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ANNUAL REPORT OF THE COHESION FUND

1995

ANNEX 1 - SPAIN - ENVIRONMENT

(presented by the Commission)

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SPAIN
ENVIRONMENT

**Publication of main points of decisions to grant financial assistance under Regulation
(EC) No 1164/94 establishing a Cohesion Fund**

No 95.11.61.001

1. Name of project:

Reclamation and restoration of beaches - 1995

2. Authority making the application

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección Gral. de Costas - MOPTMA

3.2. Address: Paseo de la Castellana 67 - 28071 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Andalusia, Asturias, Baleares, Catalonia, Galicia, Valencia

5. Description

Set of nine operations to halt the current process of beach erosion caused by the greenhouse effect and the consequent rise in sea level as well as changes in the direction of the waves.

1. Reclamation of the natural environment of Salinas beach, Castrillón (Asturias).

The shrinking of the beach has reduced the protection afforded by the dunes against the effects of heavy storms.

Measures: restoration of the beach by depositing 350 000 m³ of sand brought up from the sea bed; slightly higher grading than at present so that the beach will have reserves of sand. The operation will be carried out along 2 800 m of beach, increasing the beach width by 50 m.

2. Reclamation of the natural environment of several beaches, Gozón-Carreño (Asturias)

The operation concerns six small beaches situated on the rugged Asturian coastline.

Measures: increase in the area of dry beach at high tide and mean tide by depositing 150 000 m³ of sand from the sea. The operation will be carried out along 1 300 m of coastline, increasing the beach width by an average of 40 m.

3. Restoration of the coastal belt of the Peñíscola beach, Castellón.

The operation will be carried out between the port of Benicarló and the isthmus of Peñíscola. Its purpose is to correct the existing imbalances and improve the beach platform and accessibility. In addition, road traffic will be moved back from the shore by rerouting the road.

Measures: widening of the beach by depositing 1 700 000 m³ of sand from the sea. Incorporation of the former road into the beach by building a pedestrian esplanade of 3 500 m long.

4. Environmental rehabilitation of the Magalluf beach, Calviá (Mallorca).

This beach, situated in the Palma Bay, is being eaten away and losing its sand.

Measures: widening of the beach by depositing 111 000 m³ of sand of a suitable grade to restore the dynamic balance of the sedimentary flow of sand being washed up and washed away. The operation will be carried out along 1 035 m of coastline, increasing the beach width by 50 m.

5. Reclamation of the beaches of the San Antonio Bay (Ibiza)

This area is gradually deteriorating through human pressure and erosion.

Measures: restoration of the beach over 1 550 m by depositing 390 000 m³ of sand of a suitable grade. Construction of two semi-submerged breakwaters to stabilize the beaches. The pedestrian access routes will be improved.

6. Environmental rehabilitation of Camposoto beach, San Fernando (Cadiz)

Measures: restoration of the beach by depositing 750 000 m³ of sand from the nearby sea bed. The following studies will be carried out to this end: a bathymetric survey of the zone of influence of the beach, a morphodynamic study of the beach and a study of the marine biosphere. The operation will be carried out over 1 500 m.

7. Restoration of the Puerto de la Selva beach, Gerona.

The area is affected by powerful atmospheric factors from both land and sea and consequently suffers from erosion.

Measures: restoration of the beach by depositing 80 000 m³ of sand; construction of a breakwater 82 m long and 4 m wide. The operation will cover 750 m of beach, with a resulting beach width of 80 m.

8. Restoration of the Arealonga beach, Vicedo (Lugo)

The beach is subject to intense erosion because much of the dune belt which offsets seasonal changes of profile has been destroyed.

Measures: depositing 300 000 m³ of sand (from the sea bed nearby or from the bed of the river Sor, depending on the results of analyses currently underway) to restore the cross-section profile of the existing beach before it reaches a state of continual erosion. The operation will concern 1 000 m of beach. Vegetation will be planted on the dune belt.

9. Environmental rehabilitation of Pedregalejo beach, Málaga.

Replacement of the existing infrastructure with another, less obtrusive and with reduced environmental impact.

Measures: demolition of the eight existing breakwaters; construction of three semi-submerged breakwaters perpendicular to the coast of around 200 m in length (only the first 50 m will be above water). Restoration of the beach and restoration of its natural original form by depositing 600 000 m³ of sand.

6. **Objectives**

- To combat water abrasion along the coastline: restoration of 17 835 m of coastline;
- to regenerate and stabilize coastal ecosystems;
- to rehabilitate coastal areas of natural interest;
- to reestablish the natural dynamics and restore the quality of the coastal environment.

7. **Work schedule**

Category of work	Commencement	Completion
Main work	1.8.1995	31.12.1997

8. **Economic and social cost-benefit analysis**

The economic analysis of the projects is based on a 20-year period. The internal rate of return for all the projects is 18%. The costs taken into account were: initial investment, subsequent investments, net book value of investments and maintenance. The benefits taken into account were: advantages to users (beach and seaside leisure, use of paths, parking spaces, rehabilitation of natural spaces, use of the seaside esplanade in the case of Peñíscola); advantages to other economic agents.

9. **Assessment of environmental impact**

- (a) All the measures in question concern the rehabilitation of beaches affected by coastal dynamics which have reduced the area of dry beach and even in some cases, caused the beach to disappear altogether. The plan is to restore the natural conditions of heavily eroded beach coastline.

There will be some negative effects during the construction phase (noise from plant and machinery, contamination of the air caused by earthworks). Every effort will be made to mitigate these.

- (b) The wetlands concerned by the project to regenerate the coastal belt of Peñíscola, situated behind the existing road, must be protected by a building ban.

10. **Cost and assistance (in ECU)**
(ECU = Ptas 162.323)

Total cost: 39 304 349

Eligible costs (after 7.4.1995): 39 304 349

Rate of assistance: 85%

Cohesion Fund assistance: 33 408 696

Breakdown of the aid by beach

1. Salinas beach - Asturias	1 570 941
2. Gozón and Carreño beaches - Asturias	785 471
3. Peñíscola beach - Castellón	22 244 537
4. Magalluf beach - Baleares	507 938
5. San Antonio Bay - Baleares	1 570 942
6. Camposoto beach - Cadiz	1 963 677
7. Puerto Selva beach - Gerona	471 283
8. Arealonga beach - Lugo	523 647
9. Costa Pedregalejo - Málaga	3 770 261
TOTAL	33 408 696

**Publication of main points of decisions to grant financial assistance under Regulation
(EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95.11.61.002

1. Name of project:

Environmental recovery of the Spanish coastline, 1995

2. Body responsible for the application

- 2.1. Name: Dirección General de Planificación (MEH)
2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Authority responsible for implementation

- 3.1. Name: Dirección Gral. de Costas - MOPTMA
3.2. Address: Paseo de la Castellana 67 - 28071 Madrid

4. Location

- 4.1. Member State: Spain
4.2. Region: Andalusia, Balearic Islands, Valencia, Asturias, Catalonia and Galicia.

5. Description

Set of 15 projects concerning the environmental protection or recovery of the most sensitive stretches of coastline. Some of the projects involve space management to prevent intrusion which might cause environmental damage.

Project 1: Pedestrian path on the Peñón de Ifach (Calpe-Alicante).

Construction of a pedestrian path 3 m wide and 800 m long to prevent uncontrolled traffic. Stabilization of banks and slopes with planting of indigenous species. Recovery of an area of 2 ha.

Project 2: Improvement of the coastline in the Cabo de Gata natural park in Almería.

Construction of deterrent parking (300 places) and roadways at a distance from the shore (1 500 m of paths) and the facilities needed for ordered and controlled use. Area concerned: 5 ha. 58 km of coastline protected.

Project 3: Improvement of the natural environment of Xagó beach (Gozón, Asturias).

Recovery of totally degraded dunes in danger of disappearing, covering 200 000 m².

Project 4: Improvement of the coast of Santo Tomás y San Adeodato. Es Migiorn Gran (Menorca, Balearic Islands).

Establishment of ordered access, marking off the dune area, some 600 m long; creation of rest and recreational areas; adjusting the sea shore (700 m long and 5 m wide) in line with the characteristics of the area. Area concerned: 42 000 m².

Project 5: Environmental restoration of the Formentera shoreline (Balearic Islands).

This operation concerns the Illetas, Llevant, Sa Roqueta and Migjorn beaches and the area of Ses Salinas, as well as the coastal belt of the Espalmador island. Work includes regeneration of dunes, laying of paths, deterrent parking and planting of indigenous species. 600 000 m² of dunes will be protected.

Project 6: Environmental recovery of the tidelands at la Algaida, Sanlúcar de Barrameda (Cadiz).

The project involves improving the canal running through the area from north to south; creating a shallow basin in the south-eastern part by restoring banks; recovering lagoons to be fed from natural water sources; creating an experimental repopulation area; demolishing the central access to the saltworks and creating a more discreet access; creating an ecosystem information centre. Recovery of 2 540 000 m² of wetlands.

Project 7: Environmental protection of land bordering on the sea in Chilches, Moncófar, Nules, Torreblanca and Cabanes (Castellón).

These operations involve creating a coastal ridge of broken stones to protect and stabilize the shore; improving access and restoring a livestock trail; restoring Moncófar beach.

Project 8: Environmental treatment of the coastal belt of San Pedro Pescador (Gerona).

Creation of compulsory and deterrent pedestrian routes along 2 710 m of shoreline to prevent mass access to the Aiguamolls de l'Emporda Natural Park. Includes a bridge (45 m), a viewpoint and observation towers.

Project 9: Restoration of water circulation in the La Ribera marsh, Ayamonte (Huelva).

