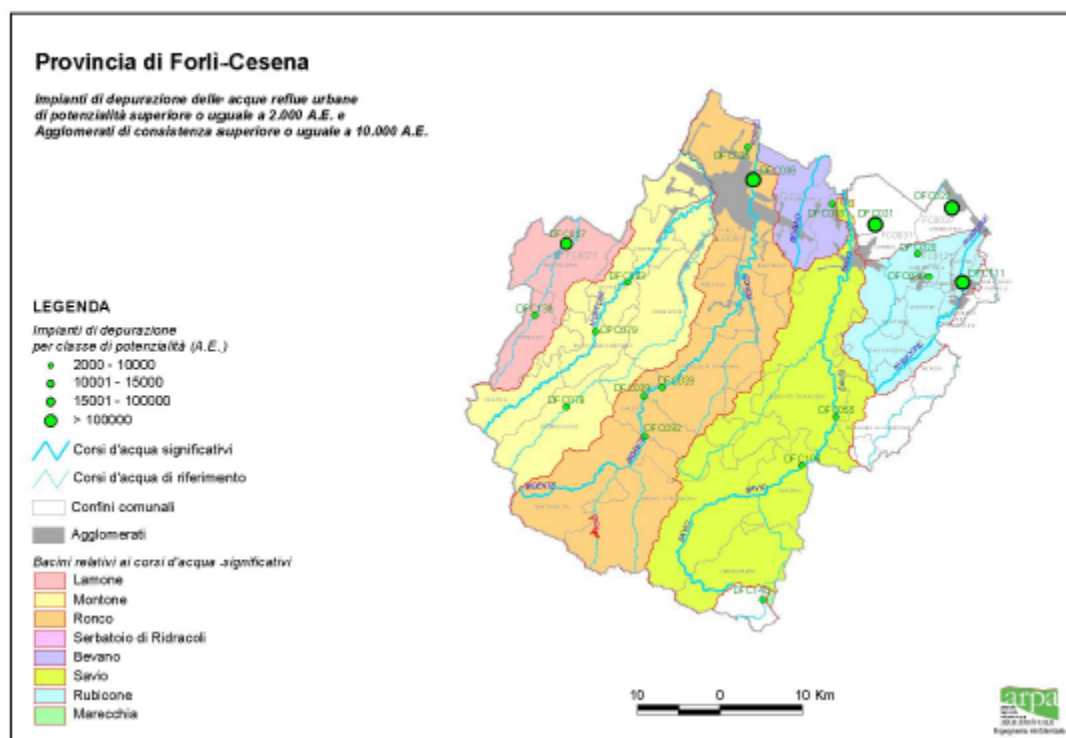


Figura A1-8 Ubicazione dello scarico degli impianti di trattamento delle acque reflue di potenzialità  $\geq 2.000$  AE e degli Agglomerati di consistenza superiore a 10.000 AE



## 2. Sardegna: wastewater treatment plants

N.	Name	Province	Total load	Average rate of the plant	Refining rate	Total amount destined to refining	Treatment stage <sup>(*)</sup>	
			[E.I.]	[m <sup>3</sup> /h]		[m <sup>3</sup> /h]	[m <sup>3</sup> /year]	Treatment
1	STINTINO	SS	62.000	250,00	250,00	2.190.000,00	C	C
2	CANIGA (Sassari)	SS	180.000	2.084,00	2.084,00	18.255.840,00	C	C
3	SORSO	SS	82.500	592,00	592,00	2.499.480,00	C	F
4	ALGHERO	SS	121.000	750,00	750,00	4.740.000,00	C	C
5	SANTA TERESA (capoluogo)	SS	53.000	796,00	796,00	6.972.960,00	C	C
6	PALAU	SS	44.000	533,00	533,00	1.111.560,00	C	F
7	ARZACHENA	SS	87.800	901,25	901,25	2.255.475,60	C	C
8	GOLFO ARANCI	SS	27.500	21,00	21,00	633.240,00	C	C
9	OLBIA capoluogo (parte)	SS	60.000	625,00	625,00	5.475.000,00	C	C
10	ZIR TEMPIO	SS	54.137	399,20	399,20	3.496.992,00	C	C
11	S. TEODORO	NU	36.000	480,00	480,00	4.204.800,00	R	R
12	BUDONI capol.	NU	44.000	533,00	533,00	1.111.560,00	C	C
13	POSADA	NU	15.000	208,33	208,33	1.824.970,80	C	F
14	NUCLEO IND.LE ORISTANO	OR	280.000	1.234,00	1.234,00	8.804.160,00	R	R
15	TERRALBA	OR	39.489	300,00	300,00	2.628.000,00	R	R
16	ARBOREA	OR	90.555	137,90	137,90	1.208.004,00	C	C
17	CURCURIS*	OR	12.360	86,90	86,90	761.244,00	R	R**
18	MASULLAS*	OR	32.114	203,00	203,00	1.778.280,00	R	R**
19	PABILLONIS	CA	35.489	218,75	218,75	1.916.250,00	C	F
20	NUORO	NU	62.634	1.062,69	1.062,69	9.309.164,40	C	C
21	DORGALI (capol.)	NU	36.000	166,67	166,67	1.215.980,40	C	C
22	CALA GONONE (Dorgali)	NU	25.000	208,33	208,33	1.824.970,80	C	C
23	N. IND. Tortolì - Arbatax	NU	71.407	708,33	231,37	2.212.028,40	F	F
24	BARISARDO	NU	17.660	146,27	146,27	487.837,20	C	C
25	MURAVERA	CA	49.898	475,00	475,00	2.046.252,00	C	F
26	VILLAMAR	CA	22.970	271,11	271,11	2.374.923,60	F	F
27	SERRAMANNA	CA	50.000	702,77	702,77	6.156.265,20	C	C
28	COSTA REY	CA	88.450	1.045,63	1.045,63	1.763.371,20	C	C
29	VILLASIMIUS e zone turistiche	CA	58.500	466,67	466,67	824.480,40	R	R
30	CAGLIARI - Is Arenas	CA	557.000	4.788,00	4.788,00	41.942.880,00	R	R
31	A.S.I. Cagliari - Machiareddu	CA	71.911	1.314,00	1.314,00	11.510.640,00	R	R
32	ZIR Iglesias	CA	57.600	760,00	760,00	6.657.600,00	C	C
33	S.GIOVANNI SUERGIU	CA	47.072	616,00	616,00	5.396.160,00	C	F

(\*) **R**: realized and operative

**C**: in construction

**F**: financed-construction programmed

(\*\*) Treatment plant presently discharging in a water body but provided with the equipments required in order to achieve the quality standard for reuse of treated outfalls (i.e. filtration, tertiary stage, sanitization).

### 3. Toscana: percentages of separate collection of wastes for coastal municipalities

Municipality	Province	Percentage of separate collection
Carrara	MS	25,14%
Massa	MS	32,34%
Montignoso	MS	0,3%
Camaiore	LU	26,68%
Forte dei Marmi	LU	34,11%
Pietrasanta	LU	27,30%
Viareggio	LU	35,25%
Bibbona	LI	27,91%
Campo nell'Elba	LI	18,29%
Capoliveri	LI	5,38%
Capraia Isola	LI	16,63%
Castagneto Carducci	LI	36,45%
Cecina	LI	32,20%
Livorno	LI	35,45%
Marciana	LI	8,31%
Marciana Marina	LI	19,84%
Piombino	LI	35,94%
Porto Azzurro	LI	5,18%
Portoferraio	LI	6,70%
Rio Marina	LI	5,43%
Rio nell'Elba	LI	3,26%
Rosignano Marittimo	LI	33,30%
San Vincenzo	LI	24,09%
Pisa	PI	34,23%
San Giuliano Terme	PI	26,78%
Vecchiano	PI	31,49%
Capalbio	GR	10,81%
Castiglion della Pescaia	GR	20,67%
Follonica	GR	33,43%
Grosseto	GR	29,30%
Isola del Giglio	GR	2,90%
Magliano in Toscana	GR	12,99%
Monte Argentario	GR	10,71%
Orbetello	GR	32,12%
Scarlino	GR	34,93%
<b>Average for coastal municipalities (2003)</b>	-	<b>30,18%</b>

#### 4. Toscana: location of urban wastes treatment plants and disposals in coastal areas

<b>Location</b>	<b>Activity</b>
Follonica/loc. Montoni	Disposal
Grosseto/loc. Strillaie	Disposal
Grosseto/loc. Strillaie	Selection, production of combustible and compost
Orbetello/loc. Torba	Pressing and packaging of urban solid wastes
Livorno/Vallin dell'Aquila	Disposal
Livorno/Picchianti	Selection and production of combustible
Livorno /Picchianti	Energetic exploitation
Scapigliato-Rosignano	Selection and production of compost
Scapigliato – Rosignano	Disposal
Ischia di Crociano	Selection, production of combustible and compost and disposal
Ischia di Crociano	Disposal
Porto Azzurro, loc. Buraccio	Selection, tratment, production of combustible and gassification
loc. Literno – Campo nell'Elba	Disposal
Comune di Pisa/loc. Ospedaletto	Thermal treatment
Pietrasanta/loc. Falascaia	Incinerator

