



Industrial Waste Management Program of Catalonia (2001-2006)

Summary

May 2001



Generalitat de Catalunya
Department of the Environment
Waste Agency

Adopted on May 11th, 2001 by the Management Board of the Waste Agency

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INTRODUCTION

Up to the present waste planning in Catalonia focussed principally on hazardous industrial waste, according to the priorities of waste policy impelled by the EU. This planning was compiled in the Programme of hazardous waste management in Catalonia (PGREC), adopted in 1994 by the Management Board of the Waste Agency. As result of the performance of this planning a set of objectives has been accomplished, the most outstanding of which are the following:

- ***Improvement of the information available on the situation regarding industrial wastes***

The key instruments for improving the information available have been the introduction of a new and more systematic form of the annual industrial waste declaration in 1995, and a new waste catalogue, in force since april 1996, and its posterior updates. The enhancement of the control of waste management activities supported these instruments.

- ***Development of basic installations necessary for industrial waste management***

The infrastructure indispensable for assuring a proper hazardous waste management has been promoted. For landfilling an important part of the projected capacity has been accomplished, which, however, implies for the future the necessity to assure sufficient capacities in this field.

- ***Consolidation of the private recycling sector***

Regarding the industrial waste as a whole, it has been opted for a strong protagonism of the private initiative to support the major part of the management requirements and to adapt the technical operational conditions, thus promoting the due organisation of a diversified recycling sector.

- ***Implantation of a set of obligations and of an appropriate control scheme***

A set of regulatory instruments has been elaborated with the purpose to draw up precise “rules of the game” to stick to in order to accomplish an appropriate industrial waste management, regarding the producer’s responsibility as well as the responsibility of the management sector, and to establish case specific conditions.

- **Promotion of industrial waste minimisation activities**

The promotion of minimisation had been initiated previously in the Hazardous Waste Management Program by the publication of several administrative orders on grants. However, since the adoption of the Action Program for the Minimisation of Hazardous Wastes in 1994 and the creation of the Centre of Cleaner Production Initiatives in the same year, strong efforts have been undertaken to disseminate the advantages of cleaner production among companies. To that end the so called “minimisation oriented environmental diagnostics” have been developed.

- **Start of the contaminated soil management activities**

During this period the increasing demand for solutions for problems deriving from soil contamination has led to the adoption of technical criteria suitable for the peculiarities of this question, and has launched actions of the Waste Agency. From the technical point of view the basic instruments and the orientation of the system for decision making have been defined, which facilitate regulation of the activity in this emerging field. These follow some guidelines common in the majority of European regions advanced in this issue.

Once the application of the planning period, which presents the Hazardous Waste Management Program, has culminated, **there will be demand for a management program for wastes of the so called “second generation”, which should set forth new objectives and propose new instruments.** Besides, the new program has to provide planning for all types of industrial waste, not only for hazardous industrial wastes. The objectives of the new program will enable the industrial sector and the environmental administration to progress jointly in the ambit of waste towards a more sustainable industrial development. To that end, in this new planning period the **Industrial Waste Management Program of Catalonia (PROGRIC)** has been formulated.

GENERAL PRINCIPLES COMMANDING THE PROGRAM

Waste management planning is rooted in a set of general principles which derive basically from the 5th and 6th Action Program of the European Union, from the Community waste management strategy and from regulations at different levels of hierarchy (European, national and regional). These principles, which contribute to a sustainable development and which already were considered in

the previous program, are adopted in and command as well this new program. The principles are the following:

General principles

- *Pollution prevention.*
- *Ranking of waste management options (minimisation, recovery and optimisation of waste disposal systems).*
- *Self-sufficiency regarding waste management on Catalan territory.*
- *Proximity, procuring waste management in installations located close to the areas of waste generation.*
- *Subsidiarity, according to which the territorial agents and enterprises shall focus their decisions as far as possible the interests of the citizens.*
- *Soil protection and regeneration in cases of contamination.*
- *Producer's responsibility.*
- *Shared responsibility.*
- *Transparency of information.*

AMBIT OF APPLICATION

After the activities developed in the previous planning period regarding hazardous industrial wastes, it will be necessary to extend the ambit of application of the new program to all types of industrial waste: inert, non-hazardous and hazardous wastes.