The objective is to restore the natural water flow of the tideland by opening the bed of the La Ribera marsh, currently cut in two places by embankments which will be removed and replaced by more permeable structures which will allow the water in the tidelands to circulate freely.

Project 10: Environmental regeneration of Patín, Baleo and Meiras beaches, Valdoviño (La Coruña).

- The measures for Patín beach are: removal of the current road separating the tidelands from the beach and construction of a wooden structure to enable pedestrians to cross from one side to the other; construction of two deterrent car parks and two wooden walkways to cross the river and creation of an area outside the tideland for services and amenities.
- The measures for Baleo beach are: moving the road inland, converting the old road into green areas and building a deterrent car park.
- The measures for Meiras beach are: demolition of an old building on the beach and improvement of pedestrian access; regeneration of existing vegetation.

Project 11: Environmental recovery of the Ribera de Hazienda, Culleredo (La Coruña).

The measures involve: creating pedestrian access points to the coast; creating a green area with a pedestrian path and cycle track; restoring two lagoons.

Project 12: Rehabilitation of the coastal belt at Sta. Cristina, Oleiros (La Coruña).

The objective is to regenerate the beach and its zone of influence: demolition of buildings which should not have been built on the beach; planting and restoration of vegetation in the zone of influence; improvement of access.

Project 13: Regeneration of the Alba tidelands (Pontevedra).

Clean-up of the tidelands and their borders, marking off the area using light-weight materials and a pedestrian path; installation of wooden walkways with hides for observing the flora and fauna.

Project 14: Improvement of the reedbed in the Lagares river, Vigo (Pontevedra).

Manual clean-up of about 24 000 m² of the lagoon: construction of a peripheral path (2 000 m) and wooden bridge with a hide for observing flora and fauna; demolition of the walls of an old saltworks.

Project 15: Integral restoration of the coastal belt at Devesa del Saler (Valencia).

Part of the Albufera natural park, the aim of the project is to restore the dune belt by demolishing the existing seaside promenade and neighbouring buildings; fixing the dune belt by planting indigenous species; building a pedestrian path and bicycle track behind the dune belt; creating three service areas set back from the coast; restoring around 3 000 m of beach by depositing 120 000 m³ of sand.

6. **Aims**

Recovery of:

- 1 158 300 m² of dunes,
- 2 864 000 m² of marine systems,
- 926 000 m² of other natural areas,
- species and vegetation indigenous to the area,
- natural dynamics of the sea shore.

7. **Work schedule**

Category of work	Commencement	Completion
Main work	1.9.1995	31.12.1997

8. **Assessment of costs and socio-economic advantages**

The economic analysis assumes a period of 20 years. The internal rate of return varies according to the project, with an average of 10.3%.

The costs taken into account were: initial investment, replacement of investments, net book value of the investments and maintenance.

The benefits taken into account were: users' surplus (beach and seaside recreation; use of paths and car parks; recovery of natural areas) and surpluses of other economic agents.

9. **Environmental impact analysis**

- (a) These projects, located within the area of influence of the coast, aim at reducing human pressure on the seaside and improving the quality of the environment.
- (b) The project concerning the improvement of the natural environment of Xagó beach (Gozón, Asturias) will require prior approval by the competent authorities of a plan for the use and management of the area concerned.

The project concerning the regeneration of the Alba tidelands (Pontevedra) will depend on an undertaking by the competent authorities to carry out a clean-up plan including treatment of the waste water discharged into the tidelands, in line with Directive 91/271/EEC.

10. Cost and assistance (in ecus)
(ECU 1 = PTA 161.225)

Total cost:	42 989 610
Eligible cost (after 7.4.1995):	42 989 610
Rate of assistance:	85%
Cohesion Fund assistance:	36 541 168

Breakdown of the aid:

1	Peñón de Ifach (Calpe)	1 476 198
2	Cabo de Gata (Almería)	1 581 641
3	Xagó Beach (Gozón-Asturias)	790 820
4	Coastline at Sto Tomás y San Adeodato (Es Migiorn Gran Menorca-Baleares)	1 054 427
5	Formentera Coastline (Baleares)	1 054 427
6	Tidelands Sanlucar de Barrameda (Cadiz)	6 442 549
7	Castellón coastline	1 054 427
8	S Pedro Pescador coastline (Gerona)	1 581 641
9	La Ribera marsh, Ayamonte (Huelva)	3 163 281
10	Valdoviño beaches (La Coruña)	2 388 277
11	Ribera de Haciadama (La Coruña)	5 272 135
12	Sta Cristina coastline, Oleiros (La Coruña)	1 270 585
13	Alba tidelands, Pontevedra	790 820
14	Reedbeds of Lagares river, Pontevedra	579 935
15	Devesa del Saler - Valencia	8 040 005
	TOTAL	36 541 168

**Publication of main points of decisions to grant financial assistance under Regulation
(EC) No 1164/94 establishing a Cohesion Fund**

No 95.11.61.003

1. Name of project:

Coastal improvements, 1995

2. Authority making the application

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección Gral. de Costas - MOPTMA

3.2. Address: Paseo de la Castellana 67 - 28071 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Canary Islands, Cantabria, Catalonia, Galicia, Valencia

5. Description

Set of 11 measures to restore the natural assets of coastal areas by reducing the pressures to which they are subjected by man.

1. Environmental rehabilitation of the coastal belt (phase 1), Benisa (Alicante)

Measures: improvement of the cliff-top path (750 m) by means of planted barriers and/or protective kerbs and observation points; transformation of existing car parks into green areas, creating new car parks (4 500 m²) further back from the shore; construction of facilities and service areas at a distance from the areas to be protected.

2. Coastal park on the lower slopes, Jávea (Alicante)

Measures: conversion of current roadway into pedestrian and planted area; construction of deterrent car parks (400 places); construction of a walkway straddling the Canal de la Fontana and giving pedestrian access to the Arenal beach.

3. Environmental rehabilitation of the coastal belt between the Almadraba and Albufera beaches (Alicante).

Measures: Creation of pedestrian access suited to the terrain (1 200 m path); introduction of deterrent car parks (250 places).

4. Rehabilitation of the coastal belt and improvement of the Cuberris and Antuerta beaches, Bareyo (Cantabria)

Measures: Creation of a pedestrian walkway along the beach (600 m); construction of a removable wooden walkway; transformation of road access into pedestrian access (300 m); delimitation of beach service areas; canalization of watercourse at Cuberris; construction of 175 parking places to reduce the danger from traffic.

5. Rehabilitation of the environment at San Juan del la Canal, Santa Cruz de Bezana (Cantabria)

Measures: removal of rubbish and debris, treatment of waste water; construction of a shore-side path with observation points and a pedestrian bridge (2 500 m); creation of green areas planted with indigenous vegetation; construction of a small car park (45 places).

6. Improvement of the Santa Lucía beach, El Perelló (Tarragona)

Measures: construction of a pedestrian path along the shore, using local materials, with steps to reach different levels; low masonry walls at dangerous places on the cliff face; strengthening of banks; introduction of quantities of sand needed to preserve the natural beach landscape.

7. Improvement of the Ribera de Cariño, Cariño (La Coruña).

Measures: creation of a park with dune vegetation and water; construction of deterrent car parks (100 places) to reduce traffic pressure; demolition of the retaining and enclosing wall; construction of 400 m area for enjoyment of landscape. The measures concern an area of 23 000 m².

8. Integral rehabilitation of the coastal belt of the Canteras beach, Las Palmas de Gran Canaria (Las Palmas).

The project concerns the very run-down western stretch of the beach, covering 1 200 m from Calla Gavina to Los Muellitos.

Measures: improvement of the seaside along 800 m, elongation of current sea front, with reordering of traffic and land use; rehabilitation of the natural environment of the beach (now almost non-existent), which is being increasingly disfigured by unsuitable activities, through demarcation of the beach; clean-up and spreading of sediment to improve the beach profile; rehabilitation of 800 m² of beach by bringing in 300 000 m³ of sand; installation of facilities to encourage better treatment and protection of the coastline.

9. Improvement of the coastal belt of Seixiños, Meaño (Pontevedra).

Measures: clearing and restoration of the coastal belt (planted slopes blending in with environment); creation of pedestrian access and improvement of the esplanade near the bridge across the Oleiros river as a recreational area; creation of deterrent car park (127 places); transformation of the old blast furnace into an observatory ideally located for the study of seabirds; construction of a wooden jetty giving access to the riverbank at low tide.

The project will be implemented in two stages.

10. Improvement of the Marjal beach at Cases d'Alcanar (Tarragona)

The project covers an area along 1 200 m.

Measures: creation of green areas planted with indigenous vegetation; area for toilets and leisure facilities; construction of a pedestrian path along the sea front.

11. Rehabilitation of the sea front at the Pinedo beach, Valencia.

Measures: demolition of buildings occupying the site of the future sand beach and service area; extension by 523 m of the southern dike following the new course of the Turia river; lengthening of the Acequia del Rey outlet to prevent discharge onto the beach; 200 000 m³ of sand brought in for the upkeep, stabilization and improvement of the beach along 1 100 m; improvement of the sea front and creation of a pedestrian promenade along 800 m.

6. **Objectives**

- To make 4 900 m of the coastal belt suitable for pedestrian use.
- To regulate beach use by creating 1 677 deterrent parking places and 8 705 m of pedestrian paths.
- To rehabilitate 1 900 m of beach.
- To regulate beach access and protect sensitive areas.
- To improve the quality of the coastal environment by encouraging indigenous vegetation.