## 5. Lombardia: regional legal framework and provisions on wastes management

<b>SUMMARY CARD CONCERNING THE “RECUPERO CENERI” PROJECT AIMED TO THE RECOVERY OF ASH AND DUST PRODUCED BY WASTE TO ENERGY PLANTS</b>	
<b>Technical contents, potential impact and project importance</b>	<p>Waste combustion residues are considerable (30% of waste entering each plant, equal to 1500 tons per day for all urban waste Lombard plants) and represent a problem when they are disposed in landfill (both in terms of quantity and costs, almost 150 euros/ton). It is possible to use their potential, transforming them into resources, through the recovery in aggregate concrete buildings. The new regional law (art. 23, lett. c) impose their recovery, fixing a 60% of weight within 2010, according to what the other member states have done. The main difficulty of the recovery procedure resides on the fact that residues cannot be considered as a homogeneous resource and, according to the specific characteristics, it is possible to identify a great range of use. The experimental project launched comes up from the need to identify factors that guarantee a sufficient quality and homogeneity level of ash for the recovery; factors connected to the combustion process and to the demetalization systems. Thus, the need to conduct pilot experiments using samples of ash produced by Lombard thermal heaters, to determine the chemico-physical characteristic and study the correlations existing between this one and the combustion parameters. The main objective is to improve certain management practices of the plants (% of oxygen, turbulence in the combustion chamber, service temperature and preventive deferrization) to better exploit the range of use. Ash coming from 5 different municipal incinerators have been analyzed and differentiated (AEM; BAS; ASM; AMSA; SILEA, ACCAM, ACSM). To test the possible different use, several companies of different commodity sectors, available to employ those samples of recovered ash, have been involved. The recovered ash, according to the above mentioned methods, have been tested following the procedures set out by the regulations, to verify the compliance with the regulatory limits of pollution and chemico-physical resistance.</p> <p>The technical and economic information framework obtained can be used to produce a good practice protocol concerning the recovery and this could be the subject of further regulations and technical provisions to suggest even national regulation integration level.</p>
<b>Reference standards</b>	D. lgs. 22/97, lr 26/03, DM 503/98, DPR 124/2000, dir 2000/76/EU, dir 31/99/EU, decision 2003/33 EU
<b>Analysis method and main results</b>	<p>The method set out in the project is divided as follow:</p> <ul style="list-style-type: none"> <li>step 1) Definition of functioning theoretical conditions of a thermal incinerator aimed to the reduction of pollutants concentration in the ash. Inspection of the expected results, in the field.</li> <li>step 2) Inspection of the experimental systems effectiveness concerning the separation of metals from ash. Evaluation of granulometry influence of recovered ash, for a better use. Evaluation of the effectiveness of deferrization upstream of the combustion process as to ash characteristics.</li> <li>step 3) Reproduce the operative conditions detected in laboratory within recovery pilot plants and/or in existing productive companies, willing to test ash usability according to the various form of recovery. Several commodity sectors have been involved; especially the asphalt sector for the cement concrete</li> <li>step 4) Drawing up of proposals for technical regulatory documents</li> </ul>
<b>Implementing bodies and information disclosure</b>	<p>CISPTEL Lombardia Services, AMSA, AEM, ASM, SILEA, BAS, ACSM, ACCAM. Evaluation companies and laboratories.</p> <p>Two intermediate relations on the achievement level of the objectives have been produced.</p> <p>Several disclosure initiatives to plan after the end of the project (December 2006) or in any case after having achieved significant results.</p>

<b>SUMMARY CARD CONCERNING THE “MOVIMENTAZIONE DEI RIFIUTI IN LOMBARDIA” PROJECT (WASTE HANDLING IN LOMBARDY) MUD ANALYSIS 2001 AND 2002</b>	
<b>Potential impact and</b>	The project highlights the management of special and non-special waste produced and handled in Lombardy in 2000 and 2001, as stated in MUD declarations submitted by the companies. The innovative

<b>project importance at territory level</b>	<p>feature of the relation lays down on the special drawing up and aggregation of flows analysis that the region has planned and then commissioned to Unioncamere. This is the first complete evaluation available at national level on industrial waste import and export from and to the Lombardy Region and that points out the origin and the intra-provincial and intra-regional destination all over the national territory, from and to national, European and extra-EU areas. Production and handling data have been integrated with the analysis of the recovery and disposal management situation for each province, outlining the amount managed coming from outside the regional territory and the treatment (recovery and disposal) to which the exported waste are subjected and the identification of the final destination.</p> <p>Thus, the relation establishes that adding autoproduction and import and subtracting the export, the result is an instant framework on the total industrial waste volume within the provinces of the Region and on the subjects from which these flows originate. According to what has been said, a series of figures representing the impact of waste export and import for the various groups of waste at regional level and for each province, is developed.</p>																
<b>Technical contents</b>	<p>Data on the production of special waste, aggregated by crossing the three analysis contexts:</p> <ul style="list-style-type: none"> <li>• CER classification (data aggregated in 20 cer macro-families)</li> <li>• territorial distribution at provincial and municipal level</li> <li>• productive business which has produced them</li> </ul> <p>Special waste import rate:</p> <ul style="list-style-type: none"> <li>• In the Lombardy Region from other EU countries and extra EU</li> <li>• In each province of the Lombardy from other parts of the country and from abroad</li> </ul> <p>Special waste export rate:</p> <ul style="list-style-type: none"> <li>• From the Lombardy Region to the rest of the country</li> <li>• From Lombardy Region abroad</li> <li>• From each province of the Lombardy to the rest of Italy.</li> </ul> <p>Indices at regional level for single CER code and ISTAT productive category</p> <ul style="list-style-type: none"> <li>• Export/product impact</li> <li>• Import/product impact</li> </ul>																
<b>Analysis method and main results</b>	<p>Summary data concerning the net balance between production, treatment, import and export, outline, for Lombardy in its whole at regional level and on the total volume of waste, an import index greater than the export one thus exploding, in a scientific and irrefutable manner, the myths created by the eco-terrorist and exploiting press, which state that Lombardy is in trouble due to waste management.</p> <table border="1" data-bbox="352 1173 1528 1328"> <thead> <tr> <th>PROVINCES</th> <th>volume produced</th> <th>volume imported</th> <th>volume exported</th> <th>import index (imp./prod.)</th> <th>export index (exp./prod.)</th> <th>volume disposed</th> <th>volume recovered</th> </tr> </thead> <tbody> <tr> <td><b>REGION</b></td> <td><b>16.463.417</b></td> <td><b>4.133.001</b></td> <td><b>2.830.930</b></td> <td><b>25,1%</b></td> <td><b>17,2%</b></td> <td><b>8.482.008</b></td> <td><b>10.293.622</b></td> </tr> </tbody> </table> <p>data per tons/year for 2002</p>	PROVINCES	volume produced	volume imported	volume exported	import index (imp./prod.)	export index (exp./prod.)	volume disposed	volume recovered	<b>REGION</b>	<b>16.463.417</b>	<b>4.133.001</b>	<b>2.830.930</b>	<b>25,1%</b>	<b>17,2%</b>	<b>8.482.008</b>	<b>10.293.622</b>
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<b>Authorities interested in analysis results</b>	<p>Bodies appointed to Planning and control: Provinces, Municipalities, Arpa, Chambers of Commerce, Noe, Nas, Guardia di Finanza (Finance Police), Corpo Forestale (Corps of Foresters), Parliamentary Committee on waste survey, Parliamentary Commission of inquiry on waste, Anpa-ONR, Ministry of the Environment, public and private operators and entrepreneurship related to the sector.</p>																
<b>Focus on actors and possible disclosure initiatives</b>	<p>The research on the last available MUD data (two-year period 2003-2002 on handling during 2002-2001) has been assigned to Unioncamere Lombardia and developed thanks to Ecocerved Bologna and ended in June 2004.</p> <p>Two relations have been produced and published in the BURL. These two relations have represented the basis on which has been developed the Regional Programme on special waste management. At present, there is an ongoing concertation aimed to the disclosure of the whole results, taking into account their impact and importance, the confidentiality of information procured and the large number of possible actors involved. Potentially, through this tool it is possible to go back to the address of a single company that handles even dangerous waste so as to verify its fairness and regularity in terms of management and administrative procedures.</p>																

**SUMMARY CARD CONCERNING THE “PROGETTO ARENA SUI FLUSSI DI RIFIUTI INTERPROVINCIALI” (PROJECT ON INTER-PROVINCIAL FLOWS OF WASTE) SIMULATION MODEL OF SPECIAL AND DOMESTIC WASTE MANAGEMENT**