The following groups can be emphasized:

Waste categories comprised in the ambit of application of the program

- *Wastes originated by industrial activities, which are subject to the annual industrial waste declaration.*
- *Certain wastes of municipal origin, the management of which requires co-ordination with the specific municipal waste management planning (expired medicines, end-of-life vehicles, tyres, hazardous wastes in small quantities, electric household appliances with CFC's, IT equipment, wastes from photoprocessing, waste oils and others).*
- *Wastes which cannot be considered neither industrial nor domestic (contaminated excavated material and demolition waste, dredging waste, oily waste and contaminated bilge water from the shipping sector and health care wastes).*

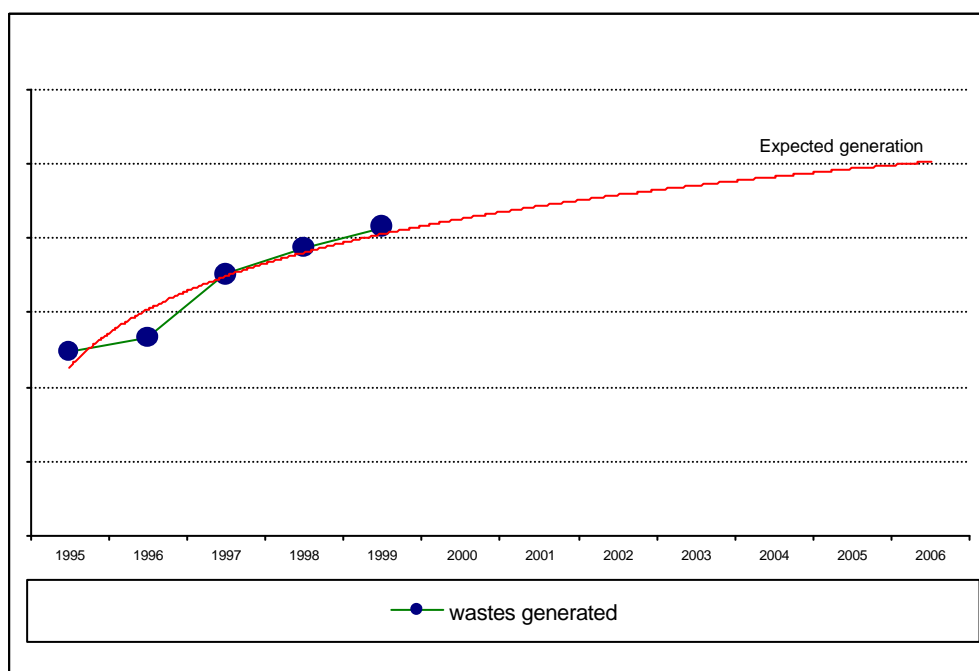
APPLICATION PERIOD

The planning period of the new program comprises the years between 2001 and 2006, including both. Additionally, in order to secure that the Program is a flexible and agile tool, it is planned to carry out a revision in 2003, which shall permit to adapt the Program to possible future regulatory, technological and other changes and to specific objectives established in the tiers of action.

PREVISIONS OF WASTE GENERATION

On the basis of data obtained by means of the annual industrial waste declarations from the 1995-1999 period, which represent a uniform and reliable dataset, the evolution of the industrial waste generation has been estimated.

The estimation takes into account on the one hand the economic growth and the waste generation during the previous planning period, and on the other the previsions for a moderate economic growth during the application period of the present program. Thus, it is assumed that the annual increase of the waste generation will diminish gradually and, therefore, a logarithmic regression is adopted which best describes the expected future evolution, which is shown in the following figure:



According to the described trend, the waste generation expected for the application period of the program will be as follows:

Expected waste generation 2001-2006

Year	Tonnes (estimate)
2001	5.619.000
2002	5.781.000
2003	5.926.000
2004	6.059.000
2005	6.181.000
2006	6.294.000

EXPOSITION OF THE GENERAL OBJECTIVES

The general objectives of this second planning phase have to aim at **optimising the present waste management, to introduce flexibilising instruments and to promote collaboration** of all participating agents.