7. **Work schedule**

Category of work	Commencement	Completion
Main work	7.4.1995	31.12.1997

8. **Economic and social cost-benefit analysis**

The economic analysis of the projects is based on a 20-year period. The internal rate of return for the projects as a whole is 9.8%. The costs taken into account were: initial investment, subsequent investments, net book value of investments and maintenance.

The benefits taken into account were: advantages to users (beach and seaside leisure, use of paths, parking spaces, rehabilitation of natural spaces); advantages to other economic agents.

9. **Assessment of environmental impact**

(a) Regulation of beach use is intended to prevent or reduce excessive population pressure. Environmental rehabilitation is intended to protect sensitive areas by introducing indigenous vegetation. Regulation of access will redistribute occupation of the coastal belt.

(b) The project concerning the rehabilitation of the environment at San Juan del Canal, Santa Cruz de Bezana (Cantabria) will require an undertaking by the competent authorities to implement a sanitation plan for the rehabilitated area.

The project concerning the improvement of the Ribera de Cariño (La Coruña), is subject to an undertaking by the competent authorities to do nothing which will change the environmental use of the area in question.

The project concerning the rehabilitation of the sea front at the Pinedo beach, Valencia, which could affect the Albufera National Park, requires the agreement of the authorities responsible for the park.

10. **Cost and assistance (in ECU)**
(ECU 1 = Ptas 162.323)

Total cost: 35 959 100

Expenditure prior to eligibility date: 92 408

Eligible costs (after 7.4.1995): 35 866 692

Rate of assistance: 85%

Cohesion Fund assistance: 30 486 688

Breakdown of the aid

1. Rehabilitation of coastal belt at Benisa (Alicante)	1 413 848
2. Lower slopes, Jávea (Alicante)	4 189 178
3. Almadraba/Albufera beaches (Alicante)	471 283
4. Cuberris and Antuerta beaches (Cantabria)	507 880
5. San Juan de la Canal beach (Cantabria)	1 382 429
6. Santa Lucía beach (Tarragona)	1 680 908
7. Improvement of Ribera de Cariño (La Coruña)	994 930
8. Las Canteras beach (Canary Islands)	10 472 946
9. Improvement at Seixiños (Pontevedra)	1 120 605
10. Marjal beach (Tarragona)	2 094 589
11. Pinedo beach (Valencia)	6 158 092
TOTAL	30 486 688

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/004-1

1. Name of project:

Afforestation and complementary work to control erosion and desertification; regeneration of ecosystems damaged by fire in the catchment area of southern Spain and the Guadalquivir.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162, 28071 Madrid

3. Body responsible for implementation

3.1. Name: Instituto Nacional para la Conservación de la Naturaleza (Now Dirección General para la Conservación de la Naturaleza).
Subdirección General de Protección de la Naturaleza (now Subdirección General de Control de la Erosión y Desarrollo Forestal).

Address: Gran Vía de S. Francisco, 4 -28005 Madrid.

3.2. Name: Consejería de Medio Ambiente.
Dirección General de Planificación y Partición.

Address: Avda de Eritana, 1 -Sevilla (Andalucia).

3.3. Name: Consejería de Agricultura y Medio Ambiente.
Dirección General de Montes y Medio Ambiente Natural.
Servicio de Protección del Medio Ambiente.

Address: C/Pintor Matías Moreno, 4 45002 Toledo (Castilla-La Mancha).

4. Location

4.1. Member State: Spain

4.2. Region: The Autonomous Communities of Andalusia and Castile-La Mancha.

5. **Description**

The project consists of a number of measures carried out in woodlands. The measures fall into two main categories, the first being measures to halt erosion and desertification, processes which directly affect the natural environment of the catchment area of southern Spain and the Guadalquivir by damaging three extremely important natural resources vegetation, soil and water.

Specifically, the measures in this first category involve:

- biological measures to improve plant cover, thereby providing adequate protection for the soil by means of:
 - afforestation with species suited to the environment,
 - forestry work to preserve and improve existing stands in order to maintain the balance between soil protection and the progression of vegetation;
- improvements to infrastructures: stabilization of slopes and river beds in order to prevent recurring flooding by means of small-scale individual hydrotechnical operations.

The second category of measures concerns the regeneration of woodlands damaged by fire.

Specifically, the measures in this second category are biological measures designed to encourage natural regeneration and establish protective plant cover in areas devastated by fire:

- intensifying reforestation and regeneration of fire-damaged areas;
- stepping up forestry work in existing stands to prevent forest fires;

6. **Objectives**

The general purpose of projects of this type is to protect basic resources - the soil, water and the water cycle as a vital environmental process - and to regenerate ecosystems damaged by forest fires.

More specifically, the objectives are:

- to halt and control erosion caused by both water and wind and to assist the biological recovery of damaged areas;
- to prevent and control forest fires and regenerate areas destroyed by fire;

- to increase and improve plant cover, encouraging biodiversity, so that it can provide sufficient stability and biopedological protection to the soil as well as absorbing most of the CO₂ in the air;
- to regulate the water cycle: to protect and improve the quality of water resources, to minimize the danger and frequency of floods and protect hydraulic infrastructures;
- to improve rural structures, helping to establish or maintain the population in depressed areas or where there is a danger of abandonment, by ensuring a balanced environment in a manner compatible with the conservation of the natural ecosystems;
- to produce other effects, such as creating and protecting biodiversity or increasing the aesthetic or recreational value of woodland.

All these objectives are sought through integrated operations, with each catchment area acting as a geographical unit for action. The ultimate objective is to set up a strategy for protecting nature from a desertification process aggravated by soil erosion, forest fires and the chronic drought affecting Spanish forests.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. Assessment of costs and socio-economic advantages

The profitability of hydrological and forest restoration must be sought in its long-term social benefits. The intangible benefits of reforestation, silvicultural and hydrological corrections (impact on air, water, soil, ecosystems, etc.) are difficult to measure in monetary terms.

Despite this, the following costs and benefits have been calculated using the reference values and shadow prices usually taken for this type of project.

The following benefits were considered:

1. reduction in the risks of flooding;
2. less forest soil lost;
3. less silting of dams;
4. improved woodlands and less desertification;
5. better quality water;
6. an increase in the general well-being of the population.

The IRR obtained by comparing the above benefits with the investment costs was 4.10 which ensures the socio-economic and environmental viability of the projects.

A number of effects were too difficult to evaluate, including the reduction of the greenhouse effect and the improvement of the landscape.

9. Assessment of environmental impact

- (a) All the measures included in these projects are designed to restore and preserve the protective plant cover. Their general purpose is to protect resources: soil, water and the water cycle as a basic environmental process. Their impact on the environment is therefore invariably beneficial, since none of the measures use methods or introduce species which will alter the natural balance of the environment in question.

Planting will be carried out either on land which has, in the last fifty years, been covered by more or less the same species which will now be planted or on land where there is no serious danger of a transformation harmful to the ecology.

- (b) In accordance with Article 3(5) of Regulation (EEC) No 2158/92 on the protection of forests against fire, the forestry measures included in the project must be in conformity with the Spanish plan for the protection of forests against fire approved by the Commission on 7 January 1994.

10. Cost and assistance (in ecus)

(ECU 1 = Ptas 162.323)

Total cost:	30 563 124
Eligible cost (after 7.4.1995):	30 563 124
Rate of assistance:	85%
Cohesion Fund assistance:	25 978 655

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/006-1

1. Name of project:

Afforestation and complementary work to control erosion and desertification; regeneration of ecosystems damaged by fire in the catchment area of the Guadiana.

2. Authority making the application:

- 2.1. Name: Dirección General de Planificación
- 2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

- 3.1. Name: Instituto Nacional para la Conservación de la Naturaleza (now Dirección General para la Conservación de la Naturaleza).
Subdirección General de Protección de la Naturaleza (now Subdirección General de Control de la Erosión y Desarrollo Forestal).
Address: Gran Vía de S. Francisco, 4 -28005 Madrid.
- 3.2. Name: Consejería de Medio Ambiente
Dirección General de Planificación y Participación.
Address: Avda. de Eritana, 1 - SEVILLA (ANDALUCÍA).
- 3.3. Name: Consejería de Agricultura y Medio Ambiente.
Dirección General de Montes y Medio Ambiente Natural.
Servicio de Protección de Medio Natural.
Address: C/ Pintor Matías Moreno, 4 45002 - TOLEDO (CASTILLA-LA MANCHA).
- 3.4. Name: Consejería de Agricultura y Comercio.
Dirección General de Estructuras Agrarias.
Address: C/ Adriano, 4 06800 - MÉRIDA (EXTREMADURA)

4. Location

- 4.1. Member State: Spain
4.2. Region: Andalusia, Castile-La Mancha, Extremadura

5. **Description**

The project consists of a number of measures carried out in woodlands. The measures fall into two main categories, the first being measures to halt erosion and desertification, which directly affect the natural environment of the catchment area of the Guadiana by damaging three extremely important natural resources: vegetation, soil and water.

Specifically, the measures in this first category involve:

- biological action to improve plant cover, thereby providing adequate protection for the soil by means of:
 - afforestation with species suited to the environment,
 - silvicultural operations to preserve and improve existing stands in order to maintain the balance between soil protection and the progression of vegetation;
- corrective infrastructures: stabilization of slopes and river beds in order to prevent recurring flooding by means of small-scale one-off hydrotechnical operations.

The second category of measures concerns the regeneration of woodlands damaged by fire.

Specifically, the measures in this second category are biological action designed to encourage natural regeneration and establish protective plant cover in areas devastated by fire:

- intensifying reafforestation and regeneration of fire-damaged areas,
- stepping up silvicultural operations in existing stands to prevent forest fires;

6. **Objectives**

The general purpose of projects of this type is to protect basic resources - the soil, water and the water cycle as a vital environmental process - and to regenerate ecosystems damaged by forest fires.