<p><b>Technical contents, potential impact and project importance at territory level</b></p>	<p>The study on waste handling in Lombardy in 2002, depicts the production framework and outlines the management flows within the Lombard provinces but also outside the region. The survey considers incoming and outgoing flows from the Lombard plants towards structures of other Italian regions, with particular reference to domestic waste and some special waste, typical residues produced by waste treatment plants such as slags, ash, packages, cdr, leachate and non composted fraction. The analysis carried out on this waste aggregation, allows to detect the management ability level of every provincial context, so as to point out the lacks of certain plants (landfills, thermal incinerators, composting, selection and biostabilization, recovery and recycling plants). In this way, it is possible to determine the self-sufficiency level for each provincial context, tracking the whole path of municipal waste starting from the assignment of the municipalities to the first selection and sorting stations, to the disposal plants. The most important aspect of this study is that numerous intermediate passages to which waste are subjected before reaching the final destination, have come out thus outlining plants inefficiencies in terms of high percentage of rejections, that prove the fictitious level of recovery declared by managers and transferee Provinces. This is confirmed by the tracking of the real destination of the main flows to the recovery plants that – at a comprehensive regional level – do not interfere with the market of recovered materials but end its path in the landfill.</p> <p>This represents the basic assumption of the simulation model realized to allow forward assessments on management of domestic waste flows at inter-provincial level from now to 2013. The model, defining the actual and planned situation of plants, allows the forecasting of the saturation levels of the provincial plants, thus allowing the preventive identification of possible emergency situations and the resulting optimization of flows management and destination. A collateral aspect of this approach is the possibility to coordinate and plan exhaustion and down-time periods of plants for the maintenance of strategic plants such as landfills and thermal incinerators.</p>
<p><b>Analysis method and main results</b></p>	<p>The study refers to Arpa Lombardia and Mud 2003 data (handling concerning the year 2002) for production aspects, while it refers to the Irer study 2003 for management and plant situation data, that monitors, at local level, the operating parameters of urban waste plants. Regarding the emission indices the main reference has been the European database Inemar. The forecasting model is integrated with an assessment on point emissions of thermal incinerators, thus allowing the impacts evaluation and the identification of sensitive zones in which there are a lot of plants.</p> <p>Though this model it is possible, also knowing the situation of the atmospheric impact deriving from industrial activities on the territory, to determine the additional environmental pressure value due to thermal incinerators and landfills, both for the existing plants and new ones. In this way it is possible to plan experimental applications for waste treatment plants, concerning the emission trading technique among regional districts, governed by the community directive, October 13, 2003 “Emission trading system”, EU.</p> <p>Among the main results achieved, at a regional comprehensive level comes out an export flow of waste mainly constituted of compostable organic fraction, compost off-specification, non compostable fraction (code 200201) and mixed packages (codes 150106, 150105) towards the neighbouring regions such as Emilia-Romagna and Veneto. This happened because of the restricted number or efficiency level of the composting plants located within the Lombard territory and because of lower access charges; but also thanks to a more permissive attitude toward the use of compost in agriculture due to the regulations of the other regions.</p>
<p><b>Focus on actors and disclosure initiatives</b></p>	<p>Survey commissioned to Cestec Lombardia and developed by CGI(Costruzioni e Gestioni Integrate) and ACT solutions Roma, carried out in July 2004. The programme has been developed on Arena information platform, necessary for the implementation of the programme itself. The survey is of particular interest for the bodies involved in the planning and management of flows (provinces and municipalities). The programme provides for the organization of training seminars on the use and the appropriate setting and reading of input and output parameters. Moreover this study has been presented at the “simulation forum” held by the LIUC University of Castellanza and Worldwide Simulation Alliance, on November 2004.</p>



**SUMMARY CARD CONCERNING THE “BANCO ALIMENTARE DELLA LOMBARDIA” PROJECT  
(LOMBARDY FOOD BANK)  
AIMED TO WASTE PREVENTION THROUGH RECOVERY  
OF FOOD SURPLUS COMING FROM THE LARGE-SCALE RETAIL CHANNEL**

<p><b>Technical contents, potential impact and project importance at territory level</b></p>	<p>This project falling within the waste prevention, is carried out in cooperation with the “Grande Distribuzione Organizzata” (GDO) and it will be developed through 2005 and last for three years. Its main feature is the recovery of food surplus and the immediate distribution of the surplus to associations helping people in poverty conditions. Usually the Food Bank receives food surplus daily by the Food Industry or by some platforms supplying large supermarket chains, but only occasionally it collects fresh and dry food surplus from single supermarkets because this entails high organizational logistics effort. Thanks to the GDO a lot of small vehicles will be used for daily collection of small volumes: this both entails the use of additional vehicles and personnel, but allows to increase the salvage volume also to the benefit of the quality offered to those experiencing economic disadvantage, as final beneficiaries.</p> <p>In this way a products flow otherwise destined to the elimination and to the transformation in “waste” to be disposed is intercepted. The Food Bank initiative has therefore a double importance: from one hand a social importance to support the socially vulnerable groups, from the other an ecological importance to support the community enjoying the reduction of waste stocked in its own landfills or sent to thermal incinerators, trying to attain the difficult priority objective of prevention. It is assessed that every day, on the average, almost 150/200 kg of foodstuffs can be moved from the flow of potential waste waiting for the destruction, offering them to the Caritas, that upon quality control of the food recovered, distributes it to the families experiencing economic disadvantage.</p>
<p><b>Project method, main results achieved and implementing bodies</b></p>	<p>Since May 2004 several experimentations have been started to test volumes and procedures of the collection, in cooperation with the Caritas of Gallarate. It is assessed that the volume of waste prevention within a month is about 3,400 kg products, i.e. 38 tons per year for each distribution centre involved.</p> <p>Taking into account the 52 supermarkets with a surface of more than 5,000 square meters distributed on the Lombard territory, it could be possible to reduce the waste flow of about 2000 tons per year. The recovery network provides for the direct intervention and coordination of the Food Bank which has also to control the efficiency of the service provided, while the collection stage is left to volunteers.</p> <p>The objectives for the year 2005 entail the involvement of 4 supermarkets in cooperation with Food Bank, 10 supermarkets with available Authorities, for 90,000 kg of recovered and redistributed products, that is a business saving of 39,000.00 Euros on disposal expenses avoided and 450,000.00 Euros concerning the value of goods distributed.</p> <p>The objectives for the year 2006 are distributed on 4 supermarkets in cooperation with Food Bank and 20 supermarkets for a total amount of 800 tons of recovered and redistributed products, corresponding to a business saving of 67,000.00 Euros on disposal expenses avoided and 750,000.00 Euros concerning the value of goods distributed. It is assessed that in 2007 other 10 Supermarkets will be start up and a total of 1,500 tons of recovered and redistributed products will be obtained, i.e. a business saving of 115,000.00 Euros and 1,300,000.00 Euros concerning the value of goods distributed.</p> <p>Project steps involve the training of volunteers for the collection and distribution as well as the creation of a manual concerning the procedures for the fresh food. The aim is to collect products in the morning and start distributing them from the afternoon thus reducing their stocking time. Lombardy Region, Caritas, GDO.</p>

**SUMMARY CARD CONCERNING THE “CERTIFICAZIONE AMBIENTALE DELLE IMPRESE”  
PROJECT (ENVIRONMENTAL CERTIFICATION OF COMPANIES)  
AIMED TO THE SPREAD OF ENVIRONMENTAL MANAGEMENT TOOLS**