The objectives of this new Program comprise the general objectives established in the previous planning which are still in force, as well as those, which are defined according to current trends:

General objectives

- *To minimise the generation of industrial waste regarding their quantity and quality;*
- *To increase the recovery of industrial wastes and to improve the activities of the recycling sector and the obtained products;*
- *To reduce the quantity of waste fractions destined to final disposal and to assure that disposal is carried out under the strictest possible safety conditions;*
- *To integrate the objectives into awareness programs, which aim at raising the collaboration of the citizens, of the economic agents and of all administrative bodies;*
- *To co-ordinate the program with common and complementary actions which will be included into the update of the Municipal Waste Management Program and to establish, if necessary, the co-operation and participation of the local entities;*
- *To improve the industrial waste management and to promote specific new technologies, which are considered necessary to optimise the management;*
- *To implement instruments which flexibilise the industrial waste management and facilitate its improvement;*

- To simplify the waste management model and to facilitate its utilisation in all industrial sectors in particular in small and medium sized enterprises (SME) by adopting the new computer and communication technologies;
- To promote research and a technologic innovation network applied in the field of waste management;
- To draw up and co-ordinate soil protection and contaminated soil recovery actions;
- To promote the implantation of economic incentives aimed at the improvement of industrial waste management.

APPROACH TO THE GENERAL OBJECTIVES

The general objectives of the Program shall be obtained by means of applying a set of actions grouped in **seven principal tiers of action**.

Four of these tiers of action have to be considered verticals, as each of them comprises a clearly defined and particular issue, though bearing a strong relation among each other.

Two of the tiers are of horizontal character, as they affect the other tiers, i.e. they are multisectorial or transversal. The scope of the concepts under which they are grouped justifies their distinctive presentation or treatment.

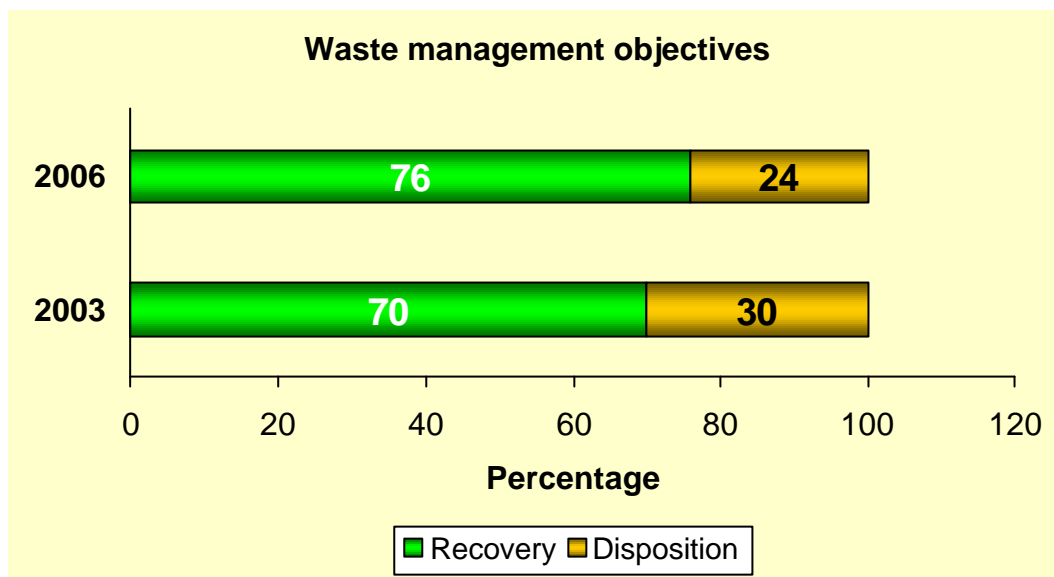
Finally, actions regarding commercial and industrial packaging management have been grouped in a tier of their own, which contains criteria and guidelines for the management of these types of packaging.