More specifically, the objectives are:

- to halt and control erosion caused by both water and wind and to assist the biological recovery of damaged areas;

- to prevent and control forest fires and regenerate areas damaged by fire;
- to increase and improve plant cover, encouraging biodiversity, so that it can provide sufficient stability and biopedological protection to the soil as well as absorbing most of the CO₂ in the air;
- to regulate the water cycle: to protect and improve the quality of water resources, to minimize the danger and frequency of floods and protect hydraulic infrastructures;
- to improve rural structures, helping to establish or maintain the population in depressed areas or where there is a danger of abandonment, by ensuring a balanced environment in a manner compatible with the conservation of the natural ecosystems;
- to produce other effects, such as creating and protecting biodiversity or increasing the aesthetic or recreational value of woodland.

All these objectives are sought through integrated operations, with each catchment area acting as a geographical unit for action. The ultimate objective is to set up a strategy for protecting nature from a desertification process aggravated by soil erosion, forest fires and the chronic drought affecting Spanish forests.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. Economic and social cost-benefit analysis

The profitability of hydrological and forest restoration must be sought in its long-term social benefits. The intangible benefits of reforestation, silvicultural and hydrological corrections (impact on air, water, soil, ecosystems, etc.) are difficult to measure in monetary terms.

Despite this, the following costs and benefits have been calculated using the reference values and shadow prices usually taken for this type of project.

The following benefits were considered:

1. reduction in the risks of flooding;
2. less forest soil lost;
3. fewer dams destroyed;
4. improved woodlands and less desertification;

5. better quality water;
6. an increase in the general well-being of the population.

The IRR obtained by comparing the above benefits with the investment costs was 9.62, which ensures the socioeconomic and environmental viability of the projects.

A number of effects have not been evaluated, including the reduction of the greenhouse effect and the improvement of the landscape.

9. **Assessment of environmental impact**

- (a) All the measures included in these projects are designed to restore and preserve the protective plant cover. Their general purpose is to protect resources: soil, water and the water cycle as a basic environmental process. Their impact on the environment is therefore invariably beneficial, since none of the measures use methods or introduce species which will alter the natural balance of the environment in question.

Planting will be carried out either on land which has, in the last fifty years, been covered by the same species which will now be planted or on land where there is no danger of a transformation harmful to the ecology

- (b) In accordance with Article 3(5) of Regulation (EEC) No 2158/92 on the protection of forests against fire, the forestry measures included in the project must be in conformity with the Spanish plan for the protection of forests against fire approved by the Commission on 7 January 1994

10. **Cost and assistance (in ECU)**
(ECU 1 = Ptas 162.323)

Total cost:	7 193 232
Eligible cost (after 7.4.1995):	7 193 232
Rate of assistance:	80%
Cohesion Fund assistance:	5 754 585

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/009-1

1. Name of project:

Afforestation and complementary work to control erosion and desertification; regeneration of ecosystems damaged by fire in the catchment area of the eastern Júcar.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162, 28071 Madrid

3. Body responsible for implementation

3.1. Name: Instituto Nacional para la Conservación de la Naturaleza (now Dirección General para la Conservación de la Naturaleza).
Subdirección General de Protección de la Naturaleza (now Subdirección General de Control de la Erosión y Desarrollo Forestal).

Address: Gran Vía de S. Francisco, 4 -28005 Madrid.

3.2. Name: Consejería de Agricultura, Ganadería y Montes.
Dirección General de Estructuras Agrarias.
Diputación General de Aragón.

Address: Pº de María Agustín, 36 Edf. Pignatelli 50004 - Zaragoza (Aragón):

3.3. Name: Consejería de Agricultura y Medio Ambiente.
Dirección General de Montes y Medio Ambiente Natural.
Servicio de Protección del Medio Natural.

Address: C/ Pintor Matías Moreno, 4 45002 - Toledo (Castile-La Mancha).

3.4. Name: Consejería de Medio Ambiente
Dirección General de Recursos Forestales

Address: Calle Arquitecto Alfaro 39, 46011 Valencia

4. Location

- 4.1. Member State: Spain
- 4.2. Region: Aragon, Castile-La Mancha and Valencia

5. Description

The project consists of a number of measures carried out in woodlands. The measures fall into two main categories, the first being measures to halt erosion and desertification, which directly affect the natural environment of the catchment area of the eastern Júcar by damaging three extremely important natural resources: vegetation, soil and water.

Specifically, the measures in this first category involve:

- biological measures to improve plant cover, thereby providing adequate protection for the soil by means of:
 - afforestation with species suited to the environment,
 - forestry work to preserve and improve existing stands in order to maintain the balance between soil protection and the progression of vegetation;
- improvements to infrastructures: stabilization of slopes and river beds in order to prevent recurring flooding by means of small-scale individual hydrotechnical operations.

The second category of measures concerns the regeneration of woodlands damaged by fire.

Specifically, the measures in this second category are biological measures designed to encourage natural regeneration and establish protective plant cover in areas devastated by fire:

- intensifying reforestation and regeneration of fire-damaged areas;
- stepping up forestry work in existing stands to prevent forest fires;

6. Objectives

The general purpose of projects of this type is to protect basic resources - the soil, water and the water cycle as a vital environmental process - and to regenerate ecosystems damaged by forest fires.

More specifically, the objectives are:

- to halt and control erosion caused by both water and wind and to assist the biological recovery of damaged areas;
- to prevent and control forest fires and regenerate areas destroyed by fire;
- to increase and improve plant cover, encouraging biodiversity, so that it can provide sufficient stability and biopedological protection to the soil as well as absorbing most of the CO₂ in the air;
- to regulate the water cycle: to protect and improve the quality of water resources, to minimize the danger and frequency of floods and protect hydraulic infrastructures;
- to improve rural structures, helping to establish or maintain the population in depressed areas or where there is a danger of abandonment, by ensuring a balanced environment in a manner compatible with the conservation of the natural ecosystems;
- to produce other effects, such as creating and protecting biodiversity or increasing the aesthetic or recreational value of woodland.

All these objectives are sought through integrated operations, with each catchment area acting as a geographical unit for action. The ultimate objective is to set up a strategy for protecting nature from a desertification process aggravated by soil erosion, forest fires and the chronic drought affecting Spanish forests.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. Assessment of costs and socio-economic advantages

The profitability of hydrological and forest restoration must be sought in its long-term social benefits. The intangible benefits of reforestation, silvicultural and hydrological corrections (impact on air, water, soil, ecosystems, etc.) are difficult to measure in monetary terms.

Despite this, the following costs and benefits have been calculated using the reference values and shadow prices usually taken for this type of project.

The following benefits were considered:

1. reduction in the risks of flooding;
2. less forest soil lost;

3. less silting of dams;
4. improved woodlands and less desertification;
5. better quality water;
6. an increase in the general well-being of the population.

The IRR obtained by comparing the above benefits with the investment costs was 9.37%, which ensures the socio-economic and environmental viability of the projects.

A number of effects too difficult to evaluate would substantially increase the IRR, including the reduction of the greenhouse effect and the improvement of the landscape.

9. **Assessment of environmental impact**

- (a) All the measures included in these projects are designed to restore and preserve the protective plant cover. Their general purpose is to protect resources: soil, water and the water cycle as a basic environmental process. Their impact on the environment is therefore invariably beneficial, since none of the measures use methods or introduce species which will alter the natural balance of the environment in question.

Planting will be carried out either on land which has, in the last fifty years, been covered by more or less the same species which will now be planted or on land where there is no serious danger of a transformation harmful to the ecology.

- (b) In accordance with Article 3(5) of Regulation (EEC) No 2158/92 on the protection of forests against fire, the forestry measures included in the project must be in conformity with the Spanish plan for the protection of forests against fire approved by the Commission on 7 January 1994.

10. **Cost and assistance (in ecus)**
(ECU 1 = Ptas 162.323)

Total cost:	19 470 537
Eligible cost (after 7.4.1995):	19 470 537
Rate of assistance:	80%
Cohesion Fund assistance:	15 576 429

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/010-1

1. Name of project:

Afforestation and complementary work to control erosion and desertification; regeneration of ecosystems damaged by fire in the catchment area of the Balearic Islands.

2. Authority making the application

- 2.1. Name: Dirección General de Planificación
- 2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

- 3.1. Name: Instituto Nacional para la Conservación de la Naturaleza (now Dirección General para la Conservación de la Naturaleza).
Subdirección General de Protección de la Naturaleza (now Subdirección General de Control de la Erosión y Desarrollo Forestal).
Address: Gran Vía de S. Francisco, 4 -28005 Madrid.
- 3.2. Name: Consejería de Agricultura y Pesca
Dirección General de Estructuras Agrarias y Medio Natural
Address: C/ dels Forners, 10 07006 - PALMA DE MALLORCA (BALEARES)

4. Location

- 4.1. Member State: Spain
- 4.2. Region: Baleares

5. Description

The project consists of a number of measures carried out in woodlands. The measures fall into two main categories, the first being measures to halt erosion and desertification, which directly affect the natural environment of the catchment area of the Balearic Islands by damaging three extremely important natural resources: vegetation, soil and water.

Specifically, the measures in this first category involve:

- biological action to improve plant cover, thereby providing adequate protection for the soil by means of:
 - afforestation with species suited to the environment,
 - silvicultural operations to preserve and improve existing stands in order to maintain the balance between soil protection and the progression of vegetation;
- corrective infrastructures: stabilization of slopes and river beds in order to prevent recurring flooding by means of small-scale one-off hydrotechnical operations.