<p><b>Technical contents, potential impact and project importance at territory level</b></p>	<p>The environmental certification voluntary tools are considered the most effective for the jointly responsibility of production system on environment issues. In fact those tools provide for the implementation, within a company, of environmental management systems and analysis on the impacts of production processes concerning the whole cycle, thus allowing the environment variable to enter the logics of company improvement.</p> <p>With the purpose to develop the diffusion of those tools, having voluntary basis, especially in the multiservice companies sector, during 2004 has been launched a project on certification promotion, in cooperation with the Unione delle Camere di commercio of Milan (Chambers of Commerce Union).</p> <p>The regional participation consisted in planning, coordination and announcement of a call for the co-financing of expenses for new environmental certifications, incurred by companies working in the sector of urban hygiene services and having multiservice features. So that to affirm and confirm the effectiveness and the advantages in terms of performance and scale economies of this kind of management.</p> <p>The project, that has a two-year duration, has differentiated the regional financing amount in case of EMAS Registration and environmental certification ISO 14.000, because of the greater reliability of the first certification system over the second one, as stated by the EU.</p>
<p><b>Project steps and main results</b></p>	<p>A call for financing has been developed and issued for Lombard multiutilities companies: the eligible applications according to the admission requirements established, have been 28, for a total amount of required contributions equal to 422,407.00 Euros.</p> <p>The number of the applications received has overcome the sums disbursed, against a regional financing commitment allocated of 250,000.00 euros. The examination of applications, made by regional and Unioncamere officers, has led to the immediate allocation of contributions to the first 16 companies on the list, for a total amount of 248,877.00 Euros, maintaining the list opened and postponing the possibility to renew this initiative for the financing of the other 15 companies in the list to the next years, upon ascertainment of budget availability and after having evaluated the positive results of the project. 4 out of the 16 companies beneficiaries of the contribution, will be EMAS registered within 2005.</p> <p>The territorial coverage of the companies beneficiaries of the financing, is well distributed and enough representative of all local realities. The companies involved are small and medium-sized, thus confirming that the ability to face additional costs due to the adoption of certification environmental policies, is directly proportional and interdependent to the size of the above said companies. The notice provided for the certification even of a single stage of the whole cycle of urban hygiene service supply (from the collection to the separation, recovery and final disposal), taking into account that similar previous regional initiatives had already contributed to the financing of recovery and disposal plants certification. The urban hygiene service sector to which have been submitted the majority of certification applications, has been the separate collection and waste pre-treatment one.</p> <p>Several sustaining and inspection stages of the certification implementation procedure to which is connected the disbursement of the financing, have been developed.</p>
<p><b>Implementing bodies, beneficiaries and disclosure events</b></p>	<p>Implementing bodies: Lombardy Region, Unione delle Camere di Commercio of Milan (Chambers of Commerce Union).</p> <p>Beneficiaries: Lombard multiservices companies working in the sector of urban hygiene services</p> <p>A press conference to present the initiative and several technical meetings with the managers of the companies have been held to monitor the progress of the various certification paths. Other disclosure events would be suitable to highlight the initiative; the next one will be the “Progetto Città” exhibition with a small workshop on the issue, held in the conference room within the regional stand.</p>

**SUMMARY CARD CONCERNING THE “RE-MADE IN ITALY” PROJECT AIMED TO THE DEVELOPMENT OF RECOVERED MATERIALS MARKET**

<p><b>Technical contents, potential impact and project importance at territory level</b></p>	<p>Eco-buying means to choose a specific product or service also according to the environmental impacts that this product can have during its whole <i>life-cycle</i>, that is during the whole production process, from the raw materials extraction to waste disposal. The GPP is therefore applied as the tool allowing the replacement of existing products and services with others having a reduced environmental impact. Therefore, environmental criteria favour goods and services that: optimize the service offered by the product, reduce the use of natural resources, reduce waste production and pollutant emissions.</p> <p>In this context, has been implemented the “RE-MADE IN ITALY” project; eco-innovative products for the companies of Lombardy Region to promote ecodesign strategies to the companies established in the Region through supporting tools and through the creation of recycled products.</p>
<p><b>Project steps and main results</b></p>	<p>The project planning, started in 2004, has scheduled the closing of Eco-tool project on July 2005, with the organization Eco-tool presentation. The next step provides for the identification of the 10 excellence products: according to the topics developed by the Eco-tool, several companies will be identified to carry out the planning and realization of the 10 recycled products. In 2004 the Eco-tool has been developed on Cd-rom and it represents a support to the companies concerning ecodesign strategies implementation, both to face legislative requirements applied at European level (WEEE, RoHS, EUP Directives, packages, etc.), and to satisfy the recycled products demand in compliance with the national Decree on 30%. Moreover, new concepts for the realization of the 10 excellence products have been launched.</p> <p>The objectives 2005 consist in the realization of the 10 excellence products, through the cooperation among Lombard companies. The paper manual mainly contains information about basic environmental problems and the key concepts of product ecodesign, the producer extended responsibility, the Life-cycle and Life Cycle Thinking concepts and environmental effects and impacts. Moreover the manual contains ecodesign tools and strategies for the company, and it has the objective to explain how the company can pursue an environmental policy in relation to its own actions and products realized. In particular, some examples of business strategies, possible external (environmental relation, Sustainability Statements) and internal communication tools will be outlined. Each strategy is analytically described and provided with examples. Furthermore, the companies are supplied with strategies and tools of DFE, Ecological and Economic Suitability, elements of Design For Disassembly (DFD) and Design For Use (DFU).</p>
<p><b>Implementing bodies and possible information disclosure</b></p>	<p>The actors identified by the Project are the CO.RE.PLA, Comieco, CiAL and Matrec srl consortiums. The project, that will be carried out through the cooperation of the Cestec, has obtained the sponsorship of the Ministry for Productive Activities, Ministry of the Environment and of the Waste National Monitoring Centre. The actors involved are: ARPA, ANPA, APAT, ONR, UNI – UNICHIM, SINCERT, ICLEI, ASSORECUPERI, university and para-university institutes (Politecnico di Milano, Istituto per l’ambiente), ANCI, CONSIP.</p> <p>At the end of the Ecotool project, an event will be organized to present it to the public, companies and press. The Ecotool and conventional guides will be also available from the Lombardy Region during events and conferences. The Eco-tool is in electronic format with html language: therefore uploadable in every regional internet site. The project progress will be presented during the “Salone del Mobile di Milano” (Furniture Fair) at the beginning of 2005.</p> <p>The 10 excellence products, in cooperation with the Lombard companies, have to be presented with an exhibition during the Furniture Fair at the beginning of 2006.</p>

**SUMMARY CARD CONCERNING THE “NATURA SOLIDALE” PROJECT (FAIR NATURE) AIMED TO THE SPREAD OF THE APPROPRIATE SEPARATE COLLECTION AND RECOVERY SYSTEM CARRIED OUT BY PARISH ASSOCIATIONS**

<p><b>Technical contents, potential impact and importance of the analysis on the waste flows handled in Lombardy</b></p>	<p>The study on waste handling in Lombardy in 2002, depicts the production framework and outlines the management flows within the Lombard provinces and outside the region. The survey considers incoming and outgoing flows from the Lombard plants towards structures of other Italian regions, with particular reference to domestic waste and some special waste, typical residues produced by waste treatment plants such as slags, ash, packages, cdr, leachate and non composted fraction. The analysis carried out on this aggregation of waste allows to detect the management ability level of every provincial context, so as to point out the lacks of certain plants (landfills, thermal incinerators, composting, selection and biostabilization, recovery and recycling plants). In this way, it is possible to determine the self-sufficiency level for each provincial context, tracking the whole path of urban waste starting from the assignment of the municipalities to the first selection and sorting stations, to the disposal plants. The most important aspect of this study is that numerous intermediate passages to which waste are subjected before reaching the final destination have come out thus outlining plants inefficiencies in terms of high percentage of rejections, that prove the fictitious level of recovery declared by managers and transferee Provinces. This is confirmed by the tracking of the real destination of the main flows to the recovery plants that – at a comprehensive regional level – do not interfere with the market of recovered substances but end its path in the landfill.</p> <p>This represents the basic assumption of the simulation model realized to allow forward assessments of the management of domestic waste flows at inter-provincial level from now to 2013. The model, defining the actual and planned situation of the plants, allows the forecasting of the saturation levels of the provincial plants, thus allowing the preventive identification of possible emergency situations and the resulting optimization of flows management and destination. A collateral aspect of this approach is the possibility to coordinate and plan exhaustion and down-time periods of plants for the maintenance of strategic plants such as landfills and thermal incinerators.</p>
<p><b>Analysis method and main results</b></p>	<p>The study refers to Arpa Lombardia and Mud 2003 data (handling concerning the year 2002) for production aspects, while it refers to the Irer study 2003 for management and plant situation data, that monitors, at local level, the operating parameters of urban waste plants. Regarding the emission indices, the main reference has been the European database Inemar. The forecasting model is integrated with an assessment on point emissions of thermal incinerators, thus allowing the impacts evaluation and the identification of sensitive zones in which there are a lot of plants.</p> <p>Through this model it is possible, also knowing the situation of the atmospheric impact deriving from industrial activities on the territory, to determine the additional environmental pressure value due to thermal incinerators and landfills, both for existing plants and new ones. In this way it is possible to plan experimental applications for waste treatment plants concerning the emission trading technique among regional districts, governed by the community directive, October 13, 2003 “Emission trading system”, EU.</p> <p>Among the main results achieved at a regional comprehensive level, comes out an export flow of waste mainly constituted of compostable organic fraction, compost off-specification, non compostable fraction (code 200201) and mixed packages (codes 150106, 150105) towards the neighbouring regions such as Emilia-Romagna and Veneto. This happened because of the restricted number or efficiency level of the composting plants located within the Lombard territory but also thanks to a more permissive attitude toward the use of compost in agriculture due to the regulations of the other regions.</p>
<p><b>Focus on actors and possible disclosure initiatives</b></p>	<p>Survey commissioned to Cestec Lombardia and developed by CGI (Costruzioni e Gestioni Integrate) and ACT solutions Roma, carried out in July 2004. The programme has been developed on Arena information platform, required for the implementation of the programme itself. The survey is of particular interest for the bodies involved in the planning and management of flows (provinces and municipalities). The programme provides for the organization of training seminars on the use and the appropriate setting and reading of input and output parameters. Moreover, the study could be presented at the “simulation forum in cooperation with the LIUC and the Worldwide Simulation Alliance, on November in Milan.</p>