Deployment of the objectives of the Program

VERTICAL TIERS				CRITERIA AND GUIDELINES
Minimisation and prevention	Recovery	Final disposition of waste	Soil protection	Management of commercial and industrial packaging
TRANSVERSAL TIERS	Collaboration, flexibility, information and communication			
	Technology and research			

QUANTITATIVE OBJECTIVES

It is expected that the percentual distribution of the waste management options in the 2003 and 2006 horizons will be as follows:



THE VERTICAL ACTION TIER: MINIMISATION

In the scope of integrated environmental protection minimisation is understood as the whole set of reduction and recycling measures at source, which allow to reduce the quantity and/or hazardousness of the waste streams generated in a production process, and for a favourable environmental balance. The planned actions of this tier are grouped in the following specific objectives:

Specific minimisation and prevention objectives

- *To continue advisory and dissemination work on cleaner production and to emphasize the participation of new enterprises as well as the consolidation of actions started in the previous planning phase;*
- *To continue with actions aimed at pushing forward minimisation. Outstanding among the actions to be developed is the elaboration of a proposal for application measures for industrial waste minimisation;*
- *To design and implement a follow-up system for the minimisation achieved.*

In order to approach the objectives of the tier minimisation the “Centre per a l’Empresa i el Medi Ambient, sa (Center for the Enterprise and the Environment,

former Centre of Cleaner Production Initiatives) will continue to develop the activities which it is already carrying out at present regarding this issue.

THE VERTICAL ACTION TIER: RECOVERY

Recovery includes the two processes recycling and energy recovery. Recycling includes the handling and processing of wastes aimed at extracting any material resource, whereas energy recovery refers to operations aiming at the energetic exploitation of the wastes as fuel.

The general objective of the actions of the Program with respect to recovery is to increase the quantity of the industrial wastes recovered and to improve the activities of the recycling sector and the quality of the products obtained. This general objective is specified by the following specific objectives and its compliance shall be achieved, in the greater part, by developing of the functions of the Catalan Recycling Centre.

Specific objectives of recovery

- *To recycle 67% of the waste generated in 2003 and 70% of the waste generated in 2006;*
- *To subject 3% waste generated in 2003 and 6% of the waste generated in 2006 to energy recovery;*
- *To recover 80% of the waste oils generated by 2006, as well as 41% of the end-of-life refrigerators and 75% of spent batteries and fluorescent lamps.*
- *To have sufficient recovery capacities available to handle those wastes for which at present treatment capacity is lacking, and to improve the existing recycling facilities;*
- *To promote the use of recovered material and the creation of specific markets;*
- *To inform and to disseminate recovery opportunities among enterprises;*
- *To promote innovation, research and development on the ambit of recycling.*

THE VERTICAL ACTION TIER: WASTE DISPOSAL

This tier consists of actions in the field of physico-chemical treatment, disposal of health care waste, incineration and landfill. The specific objectives of these different fields comprise:

Specific objectives of waste disposal

- *To increase the capacity of evapoincineration and thermal desorption in the field of physico-chemical treatment according to the estimated needs, in addition to other modifications and upgrading of installations;*
- *To adopt the Directive on Waste Incineration (2000/76/CE), to adapt the existing hazardous waste incineration capacity to future necessities in order to assure self-sufficiency (measure from 2005 on) and to reduce the quantities of organic wastes which are treated physico-chemically;*
- *To destinate to landfill 22% of the industrial waste generated in 2003 and 16% in 2006.*

In the field of disposal of health care waste the existing installations have still free capacities, and thus there is no need to increase the treatment capacity in the application period of the Program.