The second category of measures concerns the regeneration of woodlands damaged by fire.

Specifically, the measures in this second category are biological action designed to encourage natural regeneration and establish protective plant cover in areas devastated by fire:

- intensifying reafforestation and regeneration of fire-damaged areas.
- stepping up silvicultural operations in existing stands to prevent forest fires

6. **Objectives**

The general purpose of projects of this type is to protect basic resources - the soil, water and the water cycle as a vital environmental process - and to regenerate ecosystems damaged by forest fires.

More specifically, the objectives are:

- to halt and control erosion caused by both water and wind and to assist the biological recovery of damaged areas;
- to prevent and control forest fires and regenerate areas damaged by fire.
- to increase and improve plant cover, encouraging biodiversity, so that it can provide sufficient stability and biopedological protection to the soil as well as absorbing most of the CO₂ in the air;
- to regulate the water cycle: to protect and improve the quality of water resources, to minimize the danger and frequency of floods and protect hydraulic infrastructures;

- to improve rural structures, helping to establish or maintain the population in depressed areas or where there is a danger of abandonment, by ensuring a balanced environment in a manner compatible with the conservation of the natural ecosystems;
- to produce other effects, such as creating and protecting biodiversity or increasing the aesthetic or recreational value of woodland.

All these objectives are sought through integrated operations, with each catchment area acting as a geographical unit for action. The ultimate objective is to set up a strategy for protecting nature from a desertification process aggravated by soil erosion, forest fires and the chronic drought affecting Spanish forests.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. Economic and social cost-benefit analysis

The profitability of hydrological and forest restoration must be sought in its long-term social benefits. The intangible benefits of reforestation, silvicultural measures and hydrological corrections (impact on air, water, soil, ecosystems, etc.) are difficult to measure in monetary terms.

Despite this, the following costs and benefits have been calculated using the reference values and shadow prices usually taken for this type of project.

The following benefits were considered:

1. reduction in the risks of flooding;
2. less forest soil lost;
3. fewer dams destroyed;
4. improved woodlands and less desertification;
5. better quality water;
6. an increase in the general well-being of the population.

The IRR obtained by comparing the above benefits with the investment costs was 2.78 which ensures the socio-economic and environmental viability of the projects.

A number of effects were considered to difficult to evaluate, but if they had been they would substantially increase the IRR. Such effects include the reduction of the greenhouse effect and the improvement of the landscape

9. Assessment of environmental impact

All the measures included in these projects are designed to restore and preserve the protective plant cover. Their general purpose is to protect resources: soil, water and the water cycle as a basic environmental process. Their impact on the environment is therefore invariably beneficial, since none of the measures use methods or introduce species which will alter the natural balance of the environment in the area in question.

Planting will be carried out either on land which has, in the last fifty years, been covered by the same species which will now be planted or on land where there is no danger of a transformation harmful to the ecology.

10. Cost and assistance (in ECU)
(ECU 1 = Ptas 162.323)

Total cost:	1 445 203
Eligible cost (after 7.4.1995):	1 445 203
Rate of assistance:	85%
Cohesion Fund assistance:	1 228 422

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/010-2

1. Name of project:

Afforestation and complementary work to control erosion and desertification; regeneration of ecosystems damaged by fire in the catchment area of the Canary Islands.

2. Authority making the application

- 2.1. Name: Dirección General de Planificación
- 2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

- 3.1. Name: Instituto Nacional para la Conservación de la Naturaleza (now Dirección General para la Conservación de la Naturaleza).
Subdirección General de Protección de la Naturaleza (now Subdirección General de Control de la Erosión y Desarrollo Forestal).
Address: Gran Vía de S. Francisco, 4 -28005 Madrid.
- 3.2. Name: Consejería de Política Territorial.
Servicio de Planificación, Evaluación y Seguimiento de Programas
Address: Avda. de Anaga, 35 6ª pl. Edf. Servicios Múltiples 38001 -
SANTA CRUZ DE TENERIFE

4. Location

- 4.1. Member State: Spain
- 4.2. Region: Canary Islands

5. Description

The project consists of a number of measures carried out in woodlands. The measures fall into two main categories, the first being measures to halt erosion and desertification, which directly affect the natural environment of the catchment

area of the Canary Islands by damaging three extremely important natural resources: vegetation, soil and water.

Specifically, the measures in this first category involve:

- biological action to improve plant cover, thereby providing adequate protection for the soil by means of:
 - afforestation with species suited to the environment,
 - silvicultural operations to preserve and improve existing stands in order to maintain the balance between soil protection and the progression of vegetation;
- corrective infrastructures: stabilization of slopes and river beds in order to prevent recurring flooding by means of small-scale one-off hydrotechnical operations.

The second category of measures concerns the regeneration of woodlands damaged by fire.

Specifically, the measures in this second category are biological action designed to encourage natural regeneration and establish protective plant cover in areas devastated by fire:

- intensifying reforestation and regeneration of fire-damaged areas.
- stepping up silvicultural operations in existing stands to prevent forest fires;
- creating fire-breaks and safety strips to prevent forest fires in high-risk areas or areas where the plant cover is particularly dense.

6. Objectives

The general purpose of projects of this type is to protect basic resources - the soil, water and the water cycle as a vital environmental process - and to regenerate ecosystems damaged by forest fires.

More specifically, the objectives are:

- to halt and control erosion caused by both water and wind and to assist the biological recovery of damaged areas;
- to prevent and control forest fires and regenerate areas damaged by fire.
- to increase and improve plant cover, encouraging biodiversity, so that it can provide sufficient stability and biopedological protection to the soil as well as absorbing most of the CO₂ in the air;

- to regulate the water cycle: to protect and improve the quality of water resources, to minimize the danger and frequency of floods and protect hydraulic infrastructures;
- to improve rural structures, helping to establish or maintain the population in depressed areas or where there is a danger of abandonment, by ensuring a balanced environment in a manner compatible with the conservation of the natural ecosystems;
- to produce other effects, such as creating and protecting biodiversity or increasing the aesthetic or recreational value of woodland.

All these objectives are sought through integrated operations, with each catchment area acting as a geographical unit for action. The ultimate objective is to set up a strategy for protecting nature from a desertification process aggravated by soil erosion, forest fires and the chronic drought affecting Spanish forests

7. Work schedule

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. Economic and social cost-benefit analysis

The profitability of hydrological and forest restoration must be sought in its long-term social benefits. The intangible benefits of reforestation, silvicultural measures and hydrological corrections (their impact on air, water, soil, ecosystems, etc.) are difficult to measure in monetary terms.

Despite this, the following costs and benefits have been calculated using the reference values and shadow prices usually taken for this type of project.

The following benefits were considered:

1. reduction in the risks of flooding;
2. less forest soil lost;
3. fewer dams destroyed;
4. improved woodlands and less desertification;
5. better quality water;
6. an increase in the general well-being of the population.

The IRR obtained by comparing the above benefits with the investment costs was 1.4, which ensures the socioeconomic and environmental viability of the projects

A number of effects have not been evaluated, including the reduction of the greenhouse effect and the improvement of the landscape.

9. **Assessment of environmental impact**

All the measures included in these projects are designed to restore and preserve the protective plant cover. Their general purpose is to protect resources: soil, water and the water cycle as a basic environmental process. Their impact on the environment is therefore invariably beneficial, since none of the measures use methods or introduce species which will alter the natural balance of the environment in the areas in question.

Planting will be carried out either on land which has, in the last fifty years, been covered by the same species which will now be planted or on land where there is no danger of a transformation harmful to the ecology.

10. **Cost and assistance (in ECU)**
(ECU 1 = Ptas 162.323)

Total cost:	4 956 751
Eligible cost (after 7.4.1995):	4 956 751
Rate of assistance:	85%
Cohesion Fund assistance:	4 213 238

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/010-3

1. Name of project:

Afforestation and complementary work to control erosion and desertification; regeneration of ecosystems damaged by fire in the catchment area of the Segura river.

2. Authority making the application

- 2.1. Name: Dirección General de Planificación
2.2. Address: Paseo de la Castellana 162, 28071 Madrid

3. Body responsible for implementation

- 3.1. Name: Instituto Nacional para la Conservación de la Naturaleza (now Dirección General para la Conservación de la Naturaleza).
Subdirección General de Protección de la Naturaleza (now Subdirección General de Control de la Erosión y Desarrollo Forestal).
Address: Gran Vía de S. Francisco, 4 -28005 Madrid.
- 3.2. Name: Consejería de Medio Ambiente.
Dirección General de Planificación y Partición.
Address: Avda. de Eritana,1 - Sevilla (Andalucía)
- 3.3. Name: Consejería de Agricultura y Medio Ambiente.
Dirección General de Montes y Medio Ambiente Natural.
Servicio de Protección del Medio Natural.
Address: C/Pintor Matías Moreno, 4, 45002-Toledo (Castilla-La Mancha).
- 3.4. Name: Consejería de Medio Ambiente.
Dirección General del Medio Natural.
Address: C/Luis Fontes Pagán, 3, 30071 Murcia (Murcia)

4. Location

4.1. Member State: Spain

4.2. Region: Andalusia, Castile-La Mancha and Murcia.

5. Description

The project consists of a number of measures carried out in woodlands. The measures fall into two main categories, the first being measures to halt erosion and desertification, which directly affect the natural environment of the catchment area of the Segura by damaging three extremely important natural resources: vegetation, soil and water.