**SUMMARY CARD CONCERNING THE “RAEE RACCOLTA E RECUPERO DEI RIFIUTI ELETTRICI ED ELETTRONICI” PROJECT (ELECTRIC AND ELECTRONIC WASTE COLLECTION AND RECOVERY) AIMED TO THE INTERCEPTION OF SPECIAL WASTE FLOWS, RAEE DIR 2000/96**

<p><b>Technical contents, potential impact and project importance at territory level</b></p>	<p>The project has resulted in ad hoc surveys on the Lombard territory to identify the real size of flows and the actors involved in electric and electronic waste handling and management within Lombardy, following the recovery procedures as stated by the Directive 2000/96. On January 2004 has been especially studied the disposal of the informatic material in Lombardy (pcs, monitors, printers, notebooks, office consumable products). Data outline that Lombardy produces and disposes about 200,000 pcs per year, that is 20% of the national disposal. In ascending order the actors are: companies for 66%, private consumers for 25%, public authorities for 7% and universities for 2%. The percentages remain the same for every RAEE typology. The total volumes disposed have increased for every typology both in Italy and in Lombardy and have registered rapid trends due to the very low ageing time and turn-over imposed by the market as far as the technological evolution is concerned (the growth rate estimated for the RAEEs is three times the one of the remaining urban waste).</p> <p>The EC Directive states that at least 75% of weight of the RAEEs must be recovered and at least 65% reused/recycled, while at present, even in Lombardy, the disposal still registers values over 80% due to the assignment to “final operators”, i.e. municipality waste landfills at high environmental risk.</p>
<p><b>Project steps and main results</b></p>	<p><b>STAGE ON THE DIMENSIONAL ANALYTICAL EXAMINATION CONCERNING THE ISSUE</b></p> <p>From the experimental evaluation of RAEEs volumes and ICT devices collected (annual average) in the Lombardy Region alone through a form submitted to 17 regional companies of public utilities with the cooperation of CISPEL-Confservizi, the following collected waste flows can be observed</p> <p>Average tons of unseparated waste collected for each public utility company: 68,000 tons  Average tons of bulky waste collected for each public utility company: 2400 tons  Average tons of ICT collected for each public utility company: 92 tons  Average RAEEs per head collected: 1.9 kg  Average ICT per head collected: 0.5 kg</p> <p>Considering an average weight of 30 kg for a home PC, 8kg for a printer and 3.2 kg for a Notebook, within 2005 will be disposed, in Lombardy, 12500 tons for PCs + monitors, 1000 tons for Notebooks, 5400 tons for Printers.</p> <p>The potentially attainable advantages at environmental level for 2005 in Lombardy can be measured as follow:</p> <ul style="list-style-type: none"> <li>-12500 tons of PCs non disposed in landfill with 80% of reuse/recycle/recovery that satisfies the minimum level of 75% required by the Directive.</li> <li>•5200 recyclable tons (575 tons of plastic, 1420 tons of aluminium, 2050 tons of iron, 780 ton of copper, 165 tons of zinc etc.)</li> <li>•144 tons of highly pollutant material (such as cadmium, mercury etc.)</li> <li>•5000 tons of PCs or their reused components.</li> </ul> <p>The advantages in economic terms can be easily derived from the average cost of RAEE management (personal collection + motor vehicles + ecological platform) that in Lombardy amount to 129 €/ton</p> <p><b>STAGE ON THE EXPERIMENTAL EXAMINATION OF THE COLLECTABLE POTENTIAL</b></p> <ul style="list-style-type: none"> <li>- implementation of negotiated planning tools (agreements with the distribution)</li> <li>- citizens awareness on recovery and incentive to the eco-friendly purchase</li> </ul> <p>For further details please see the complete project relations at the Directorate.</p>
<p><b>Implementing bodies and information disclosure</b></p>	<p>Survey commissioned to Cestec Lombardia in 2004 and developed by Noiros srl of Milan with the cooperation of CIRM Survey Institutes, ended with the documentary phase on December 2004. At present the pilot project for pcs interception in the GDO centres has been launched over 5 territories around Milan, Bergamo and Crema.</p> <p>These actions carried out during 2004-2005, considering the deadline of the community obligations, insist on the involvement and on the jointly responsibility of all actors of the chain: Fise Assoambiente, Federambiente, Confesercenti, Confetta, Provinces or Municipalities for the application of pilot projects, platforms operators and recuperators, recyclers, consumers associations.</p>

**SUMMARY CARD CONCERNING THE “RACCOLTA, RECUPERO E MESSA IN SICUREZZA DI PICCOLI ELETTRODOMESTICI CONTENENTI PCB” PROJECT (COLLECTION, RECOVERY AND IMPLEMENTATION OF SAFETY MEASURES CONCERNING SMALL HOUSEHOLD APPLIANCES CONTAINING PCBs) aimed to the Recovery of energy efficiency through the replacement of household appliances containing PCBs**

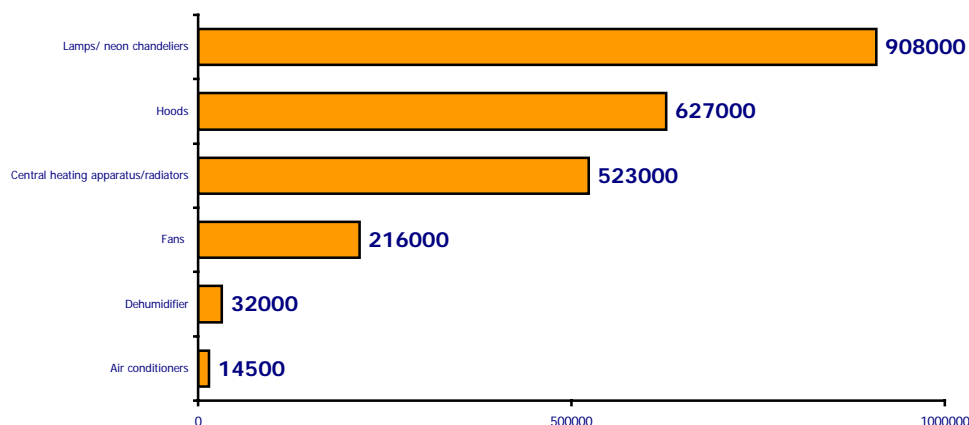
**Technical contents, potential impact and project importance at territory level**

The presence within the Lombard territory of household appliances produced before 1980 and therefore still containing important % of dangerous substances such as PCBs and CFCs banned by the recent community directives, overcome 2,320,500 of APPLIANCES among which hoods, air conditioners, neon lamps, fans and central heating apparatus/radiators

Excluding the stationary appliances (hoods), the movable ones are all included in the air conditioning area.

Moreover, to those appliances it is easier to adapt not only environmental improvement concepts but also a significant rise in energy efficiency and certainly these have the most important impact on population.

Thus, it is suggested to replace these devices. In the old air conditioners, previous to 1985, CFC was used as refrigerant and classified as R12. Since 5 years ago the HCFC classified R22 was used for products. Both have been subject to restrictions and banned several times because of their negative impact on the ozone.



**Project steps and main results**

Products now on sale are classified according to the efficiency class going from A to G and, as mentioned above, all the brands have stationary or movable products, some brand have both, and they fall within class A.