THE VERTICAL ACTION TIER: SOIL PROTECTION

Taking into account the evolution of soil management in Catalonia during the last years, as well as the evolution of this issue on European level, the following specific objectives are defined:

Specific objective of soil protection

- *To promote the development of actions aimed at the prevention of soil contamination;*
- *To establish the basis for the development of a structured and gradual strategy of soil recovery;*
- *To draw up a support system for decision making: process of contaminated soil management;*
- *To implement planning and information management instruments;*
- *To develop action deriving from Act 10/1998;*
- *To regulate aspects related with the management of contaminated soils and demolition waste and to encourage private initiative to treatment facilities for provide contaminated soil;*
- *To establish technical criteria for the characterisation and management of urban development in areas contaminated by industrialisation in the past; as well as to create instruments for a coherent management of urban planning and soil quality.*

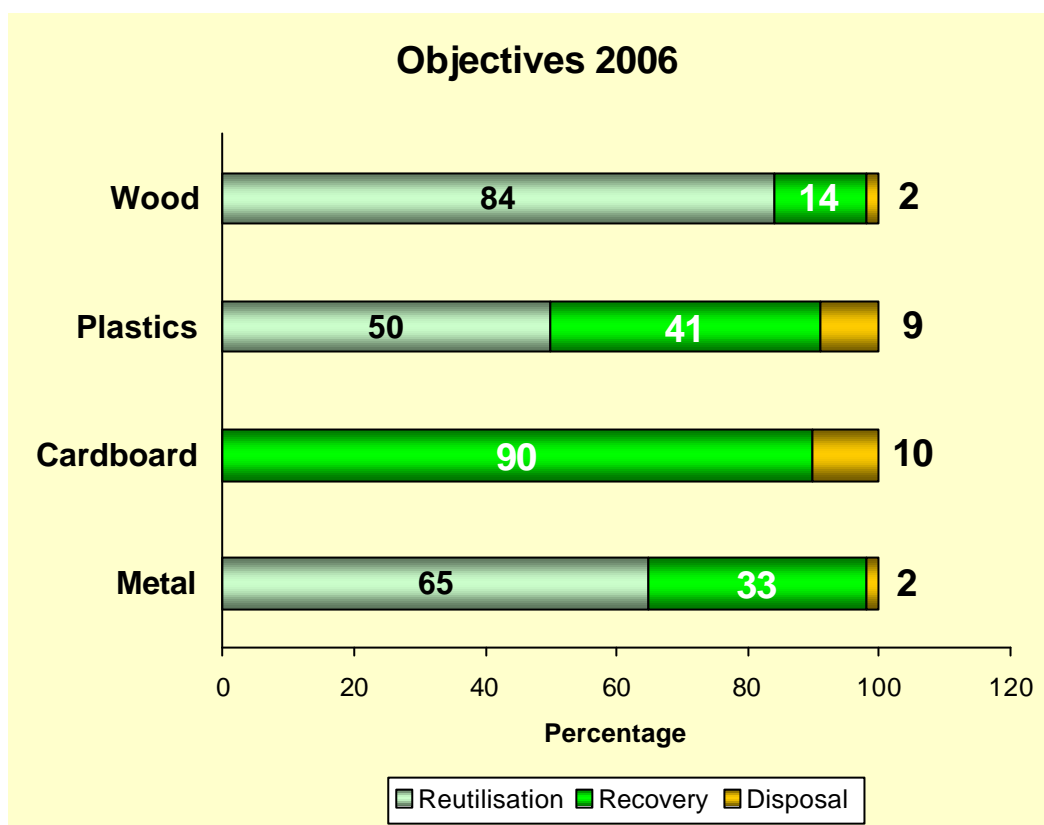
CRITERIA AND GUIDELINES FOR THE MANAGEMENT OF COMMERCIAL AND INDUSTRIAL PACKAGING

The improvement of the management of packaging and packaging waste from commerce and industry will allow reducing their environmental impact. It will also contribute to save natural resources by overcoming existing barriers in reduction, reutilisation, recycling and other recovery operations of these wastes and help to achieve the objectives of Act 11/1997 on packaging and packaging waste. The specific actions for the application of these criteria are:

Specific objectives in criteria and guidelines on commercial and industrial packaging