Specifically, the measures in this first category involve:

- biological measures to improve plant cover, thereby providing adequate protection for the soil by means of:
 - afforestation with species suited to the environment,
 - forestry work to preserve and improve existing stands in order to maintain the balance between soil protection and the progression of vegetation;
- improvements to infrastructures: stabilization of slopes and river beds in order to prevent recurring flooding by means of small-scale individual hydrotechnical operations.

The second category of measures concerns the regeneration of woodlands damaged by fire.

Specifically, the measures in this second category are biological measures designed to encourage natural regeneration and establish protective plant cover in areas devastated by fire:

- intensifying reforestation and regeneration of fire-damaged areas;
- stepping up forestry work in existing stands to prevent forest fires;

6. Objectives

The general purpose of projects of this type is to protect basic resources - the soil, water and the water cycle as a vital environmental process - and to regenerate ecosystems damaged by forest fires.

More specifically, the objectives are:

- to halt and control erosion caused by both water and wind and to assist the biological recovery of damaged areas;
- to prevent and control forest fires and regenerate areas destroyed by fire;
- to increase and improve plant cover, encouraging biodiversity, so that it can provide sufficient stability and biopedological protection to the soil as well as absorbing most of the CO₂ in the air;
- to regulate the water cycle: to protect and improve the quality of water resources, to minimize the danger and frequency of floods and protect hydraulic infrastructures;
- to improve rural structures, helping to establish or maintain the population in depressed areas or where there is a danger of abandonment, by ensuring a balanced environment in a manner compatible with the conservation of the natural ecosystems;
- to produce other effects, such as creating and protecting biodiversity or increasing the aesthetic or recreational value of woodland.

All these objectives are sought through integrated operations, with each catchment area acting as a geographical unit for action. The ultimate objective is to set up a strategy for protecting nature from a desertification process aggravated by soil erosion, forest fires and the chronic drought affecting Spanish forests.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. Assessment of costs and socio-economic advantages

The profitability of hydrological and forest restoration must be sought in its long-term social benefits. The intangible benefits of reforestation, silvicultural and hydrological corrections (impact on air, water, soil, ecosystems, etc.) are difficult to measure in monetary terms.

Despite this, the following costs and benefits have been calculated using the reference values and shadow prices usually taken for this type of project.

The following benefits were considered:

1. reduction in the risks of flooding;
2. less forest soil lost;

3. less silting of dams;
4. improved woodlands and less desertification;
5. better quality water;
6. an increase in the general well-being of the population.

The IRR obtained by comparing the above benefits with the investment costs was 9.73, which ensures the socio-economic and environmental viability of the projects.

A number of effects have not been evaluated, including the reduction of the greenhouse effect and the improvement of the landscape.

9. **Assessment of environmental impact**

- (a) All the measures included in these projects are designed to restore and preserve the protective plant cover. Their general purpose is to protect resources: soil, water and the water cycle as a basic environmental process. Their impact on the environment is therefore invariably beneficial, since none of the measures use methods or introduce species which will alter the natural balance of the environment in question.

Planting will be carried out either on land which has, in the last fifty years, been covered by the more or less the same species which will now be planted or on land where there is no serious danger of a transformation harmful to the ecology.

- (b) In accordance with Article 3(5) of Regulation (EEC) No 2158/92 on the protection of forests against fire, the forestry measures included in the project must be in conformity with the Spanish plan for the protection of forests against fire approved by the Commission on 7 January 1994.

10. **Cost and assistance (in ecus)**
(ECU 1 = Ptas 162.323)

Total cost:	6 566 535
Eligible cost (after 7.4.1995):	6 566 535
Rate of assistance:	85%
Cohesion Fund assistance:	5 581 554

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/010-4

1. Name of project:

Afforestation and complementary work to control erosion and desertification; regeneration of ecosystems damaged by fire in the catchment area of the Tagus *

2. Authority making the application

- 2.1. Name: Dirección General de Planificación
2.2. Address: Paseo de la Castellana 162, 28071 Madrid

3. Body responsible for implementation

- 3.1. Name: Instituto Nacional para la Conservación de la Naturaleza (now Dirección General para la Conservación de la Naturaleza).
Subdirección General de Protección de la Naturaleza (now Subdirección General de Control de la Erosión y Desarrollo Forestal).
Address: Gran Vía de S. Francisco, 4 -28005 Madrid.
- 3.2. Name: Consejería de Agricultura, Ganadería y Montes.
Dirección General de Estructuras Agrarias.
Diputación General de Aragón.
Address: Pº de María Agustín, 36 Efd. Pignatelli 5004 Zaragoza
- 3.3. Name: Consejería de Agricultura y Medio Ambiente
Dirección General de Montes y Medio Ambiente Natural.
Servicio de Protección del Medio Natural
Address: C/Pintor Matías Moreno, 4 - 45002 Toledo (Castile-La Mancha).
- 3.4. Name: Consejería de Medio Ambiente y Ordenación del Territorio.
Dirección General del Medio Natural.
Address: C/Muro, 9, 47004 Valladolid (Castile-León)
- 3.5. Name: Consejería de Agricultura y Comercio.
Dirección General de Estructuras Agrarias.

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Address: C/ Adriano, 4, 06800- Mérida (Extremadura).

- 3.6. **Name:** Consejería de Cooperación
Agencia del Medio Ambiente-Servicio de Gestión Territorial.
Address: C/ Princesa, 3, 28008 Madrid

4. **Location**

- 4.1. **Member State:** Spain
4.2. **Region:** Aragon, Castile-La Mancha, Castile-León, Extremadura and Madrid.

5. **Description**

The project consists of a number of measures carried out in woodlands. The measures fall into two main categories, the first being measures to halt erosion and desertification, which directly affect the natural environment of the catchment area of the Tagus by damaging three extremely important natural resources: vegetation, soil and water.

Specifically, the measures in this first category involve:

- biological measures to improve plant cover, thereby providing adequate protection for the soil by means of:
 - afforestation with species suited to the environment,
 - forestry work to preserve and improve existing stands in order to maintain the balance between soil protection and the progression of vegetation;
- improvements to infrastructures: stabilization of slopes and river beds in order to prevent recurring flooding by means of small-scale individual hydrotechnical operations.

The second category of measures concerns the regeneration of woodlands damaged by fire.

Specifically, the measures in this second category are biological measures designed to encourage natural regeneration and establish protective plant cover in areas devastated by fire:

- intensifying reforestation and regeneration of fire-damaged areas;
- stepping up forestry work in existing stands to prevent forest fires;

6. **Objectives**

The general purpose of projects of this type is to protect basic resources - the soil, water and the water cycle as a vital environmental process - and to regenerate ecosystems damaged by forest fires.

More specifically, the objectives are:

- to halt and control erosion caused by both water and wind and to assist the biological recovery of damaged areas;
- to prevent and control forest fires and regenerate areas destroyed by fire;
- to increase and improve plant cover, encouraging biodiversity, so that it can provide sufficient stability and biopedological protection to the soil as well as absorbing most of the CO₂ in the air;
- to regulate the water cycle: to protect and improve the quality of water resources, to minimize the danger and frequency of floods and protect hydraulic infrastructures;
- to improve rural structures, helping to establish or maintain the population in depressed areas or where there is a danger of abandonment, by ensuring a balanced environment in a manner compatible with the conservation of the natural ecosystems;
- to produce other effects, such as creating and protecting biodiversity or increasing the aesthetic or recreational value of woodland.

All these objectives are sought through integrated operations, with each catchment area acting as a geographical unit for action. The ultimate objective is to set up a strategy for protecting nature from a desertification process aggravated by soil erosion, forest fires and the chronic drought affecting Spanish forests.

7. **Work schedule**

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. **Assessment of costs and socio-economic advantages**

The profitability of hydrological and forest restoration must be sought in its long-term social benefits. The intangible benefits of reforestation, silvicultural and

hydrological corrections (impact on air, water, soil, ecosystems, etc.) are difficult to measure in monetary terms.

Despite this, the following costs and benefits have been calculated using the reference values and shadow prices usually taken for this type of project.

The following benefits were considered:

1. reduction in the risks of flooding;
2. less forest soil lost;
3. less silting of dams;
4. improved woodlands and less desertification;
5. better quality water;
6. an increase in the general well-being of the population.

The IRR obtained by comparing the above benefits with the investment costs was 7.11, which ensures the socioeconomic and environmental viability of the projects.

A number of effects too difficult to evaluate would substantially increase the IRR, including the reduction of the greenhouse effect and the improvement of the landscape.

9. Assessment of environmental impact

- (a) All the measures included in these projects are designed to restore and preserve the protective plant cover. Their general purpose is to protect resources: soil, water and the water cycle as a basic environmental process. Their impact on the environment is therefore invariably beneficial, since none of the measures use methods or introduce species which will alter the natural balance of the environment in question.

Planting will be carried out either on land which has, in the last fifty years, been covered by more or less the same species which will now be planted or on land where there is no serious danger of a transformation harmful to the ecology.

- (b) In accordance with Article 3(5) of Regulation (EEC) No 2158/92 on the protection of forests against fire, the forestry measures included in the project must be in conformity with the Spanish plan for the protection of forests against fire approved by the Commission on 7 January 1994.

10. Cost and assistance (in ecus)

(ECU 1 = Ptas 162.323)

Total cost:	17 099 973
Eligible cost (from 7.4.1995):	17 099 973
Rate of assistance:	80%

Cohesion Fund assistance:

13 679 978

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/012

1. Name of project:

Waste-water treatment plants for Calvia, in the Balearic Islands

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de calidad de las Aguas (MOPTMA)

3.2. Address: Pº de la Castellana, 67 - 28071 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Balearic Islands

Autonomous Community: Balearic Islands

5. Description

The project involves installing the facilities needed for the treatment of waste water in the bay of Palma de Mallorca.