A specific action for citizens alone, providing for the acknowledgement of non-refundable grants to facilitate the diffusion of high energy efficiency household appliances, would be a greater advantage for those operators who have developed a higher energy efficiency in their products. The minimum percentage saving in terms of electric efficiency carrying out the replacement of disposable appliances, is described hereunder:

Energy saving: replacing air conditioners, old models with new ones, the saving is 14,500 MWh/year with a lower environmental impact corresponding to the recovery of the coolant gas at the end of its “life-cycle” with elimination of leaks. The withdrawal of all air conditioners would eliminate about 725 kg of PCBs with an energy saving of 1000MWh per each 1000 appliances; a less introduction in the atmosphere of 590 Kg of CO<sub>2</sub>/per year for a saving of: 14500 MWh = 8.5 tons of CO<sub>2</sub>/per year can be imagined

**OBJECTIVES AND STEPS**

Involve Producers/Energy Distributors (ref. Legislative Decree of July 20, 2004 energy efficiency implementation in final destinations). For every TEP saved (11.6 Mwh) they receive a white certificate equal to 100 euros (1Mwh saved is 8.62 euros)

Withdraw air conditioners and dehumidifiers, oil central heating systems and fans

Encourage the purchase of Air conditioners with or without heat pump of energy Class A

Campaign addressed to “individual persons” (families)

Period of time suggested for the implementation: between April and June 2005

<b>Implementing bodies and possible information disclosure</b>	<p>Survey commissioned to Cestec Lombardia and carried out by Noiros srl of Milan WITH THE PARTICIPATION OF Unioncamere/Chambers of Commerce. Data have been collected thanks to important producers operating within the national market: AERMEC, De Longhi, Delchi, Carrier, Olimpia ,Splendid, Riello</p> <p>Communication costs concerning press release, GDO campaigns have to be quantified</p> <p>Promote even the withdrawal without replacement after the transposition of RAEE Directive (August 2005) and involve public companies (free withdrawal for the citizen, financed by producers)</p> <p>Producers/energy Distributors, Enel and/or Lombard Utilities HAVE TO BE INVOLVED</p>
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**SUMMARY CARD CONCERNING THE “GREEN PUBLIC PROCUREMENT IN LOMBARDIA”  
PROJECT AIMED TO THE DEVELOPMENT OF RECOVERED MATERIALS MARKET**

<p><b>Technical contents, potential impact and project importance at territory level</b></p>	<p>The Ir 26/03 at article 22, paragraph 2 states that “The Region, local authorities and service operators provide for procurement of goods coming from the recycling market for an amount not lower than 35% of the annual requirements”. For that purpose it is outlined that in public works tenders must “be provided for the use of materials coming from waste recovery activities”. This requirement arise from the parallel provision contained at national level in the DM 203/03, that requires the regions to register the local authorities that have to use the green market for their supplies and to realize a coverage of 30% of their own goods requirements through the re-products market. At present several bodies among the ones that have to follow this provision, refuse to recognize the issue and fail to comply with their procurement of 40% of recycled paper as required (according to the d.lgs 22/97).</p> <p>The potential impact of projects falling within the GPP context can be understood from one hand analysing the extension of the categories of the actors concerned by the regulatory provision and from the other examining the importance in economic terms of the “Acquisti delle Pubbliche Amministrazioni” (Public Administrations Purchase) sector. The census of Public Authorities following the national and regional regulatory provision, points out a variety and difference of institutions categories that go from – a part from the EELs usually involved (Provinces, Municipalities, mountain communities) - schools to health sectors, libraries, recreational and cultural centres, etc..</p> <p>On the average, the economic impact under the item “purchase” of P.A., represents 18% of national GDP.</p> <p>Nowadays there are a few exceptional cases of local administrations experimenting green purchasing, but anyway they operate without a single code for the reproduced-goods and reproducers data. In other words the green purchase market does not exist; it has to be regulated and developed within the extensions of the standardization documents promise by the Ministry concerned by this matter.</p>
<p><b>Project steps and main results expected</b></p>	<p>The project, still in the feasibility study stage, together with the subsidiary project RE-MADE in ITALY described hereunder, is aimed to study the GPP issue on both sides, the demand, i.e. EELs green purchasing requirements, and the supply of recovered materials producers.</p> <p>The regulatory provisions must be rapidly implemented to put public actors in operational conditions for the supplying of reproduced goods, creating the eco-list setting technical-mechanical and qualitative standards, and reliable economic values. These parameters are also relevant for the identification of specific clauses in public works tenders, to allow services operators to carry out tenders in compliance with the regional regulation.</p> <p>The codification of the reproducts in an eco-list and the identification of reproducers data at national level is required. The project, considering what has been said, has a great importance and requires a cooperation both at cross-directional level within the region (involving at the same time Public Health, Environment, Education, Family) and at level of agreement tables with local authorities (ANCI, ANCITEL, UPL, UNCEM,...).</p>
<p><b>Implementing bodies, beneficiaries and disclosure initiatives</b></p>	<p>The survey will be assigned to Irer, with a probable scientific advice of the Politecnico of Milan (Institute of Technology), Management Engineering Department for ecodesign issues.</p> <p>The networks among authorities and actors mentioned above have to be established even taking advantage of institutional meetings already set up (local autonomics conference, ...), to coordinate the project, monitor the different needs in terms of quality and quantity of goods to be supplied and disclose project products as orientation guidelines.</p>

**SUMMARY CARD CONCERNING THE BIOGAS RECOVERY FROM LANDFILLS PROJECT AIMED TO  
THE MITIGATION OF CO2 ATMOSPHERIC EMISSIONS**

<p><b>Technical</b></p>	<p>The regulatory assumption on which is based the promotion of energy recovery from landfill biogas</p>
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<p><b>contents, potential impact and project importance at territory level</b></p>	<p>can be found in the d.lgs 36/2003 (upon implementation of the directive 31/99/EU), that at art. 15 establishes that the price for waste disposal in landfill must cover, not only the costs for plant realization and operation, but even the estimated shut-down costs and those for the post-shut-down management for the whole impacts production period.</p> <p>Knowing the biogas volumes produced each year in a landfill (almost from 5 to 8 Nm<sup>3</sup> per hectare of surface) and taking into account that the impacts production (leachate and biogas) continues, for waste landfills, even for thirty years from the shut-down, such a provision can be only attained establishing an economic compensation for biogas emission recovery. In this way the biogas emission is not just an impact but becomes a resource.</p> <p>This valorization of the biogas impact is connected to the exploitation of the high energy potential that characterizes this landfills residue: biogas is in fact composed for more than the half by methane therefore it presents a high heat value. The best biogas collection systems existing in the landfills and on the market, can collect only about 50% of the total amount of gas produced. The quantities of biogas collected feed, at present, torch with atmospheric dispersion or, more seldom, gas engines for a partial energy transformation.</p> <p>Taking into account the dangerous level of the biogas atmospheric dispersion and of the formation of atmospheric CO<sub>2</sub> during the torch dispersion stages, it is possible to understand the potential importance of supporting projects aimed to the recovery, through cogeneration systems, of electric energy and vapour from biogas, thanks to projects providing for the optimization of the same biogas collection percentage and the introduction downstream of the collection using the traditional gas engines of a cogeneration group (turbine cycle, alternator, heat generator).</p>
<p><b>main results expected</b></p>	<p>The Region encourages the realization of projects on energy recovery from Biogas by operators or local authorities hosting landfill plants due to the evaluation of environmental advantages in terms of pollution avoided thanks to the reduction of atmospheric CO<sub>2</sub>.</p>
<p><b>Possible implementing bodies and financing channels</b></p>	<p>To projects on the exploitation of biogas energy potential from landfill, is related the implementation of the green certificates supplied according to the evaluation of the economic and environmental advantage in terms of pollution avoided. The Region is engaged not only in the evaluation of tariffs effects that these kind of interventions could have but also in the identification of potential financing channels for these projects within the EU, specific notices concerning the energy context being analysed (www.Cordis/FP6....., and life Plus programmes)</p>

**SUMMARY CARD CONCERNING THE “MANUALE DI PROGETTAZIONE E DEI MANUFATTI PLASTICI” PROJECT (MANUAL FOR PLANNING AND PLASTIC PRODUCTS) AIMED TO THE DIFFUSION OF GOOD PRACTICES FOR PLASTIC RECOVERY**

<p><b>Technical contents, potential impact and importance of the analysis on the waste flows handled in Lombardy</b></p>	<p>Among the supporting actions aimed to the limitation and reduction of urban waste production and recycling of recoverable fractions, the Lombardy Region has developed an awareness, information and promotion initiative on quality separate collection and recycling, especially concerning plastic fraction.</p> <p>The Region intends to perform an awareness action concerning plastic recycling and offer information so as to guarantee an appropriate process of raw material reuse. In this way it also wants to encourage, more and more, quality separate collection and clearly demonstrate the opportunities beneath plastic recovery and recycling: from objects already known to urban design and ecodesign. Moreover, the initiative is aimed to supply the information required by recyclers for an adequate transformation of semimanufactured products.</p>
<p><b>main results</b></p>	<p>The information and communication campaign, that falls within a national programme and realized in Lombardy for the first time, is aimed to the disclosure of the concept of waste as a resource, and especially the concept of plastic as raw material for a new plastic.</p> <p>Concerning the way the communication project is implemented, a technical manual containing guidelines has been realized and a CD ROM has been published and distributed through Confservizi Lombardia. These supports supply the indications for an appropriate production of recycled plastic manufactures and procedures for the definition of technical specifications concerning recycled plastic semimanufactured products, created to set the criteria of the optimal mix for the reuse.</p>
<p><b>Implementing bodies and beneficiaries</b></p>	<p>The Partners involved in the drawing up of the project are: Corepla, that has carried out an ad hoc survey at national level and Cispel Lombardia Services for the transfer of results on electronic formats and widespread diffusion of manual contents produced. The project result has been approved by the regional Council during 2004.</p> <p>Beneficiaries of the initiative are first of all public Authorities, local autonomies system, economic operators, especially companies of the recovery segment and those producing recycle plastic manufactures and no profit operators.</p>