- *To increment the performance of the separation facilities for commercial and industrial packaging;*
- *To avoid that commercial and industrial packaging enters the circuit of municipal waste management, as does domestic packaging;*
- *To obtain a good knowledge on commercial and industrial packaging used in Catalonia (characteristics, generation, management systems);*
- *To raise the level of control in packaging management;*
- *To promote the application of the “polluter pays principle” in the management of commercial and industrial packaging;*
- *To minimise commercial and industrial packaging waste with respect to quantity and quality;*
- *To achieve the objectives established in the legal dispositions on packaging and packaging waste (Act 11/1997).*

The objectives to be achieved by 2006 are:



THE TRANSVERSAL ACTION TIER: COLLABORATION, FLEXIBILITY, INFORMATION AND COMMUNICATION

Under this first transversal tier a set of actions is developed which affect the previous vertical tiers of minimisation, recovery, waste disposal, soil protection and the criteria for the management of commercial and industrial packaging.

During the last years an adequate set of obligations as well as a control mechanism has been implemented which have resulted in a significant improvement in the attitude of industry regarding waste in general. In this Program it is assumed that a step forward has to be taken and that, on the one hand, the enterprises shall have to go beyond the “compliance of minimum requirements”. On the other hand administration should not limit its functions to the mere control according to law, but be capable of adapting the degree of exigency to the specific characteristics of the different industrial sectors.

To achieve collaboration and flexibility it is indispensable to facilitate access to information and technical advice to small and medium sized enterprises, which often do not have sufficient resources available to face successfully the

complexity which the compliance of environmental regulations implies. Awareness actions form also part of this tier.

In this context the Program contains the proposal of **pushing forward a Centre of Communication and Dissemination regarding Waste Issues**, which will be an instrument to integrate actions related to the management of all types of waste.

THE TRANSVERSAL ACTION TIER: TECHNOLOGY AND RESEARCH

The continuous improvement by means of adoption of best available technologies is indispensable to maintain the competitiveness of the enterprises. Because of this reason nearly all the big enterprises have created research and development departments. On the other hand, due to lacking resources, small and medium sized enterprises have more difficulties to incorporate technologic improvements into their processes.

The waste management activities, nearly all of them carried out by small and medium sized enterprises, must not remain at the fringe of technological evolution and have to improve their processes, increasing their efficiency and reducing step by step their impacts.

However, the Catalan Universities have achieved in their investigation programs a high level of competitiveness.

There are, thus, two complementary aspects administration should be able to co-ordinate: capacity of investigation and technological advice of the Catalan Universities and the research demands of the small and medium sized enterprises.

Therefore, administration pretends to trigger by means of the present Program the creation of instruments necessary to link the investigation and technical consulting potential of the research centres and the development of the small and medium sized enterprises, which are in need of specific technological solutions.

In order to make this relation as efficient as possible, the issues of research have to adjust to the specific necessities of the different industrial sectors, or

even to the necessities of the industries of a determined geographical area. In this context it could be spoken of research items “a la carte”.

INVESTMENT AND FINANCIATION

The global estimation of investment costs of the present Program is about 115.292 millions of PTA (692,92 millions of Euros). These shall be provided by public contributions of approximately 20.922 millions of PTA, whereas the private sector will contribute, directly or induced by means of the public contribution, with 94.370 millions of PTA for the next period from 2001 to 2006.

Regarding the financing several funding options should be considered, among these the budget of the administration and the participation of the private sector. The Program also proposes to advance in the debate on application and efficiency of waste taxes.

Investments of PROGRIC during the period 2001-2006

Action tier	Millions of PTA			M Euro
	Public	Private	TOTAL	
MINIMISATION	2.723	21.424	24.147	145,13
RECOVERY	9.175	28.450	37.625	226,13
WASTE DISPOSAL		19.924	19.924	119,75
SOIL PROTECTION	2.000	7.000	9.000	54,09
COLLABORATION, FLEXIBILITY, INFORMATION, COMMUNICATION	1.333		1.333	8,01
TECHNOLOGY AND RESEARCH	5.691	17.572	23.263	139,81
TOTAL	20.922	94.370	115.292	692,92