This will require the following work:

1. SANTA PONSA TREATMENT PLANT

- screening of solids
- desanding with pre-aeration and demulsification
- measurement of flow-rate
- homogenizing tank
- initial settling and sludge removal
- biological treatment: aeration tanks

- secondary settling using conventional scrapers
- recirculation of activated sludge and surplus sludge
- recirculation of anoxic area
- chlorination
- pumping of sludge from initial settling
- sludge thickening
- anaerobic digestion
- post-thickening of sludge
- dehydration of sludge
- deodorization
- system draining
- drinking water and water for industrial use
- control building
- building for industrial use
- processing building
- landscaping and enclosure

2. PAGUERA TREATMENT PLANT

- screening of solids
- desanding with pre-aeration and demulsification
- measurement of flow-rate
- biological treatment with nitrification-denitrification and aerobic stabilization
- secondary settling and sludge removal
- chlorination
- sludge thickening

3. BENDINAT TREATMENT PLANT

- screening of solids
- desanding with pre-aeration and demulsification
- measurement of flow-rate
- biological treatment with nitrification-denitrification and aerobic stabilization
- secondary settling and sludge removal
- chlorination
- sludge thickening

4. PUMPING STATIONS AND COLLECTORS

- Murillo pumping station (E.I.58)
- collector from Murillo to Son Ferrer (E.I.8.1)
- collector from Son Ferrer to the treatment plant
- Magalluf pumping station (E.I.4.2)
- collector from Magalluf to the treatment plant.

5. EXTENSION OF THE OFFSHORE OUTFALLS

- Santa Ponsa outfall: 1 200 m,

- Paguera outfall: 300 m,
- Palma Nova outfall: 500 m,
- Magalluf outfall: 250 m.

6. Objectives

To build and fit out three treatment plants for waste water from the general collectors of the municipality of Calvia. This will reduce the pollution in the waste water from Calvia to acceptable levels for discharge via offshore outfalls into the Mediterranean.

The basic parameters of the treatment plants are as follows:

95/11/61/012	Santa Ponsa	Paguera	Bendinat	TOTAL
Current population (inhabitants)	34 000	6 700	6 700	47 400
Design population equivalent (PE)	118 000	27 300	30 000	175 300
Total average BOD on entry (mg/l)	490	575	475	
Total average BOD on exit (mg/l)	25	25	25	
Total average SS on entry (mg/l)	300	300	300	
Total average SS on exit (mg/l)	35	35	35	
Average daily volume of water (m ³ /day)	31 000	3 100	7 000	

7. Work schedule

Category of work:	Commencement	Completion
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Preparation of project	1.6.1993	22.11.1994
Purchase of land		
Main work	5.4.1995	5.10.1996
Operational phase	6.10.1996	

8. Economic and social cost-benefit analysis

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for waste disposal and sewerage, water rates (running costs are covered by contributions from users),
- environmental benefits,
- reuse of treated water.

The internal rate of return is 15.61%

In addition to the above figures, the project will have an impact on the economic development of the area, including the development of rural tourism, as well as increasing the well-being of the local population.

9. Assessment of environmental impact

The project will have a positive effect on the environment for the following reasons:

- improvement of the environment thanks to treatment to eliminate contamination in the effluent from human activities,
- increased availability of water, with less diffuse pollution,
- less pollution of the groundwater through leaching,
- systematic improvement in marine ecosystems which previously suffered from the discharge of insufficiently treated waste water,
- compliance with Directive 91/271/EEC.

The municipal rules on waste disposal apply. These require industrial waste to be pretreated before it is discharged into the general sewer system.

10. Cost and assistance (in ECU)

Total cost:	12 162 170
Eligible cost (after 7.4.1995):	12 162 170
Rate of assistance:	85%
Cohesion Fund assistance:	10 337 845

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/013

1. Name of project:

Waste-water treatment for the Costa del Sol and the Costa de la Luz, Andalusia.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de Calidad de las Aguas

3.2. Address: Paseo de la Castellana, 67. 28071 Madrid-

4. Location

4.1. Member State: Spain

4.2. Provinces: Cadiz and Granada

Autonomous Community: Andalusia

5. Description

The project involves installing the facilities needed for the treatment of waste water in certain municipalities on the Andalusian coast. This will require the following work:

Waste-water treatment plant for Motril-Salobreña

Includes the following systems:

Collection: by means of the following pipelines:

Salobreña, La Canaleta and Lobres (350 mm diameter),

Varadero and Puerto de Motril (600 mm diameter),

Motril and Torrenueva (400 mm diameter).

Waste-water treatment system: pretreatment, mixing and flocculation, initial settling (three units) biological treatment using a biological turbine reactor (three units), aeration and secondary settling.

Sludge treatment system: withdrawal of sludge from initial settling and pumping to thickening unit, withdrawal of surplus sludge for dehydration, recirculation of sludge from initial settling, thickening by gravity, anaerobic digestion, heating, dehydration, withdrawal and storage.

Waste-water treatment plant for Almuñecar

Includes the following systems:

Collection: by means of the following pipelines:
Almuñecar (800 mm diameter)
Velilla (350 mm diameter).

Waste-water treatment system: pretreatment, initial settling, biological treatment and secondary settling.

Sludge treatment system: withdrawal of surplus biological sludge and pumping for initial settling, withdrawal and pumping of mixed sludge from initial settling, aerobic digestion, dehydration using belt filters, stabilization with lime and storage.

Return of treated water: transport of treated water to the aquifer

Waste-water treatment plant for La Línea

Includes the following systems:

Collection: by means of the following pipelines:
Playa de la Atunara (700 mm diameter)
Campamento (250 mm diameter)

Waste-water treatment system: pretreatment, initial settling and disinfection (chlorination).

Sludge treatment system: recirculation of sludge from initial settling, thickening by gravity, anaerobic digestion, dehydration and storage.

6. Objectives

To build and fit out the treatment plants for Motril-Salobreña, Almuñecar and La Línea. This will reduce the pollution in the waste water from the towns in

question to acceptable levels for discharge via underwater outlets into the Mediterranean or for reuse to feed aquifers.

The basic parameters of the treatment plants are as follows:

95/11/61/013	Motril-Salobreña	Almuñecar	Línea de la Concepción	TOTAL
Current population (inhabitants)	95 000	60 000	85 000	240 000
Design population equivalent (IE)	155 000	108 000	105 000	368 000
Total average BOD ₅ on entry (mg/l)	279	323	280	
Total average BOD ₅ on exit (mg/l)	25	25	25	
Total average SS on entry (mg/l)	227	266	280	
Total average SS on exit (mg/l)	35	30	35	
Average daily volume of water (m ³ /day)	34 000	27 000	26 250	

7. Work schedule

Category of work	Commencement	Completion
Preparation of project		
Purchase of land		
Main work	1.5.1995	31.12.1997
Operational phase	1.1.1998	

8. Economic and social cost-benefit analysis

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, water rates (running costs are covered by contributions from users),
- environmental benefits,
- reuse of treated water.

The internal rate of return is 17.8% (19.53% for Motril-Salobreña; 12.71% for Almuñecar; 29.52% for La Línea).

In addition to the above figures, the project will have an impact on the economic development of the area, including the development of rural tourism, as well as increasing the well-being of the local population.

9. Assessment of environmental impact

The project will have a positive effect on the environment for the following reasons:

- compliance with Directive 91/271/EEC,
- improvement of the environment thanks to treatment to eliminate contamination in the liquid waste from human activities,
- increased availability of water, with less diffuse pollution,
- less pollution of the groundwater through leaching,
- systematic improvement in marine ecosystems which previously suffered from the discharge of insufficiently treated waste water.

The municipal rules on waste disposal apply. These require industrial waste to be pretreated before it is discharged into the general sewer system.

10. Cost and assistance (in ECU)

Total cost:	19 812 349
Eligible cost (7.4.1995):	19 812 349
Rate of assistance:	85%
Cohesion Fund assistance:	16 840 497

The total cost can be broken down as follows:

Motril-Salobreña treatment plant	7 175 816
Almuñecar treatment plant	8 618 002
La Línea de la Concepción treatment plant	4 018 531

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/014

1. Name of project:

Waste-water disposal and treatment for Campo de las Dalías, Almería.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de calidad de las Aguas (MOPTMA)

3.2. Address: Pº. de la Castellana, 67. 28071 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Almería

Autonomous Community: Andalusia

5. Description

The project involves installing the facilities needed for the treatment of waste water in Campo de Dalías in Almería.

This will require the following work:

(a) Construction of the El Solanillo waste-water treatment plant planned for Roquetas de Mar and reuse of the treated water to feed the Campo de Dalías aquifer by injection into the ground, after subjecting it to tertiary treatment by inverse osmosis.

(b) A measure similar to the above, entailing tertiary treatment by inverse osmosis of the water treated at the plant being built at El Ejido. The treated water will then be either injected for feeding the Campo de Dalías

aquifer or reused. In addition, it is planned to build another facility for the tertiary treatment by inverse osmosis and injection of the water treated by the existing plant which treats waste water from Las Norias and Santa María del Aguila.

- (c) Construction of a treatment plant for Balerma and tertiary treatment of the treated water and the water from the Blanega treatment plant, which has already been built. In total this will produce around 3 000 m³/day for reuse in feeding the aquifer.
- (d) Construction of a waste-water treatment plant for Adra, together with tertiary treatment.
- (e) Construction of treatment plants for small municipalities such as San Agustín, Berja, Dalías, Félix, La Mojonera, Puebla de Vicar, Enix and Peñarrodada.