**SUMMARY CARD CONCERNING THE “RIDUCIAMO I RIFIUTI!” PROJECT (WASTE REDUCTION),  
AIMED TO THE PREVENTION IN THE WASTE GENERATION AND THE AWARE CONSUMPTION  
ORIENTATION**

<p><b>Technical contents, potential impact and project importance at territory level</b></p>	<p>The opportunity to extend at regional scale the pilot project carried out with good results by the Provincial Authority of Brescia in 2003 and known as “RIDUCIAMO I RIFIUTI!” consisting of an agreement undersigned by medium and large scale retail food centres for the sale and promotion of products with less packaging, preferably recyclable, is being evaluated. The initiative aimed both to incentive the purchase of products with less packaging, or realized with recycle materials, and to encourage the separate collection to significantly reduce waste production.</p> <p>The three chains of the large retailing and distribution organized industry have took part in the Brescian initiative: ESSELUNGA, SMA, COOP LOMBARDIA, outlining through the sticking up adverts, the purchase path and some examples of products with less packaging or with a reduced environmental impact.</p> <p>Thanks to this initiative the citizen benefits of three important opportunities:</p> <ul style="list-style-type: none"> <li>○ actively contribute to the real reduction of packaging waste (that amount for about 40% of solid urban waste)</li> <li>○ save on expenditure (the cost of packaging counts for 20 to 60% on the final price) and on waste tax</li> <li>○ orient the market, through appropriate consumption behaviours, thus encouraging the production of goods with less pollutant packaging.</li> </ul>
<p><b>Analysis method and main results</b></p>	<p>The main goal of the project was to carry out an awareness campaign addressed to citizens/consumers to orient their purchase toward those products that, with the same or greater content, had less packaging and/or a totally recyclable packaging without any other selection or sorting stage (single material), thus choosing products without various packages, double cellophane envelope, refill, etc.; foods without polystyrene tray, fruits and vegetables containers made of recyclable single material (paper, cardboard, wood) or reusable (jute bags); beverages in returnable glass containers or bottles with greater capacity; detergents for house or personal cleansing rechargeable or with dispenser.</p> <p>The Lombardy Region is engaged together with ARPA Lombardia in the evaluation to carry out a similar project of packaging reduction within the large retailing and distribution industry beyond the provincial context, also considering the approval of the Provincial Authority of Brescia on the use of the material already arranged.</p>
<p><b>Implementing bodies</b></p>	<p>Regione Lombardia, ARPA, FAID Federdistribuzione, Provincial Authority of Brescia, Chain of the large retailing and distribution industry</p>

## **Conventions to launch and/or finance projects aimed to the waste reduction from upstream and to the recovery development**

1. Convention among Lombardy Region, Lega Cooperative Lombardia, Compagnia delle Opere no profit of Milan and Confcooperative Unione Regionale of Milan for the implementation of policies and actions aimed to the promotion and development of urban waste separate collection concerning second hand clothing and shoes. (practically concluded – I was asked for a meeting concerning a possible reply)

### Purposes:

- ❑ promote and encourage, within local authorities and professionals, urban waste separate collection concerning second hand clothing and shoes, carried out by the signatory organizations of the convention;
- ❑ establish waste collection procedures (the only identification mark of the entities involved, use of specific bins, etc.)

2. Convention among Lombardy Region and Cooperativa Sociale Solidarietà Soc. A. r.l. for the implementation of a project aimed to the separate collection and to the restoration of exhausted print cartridges, known as “ECO-SOL”. (concluded)

### Purposes:

- ❑ periodic collection service to public and private users;
- ❑ public interventions in cultural, production and social contexts, brochures, leaflets, letters and call centre presentation;
- ❑ extension of the project to all the Lombard provinces.

3. Convention among Lombardy Region and Consorzio Farsi Prossimo Coop. Soc. a r.l. for the implementation of an experimental project concerning the collection and the restoration of the exhaust printer cartridges known as “Ri.Ca.Ri.Ca”. (concluded)

### Purposes:

- ❑ extension of the project to all the provinces of Milan, Lecco and Varese;
- ❑ distribution at least of 1,500 ECO-BOXES for the separate collection;
- ❑ creation of a toll-free number for municipalities and clients support;
- ❑ organization of a conference for the disclosure of the results achieved and personal services offered;
- ❑ Lombard population awareness through information campaigns on media and on the internet.

4. Convention among Lombardy Region and CISPEL Lombardia Services S.r.l. to extend the project concerning the disposal and the recovery of ash and dust produced by waste thermal plants already approved with d.g.r. n° 9398 on 14.06.02.

### Objectives:

- point out the specifications to set up the installations procedures for thermal use such as combustion, fumes line, ash treatment;
- definition of updated regulations for a greater opportunity of use;
- experimentation in laboratories and pilot plants of applications in cement and asphalt sectors in addition to the experimentation carried out for the gres.

### Through the following actions:

- definition of minimum quality levels of the combustion process, to reduce to the minimum the quantity of specific pollutants (metals,...) in ash granulometric fractions;
- specifications concerning the integrations to the technological cycle of thermal use to obtain relevant improvements in ash quality.
- control through prototype products, obtained with different percentages of ash fractions, the compliance or not with the environmental regulation in force;
- proposal on possible treatments concerning some specific fractions aimed to the reuse of them;
- setting up of evaluation criteria for the drawing up of regulatory proposals at regional and state level to allow the largest use of products;

- drawing up of behaviour rules proposals and organization of a round table for managers and plants suppliers to set up the installations procedures for the thermal use aimed to the optimization of ashe in terms of quality and quantity;

5. Convention among the Lombardy Region, Chamber of Commerce of Milan and ECOQUAL'IT (a Consortium providing services to companies and groups of companies involved in technological waste sector) concerning an implementation project on technological waste recovery. (concluded)

Purposes:

- ❑ diffusion of the environmental policies knowledge with particular reference to those in the Community Directive proposal concerning electrical and electronic waste;
- ❑ implementation of qualification activity according to the project submitted and based on the execution of the Qualification Regulation set out by the Ecoqual'IT Consortium;
- ❑ creation, promotion and diffusion of useful tools aimed to encourage technological waste recovery and reuse;
- ❑ implementation of training interventions addressed to public and private professionals and to the local authorities and municipal enterprises personnel;
- ❑ realization and diffusion, for planning and statistical purposes, of periodic investigations and analysis on consumption data and on production, withdrawal, recovery, treatment and disposal flow of technological waste within the Lombard territory;
- ❑ creation of policies on environmental quality concerning the recovery through the promotion, diffusion and incentive of processes encouraging the improvement of environmental quality performances for those companies operating in the sector of electric and electronic waste recovery and promotion and diffusion of quality/ecological certification of technological waste collection and recovery service within the Lombard companies;

6. Convention between the Lombardy Region and the Municipality of Aprica concerning the implementation of an experimental project on urban waste separate collection through a network of computerized environmentally friendly areas.

Purposes:

- ❑ improve the separate collection of materials (up to 8 typologies),
- ❑ dispose waste in a simple manner,
- ❑ deliver to the user the certificate of disposal,
- ❑ guarantee the waste compaction,
- ❑ attain the aim of urban design improvement,
- ❑ optimize the management through a telecontrol system,
- ❑ provide useful tools (user, quantity, typology, weights, etc.) allowing the rate application referred to in art. 49, d.lgs 22/97.

7. Convention between the Lombardy Region and Union Camere Lombardia concerning the implementation of actions lines and programmes on behalf of the sustainable development, with particular attention to waste management.

Purposes:

- ❑ knowledge spread concerning environmental policies with particular reference to those carried out by public Authorities and functional autonomies, through the periodic organization of the "Meeting Ambiente 21";
- ❑ creation of policies on environmental quality through:
  - promotion, diffusion and incentive of processes encouraging the improvement of environmental quality performances for those companies offering public utility services (energy, water, waste, gas, telematic harness) even through the voluntary adhesion to the integrated quality certification ISO 9000/ISO 14000 and to EMAS, the community regulation on environmental management;
  - promotion and diffusion within the Lombard companies of the quality/ecological certification of product (technical regulation and Ecolabel), making consumers aware of the importance and guarantee offered by the certification.
- ❑ realization and implementation, for planning and statistical purposes, of periodic investigations and analysis on production and on disposal flow and reuse of waste within the Lombard territory; for this

purpose will be used the financial databases of the environmental declarations (MUD) and the information system of the Lombardy Region for environmental data interchange and analysis.

- strengthening, maintenance and diffusion of the information system related to the companies of the Lombardy Region authorized to the treatment, disposal and recovery of waste; for this purpose will be used the information provided by the competent authorities.
  - National Register of the companies carrying out waste management
  - Lombardy Region
  - Provinces
- creation, promotion and diffusion of useful tools to incentive the recovery and reuse of industrial waste – “Borsa Telematica dei Rifiuti”, even exploiting competences and operational tools already carried out by the Financial System.
- promotion of a rational use of energy and renewable resources within the network of the Lombard companies even through the cooperation among Energy Points and Environment Information Points of Lombardy Chambers of Commerce networks.
- Community programmes implementation within the environment and energy fields, with particular reference to the creation of actions aimed to facilitate joint and decision processes of the authorities involved in these initiatives.
- incentive of innovation processes and technological transfer within the companies offering public utility services through:
  - participation to community projects mainly related to the V<sup>th</sup> Research and Development Framework Programme;
  - cooperation with Universities and centres working in the field;
  - spread of the information related to the new eco-friendly technologies among the companies.
- coordinated representation of the interests of Lombard companies network within the institutional offices where the Region and Unioncamere Lombardia take part in the definition of socio-economic and promotion policies of Lombard companies;

**8.** Convention among the Lombardy Region and Legambiente Lombardia onlus, concerning the implementation of actions aimed to foster the waste management ability through the Legambiente information point, known as Ecosportello (information point on separate collections).

Purposes:

- lay down the basis for a synergy with the Region, on the medium term, to achieve the planned objectives;
- support the Region in attaining its goals concerning the implementation of regulations and strategic approaches on waste integrated management;
- represent a technical support to the local Administrations, professionals and citizens, assisting them in the implementation of policies and regional regulations;
- be a preference channel through which transmit information, documents, best practices from and to Local Administrations;
- provide services to encourage the diffusion of policies, strategies and actions of the Region on waste issues.
- transmit to Region representatives, regulatory updating, news and documents produced by Ecosportello.
- provide the following information tools:
  - a page focused on the Lombardy Region in the quarterly review "Rifiuti Oggi";
  - sending of a fortnightly Newsletter concerning the regulatory updating to all the Lombard Municipalities;
  - discount on materials and services for all the Lombard municipalities.

**9.** Convention between LOMBARDY REGION - CO.RE.PLA and CISPTEL Lombardia Services s.r.l. aimed to the development of a guidelines diffusion project to identify the behaviour procedures of semimanufactured/manufactured products made of recycled plastic.

Purposes:

- ♦ Guidelines publication in both paper and electronic format, organization of a presentation conference and manual disclosure to the same Local Authorities, companies involved in the collection and goods producers.

11. Convention between Regione Lombardia Fondazione Banco Alimentare Onlus, Associazione Banco Alimentare della Lombardia Onlus aimed to waste prevention through an innovative network that recovers food surplus coming from the large-scale retail channel.

Purposes:

- ♦ from one hand there is a social aim to economically sustain people in difficulties,
- ♦ from the other hand there is an ecological reason involving the whole community and concerning the advantages related to the reduction of waste stored in landfills or burnt in the incinerators. In this way the priority of the European, national and regional regulations which deem the prevention of waste production to be of first importance, is ensured.

Assignment of the following pilot projects to Cestec:

11. a “RAEE - Progetto pilota per il recupero delle apparecchiature elettroniche in Lombardia” (Pilot project for the recovery of electronic devices in Lombardy) (practically concluded)

Purposes:

- carry out the appropriate disposal of electronic products at the end of their life-cycle, currently installed within the Lombardy Region, following the inspiring principles of the EU Directive to:
- Verify which is the most significant process at technological level and quantitatively (more than 20% of Italy’s total) within the Region
- Provide an input to the Central Authorities for an adequate legislative implementation

Project advantages:

**For Producers**

- Understanding of the process and of the interactions among the parties
- Quantification of real disposal costs and related financial simulation
- Profile of a socially responsible company
- New business opportunities

**For Associations**

- Understanding of the process and of the interactions among the parties
- Quantification, for the commodity sector, of real disposal costs and related financial simulation
- Aid for a sustainable implementation of the Directive, exploiting real and representative data, in the concertation with Ministries and the EU

**For Disposers**

- Information on market size
- Input for disposal technologies improvement
- Adjustment of costs and revenues analysis
- Better profile: most of all for public companies

11. b “PCB – Progetto pilota per la raccolta, il recupero e il trattamento dei beni contenenti PCB relativo agli usi domestici” (Pilot project for the collection, recovery and treatment of goods containing PCBs with reference to domestic use). (concluded)

Purposes:

- Carrying out of a survey, divided in categories, on a sample basis, about the quantities still used of the devices involved (small household appliances and electric tools)
- Definition of Guidelines to Organize – Encourage – Create a Collection Programme followed by the decontamination and disposal of devices containing PCBs which are not to be included in the inventory
- Set out a Communication Strategy aimed to Programme accomplishment

11. c. “RE-MADE IN ITALY” for the development of eco-innovative products for the Lombard companies.

Project steps:

The project is mainly divided into two steps:

1 – Ecotool

2 – Remade: 10 products of excellence

Objectives:

Promote Ecodesign strategies within the companies of the Lombardy Region through supporting tools and the creation of recycled products.

The project is based on a two-year period: 2004/2005

2004 Objectives: Develop an Eco-tool to support Lombard companies in the creation of recycled products and launch of new concepts concerning the realization of 10 excellence products. The Eco-tool will be in electronic format (Cd-rom) with html language: it will be up to the Lombardy Region to locate it on its own internet site. Presentation of project progress during the “Salone del Mobile” (Furniture Fair) at the beginning of 2005.

The aim of this section is to explain how the company can pursue an environmental policy in relation to its own actions and products realized. In particular, some examples of business strategies, possible external (environmental relation, Sustainability Statements) and internal communication tools, will be outlined.

Public presentation and promotion of Ecotool

At the end of the Ecotool project, an event will be organized to present this project to the public, companies and press.

For the companies will be produced 3000 cds to be freely distributed. On that occasion several press release will be sent to all the newspapers and specialist publications, to local and national TVs.

For the Ecotool promotion will be produced several conventional guides on the project, consisting of 4/6 pages and to be distributed among Trade Associations and companies.

The Ecotool and conventional guides will be also available from the Lombardy Region during events and conferences.

2005 Objectives: Produce the above said 10 excellence products, in cooperation with the Lombard companies, to be presented during the furniture fair at the beginning of 2006. The aim is to introduce the main environmental problems and key concepts of product ecodesign

- Greater responsibility for the producer.
- Life-cycle and Lyfe Cycle Thinking concepts.
- Environmental effects and impacts.

Ecodesign information: There will be a focus on the technical aspects of the products outlining the environmental characteristics in terms of components and materials. In particular specifications and procedures for product development will be submitted .

- Materials
- Compatibilities in the recycling process
- Branding of materials
- Transportation
- Disposal
- Recycle

11. **d** “REMIND – Progetto per l’ideazione e l’avvio della prima biblioteca nazionale sui prodotti e materiali riciclati” (Project aimed to the creation and launch of the first national library on recycled products and materials)

Purposes:

Create the first Italian library on recycled material to:

- create the first national information centre on recycling,
- create the first area in which collect the different typologies of recycled materials,
- encourage the Lombardy Region companies to use recycled materials, thanks to the know-how concerning those materials in terms of availability, characteristics and properties,
- encourage the companies to implement the national decree on 30% and the regional one on 35%,
- create, in cooperation with the Lombard competence centres, an environmental disciplines incubator to facilitate the placement of newly-graduated students within the companies.



During the first two years, the library about materials, will be hosted by the “Scuola Politecnica di Design” of Milan (<http://www.scuoladesign.com>). The “Scuola Politecnica di Design” is the first school of visual and industrial design in Italy. After the project being set up, an agreement with the Scuola Politecnica will be signed to establish the cooperation arrangements.

12. Convention among the Lombardy Region, Associazione Natura Solidale and sponsored by the “cooperativa sociale Collage” and FOM, concerning the creation of an experimental project known as “Sostenibilità e Sviluppo Sociale” (Sustainability and Social Development) to encourage the development of the waste oriented eco-friendly culture, through a range of related actions and through the community.

The specific objectives set out in the project consist in:

- Implementation of plastic and aluminium waste amount coming from the separate collection,
- increase of social empowerment and environmental and community awareness,
- promotion of the active role of the citizen,
- creation of real employment opportunities and social integration for those experiencing economic disadvantage,
- promotion of sports activities in the parish Sporting Centres;
- Regional financing: 126.320;

13. Convention between the Lombardy Region and the Associazione Green Gruppo Ecologico Est Milano aimed to the promotion of separate collection and citizens awareness on waste recovery and recycle topics.

Purposes:

publication of disclosure material, setting up of a travelling exhibition, production of a promotional movie and launch of a photographic contest addressed to school and/or citizens; actions aimed to spread the culture of reuse, waste recovery and reuse; encourage the separate collection and favour any action aimed to the recycling and recovery of material and energy and separate collection.