6. **Objectives**

To build and fit out 15 treatment plants for waste water from the general collectors of the municipalities of Roquetas de Mar, el Ejido, Adra and other small municipalities of Campo de Dalías. This will reduce the pollution in the waste water from the municipalities concerned, which have a population of 261 765, to acceptable levels for its reuse for feeding the aquifer.

The basic parameters of the treatment plant are as follows:

WASTE WATER DISPOSAL FOR CAMPO DE DALIAS, ALMERIA

95/11/61/014	Adra	Berja	Castala	Peñarrodada
Current population (inhabitants)	19 900	7 000	100	250
Design population equivalent (IE)	23 400	9 000	250	350
Total average BOD on entry (mg/l)	350	350	350	350
Total average BOD on exit (mg/l)	25	25	25	25

Total average SS on entry (mg/l) (mean values)	375	375	375	375
Total average SS on exit (mg/l)	35	35	35	35
Average daily volume of water (m ³ /day)	6 960	2 000	60	100

WASTE WATER TREATMENT FOR CAMPO DE DALIAS, ALMERIA

95/11/61/014	Río Chico	Dalias	El Ejido	Sta Maria de Aguila
Current population (inhabitants)	300	3 930	26 339	14 203
Design population equivalent (IE)	350	3 930	26 339	14 203
Total average BOD on entry (mg/l)	475	475	475	475
Total average BOD on exit (mg/l)	25	25	25	25
Total average SS on entry (mg/l) (mean values)	300	300	300	300
Total average SS on exit (mg/l)	35	35	35	35
Average daily volume of water (m ³ /day)	140	880	7 827	4 632

WASTE WATER TREATMENT FOR CAMPO DE DALIAS, ALMERIA

95/11/61/014	Balerna	San Agustín	La Mojonera	Puebla de Vicar
Current population (inhabitants)	4 995	1 960	5 600	6 500
Design population equivalent (IE)	8 154	1 960	5 600	6 500
Total average BOD on entry (mg/l)	475	475	475	475
Total average BOD on exit (mg/l)	25	25	25	25
Total average SS on entry (mg/l)	300	300	300	300
Total average SS on exit (mg/l)	35	35	35	35
Average daily volume of water (m ³ /day)	2 492	582	1 680	1 940

WASTE WATER TREATMENT FOR CAMPO DE DALIAS, ALMERIA

95/11/61/014	Solanillo	Felix	Enix	Total
Current population (inhabitants)	75 000	600	250	166 927
Design population equivalent (IE)	106 686	1 200	600	208 522
Total average BOD on entry (mg/l) (mean values)	475	475	475	
Total average BOD on exit (mg/l)	25	25	25	
Total average SS on entry (mg/l) (mean values)	300	300	300	
Total average SS on exit (mg/l)	35	35	35	
Average daily volume of water (m ³ /day)	35 263	340	160	

7. Work schedule

Category of work	Commencement	Completion
Preparation of project	5.6.1993	7.2.1995
Purchase of land	10.4.1995	
Main work	31.8.1995	31.12.1998
Operational phase	1.1.1999	

8. Economic and social cost-benefit analysis

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),

- environmental benefits,
- reuse of treated water.

The internal rate of return is 8.12%

In addition to the above figures, the project will have an impact on the economic development of the area, including the development of rural tourism, as well as increasing the well-being of the local population.

9. Assessment of environmental impact

The project will have a positive effect on the environment for the following reasons:

- improvement of the environment thanks to treatment to eliminate contamination in the liquid waste from human activities,
- increased availability of water, with less diffuse pollution,
- less pollution of the groundwater through leaching,
- systematic improvement in marine ecosystems which previously suffered from the discharge of insufficiently treated waste water,
- compliance with Directive 91/271/EEC.

The municipal rules on waste disposal apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ECU)

Total cost:	32 594 272
Eligible cost (after 7.4.1995):	32 594 272
Rate of assistance:	85%
Cohesion Fund assistance:	27 705 131

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/015

1. Name of project:

Waste-water treatment plant for Murcia-East.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de Calidad de las Aguas.

3.2. Address: Paseo de la Castellana, 67. 28071 Madrid-España.

4. Location

4.1. Member State: Spain

4.2. Region: Murcia

Autonomous Community: Murcia

5. Description

The project involves installing the facilities needed for the treatment of waste water in the town of Murcia.

This will require the following work:

A waste-water treatment system involving the following processes: pretreatment, flow measurement, initial settling, biological treatment, secondary settling, recirculation of biological sludge, disinfection of the effluent using chlorine, ozone or ultraviolet and dosing of the reagents during the initial settling process.

A sludge treatment system involving the following processes: thickening of sludge from the initial settling and biological sludge, anaerobic digestion, equalizing tank for the digested sludge, dehydration, storage and disposal.

A gas treatment system involving the following processes:
 storage of gas from the digestion process in a hydraulically closing gas holder, compressors for pressurizing the gas before it enters the burner, boilers for heating the water and a chimney for burning off surplus gas.

A system for the treatment of odours and ventilation of the premises, involving the following processes: capture of contaminated air using extractors, transport to the deodorization system, chemical contact columns and evacuation to the outside.

Deodorization is planned at the following points:
 the point of arrival, lifting of the raw water, pretreatment, initial settling, sludge thickening, in the sludge storage tank, the dehydration and heating building and the pumping and sludge chambers.

6. Objectives

To build and fit out a treatment plant for waste water from the collectors of the eastern part of the town of Murcia. This will reduce the pollution in the waste water from the town, which has a population equivalent of 875 000, to acceptable levels for discharge into the river Segura.

The basic parameters of the treatment plant are as follows:

95/11/61/015	TOTAL
Current population (inhabitants)	285 015
Design population equivalent (PE)	875 000
Total average BOD ₅ on entry (mg/l)	350
Total average BOD ₅ on exit (mg/l)	25
Total average SS on entry (mg/l)	300
Total average SS on exit (mg/l)	25
Average daily volume of water (m ³ /day)	150 000

7. Work schedule

Category of work	Commencement	Completion
Preparation of project		
Purchase of land		
Main work	15.4.1994	31.12.1998
Operational phase	1.1.1999	

8. Economic and social cost-benefit analysis

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for waste disposal and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits,
- reuse of treated water.

The internal rate of return is 13.03%

In addition to the above figures, the project will have an impact on the economic development of the area, including the development of rural tourism, as well as increasing the well-being of the local population.

9. Assessment of environmental impact

The project will have a positive effect on the environment for the following reasons:

- improvement of the environment thanks to treatment to eliminate contamination in the effluent from human activities,
- increased availability of water, with less diffuse pollution,
- less pollution of the groundwater through leaching,
- systematic improvement in marine ecosystems which previously suffered from the discharge of insufficiently treated waste water,
- compliance with Directive 91/271/EEC.

The municipal rules on waste disposal apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ECU)

Total cost:	23 247 476
Eligible cost (after 7.4.1995):	23 247 476
Rate of assistance:	85%
Cohesion Fund assistance:	19 760 354

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/017

1. Name of project:

Construction of collectors and expansion of the waste-water treatment plant at Rincón de León, Alicante.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de Calidad de las Aguas

3.2. Address: Paseo de la Castellana, 67, 28071 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Alicante

Autonomous Community: Valencia

5. Description

The project involves installing the facilities needed for the treatment of waste water in Alicante. This will require the following work:

1. Replacement of the general collectors linking San Vicente and Alicante.
2. Replacement of the collector linking the commercial centre to the western collector.
3. Improvement of the San Gabriel pumping station.
4. Transporting the water from the San Gabriel pumping station to the treatment plant.

5. The pumping station of Barranco de las Ovejas.
6. Expansion and improvement of the waste-water treatment plant at Rincón de León. Demolition and rebuilding of the facilities for pretreatment, initial settling, thickening and anaerobic digestion, in particular. The treatment plant will have the following treatment systems:
 - waste-water treatment system: pretreatment, initial settling, biological treatment (activated sludge) and disinfection. Deodorization will be carried out by means of activated charcoal;
 - sludge treatment system: recirculation of sludge from initial settling, thickening by gravity, anaerobic digestion, heating of the sludge and mechanical dehydration using centrifuges.
7. Collector taking treated waste water from the treatment plant to the San Gabriel pumping station and from there to the underwater outlet channel.
8. Underwater outlet channel 500 m long for discharging the treated waste into the sea.
9. Construction of a reservoir for water intake to supply 4 hm³ per year.

6. **Objectives**

To install facilities at a plant treating the waste water from the general collectors of the municipality of Alicante. This will reduce the pollution in the waste water from the municipality, which has a population of 373 000 inhabitants equivalent, to acceptable levels for discharge into the Segura river or into the sea.

95/11/61/017	TOTAL
Current population (inhabitants)	325 000
Design population equivalent (PE)	373 000
Total average BOD ₅ on entry (mg/l)	453
Total average BOD ₅ on exit (mg/l)	30
Total average SS on entry (mg/l)	422
Total average SS on exit (mg/l)	39
Average daily volume of water (m ³ /day)	75.000

7. Work schedule

Category of work	Commencement	Completion
Preparation of project		
Purchase of land		
Main work	31.12.1994	31.12.1997
Operational phase	1.1.1998	

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments with a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits,
- reuse of treated water.

The internal rate of return is 9.62%.

In addition to the above figures, the project will have an impact on the economic development of the area, including the development of rural tourism, as well as increasing the well-being of the local population.

9. Assessment of environmental impact

The project will have a positive effect on the environment for the following reasons:

- improvement of the environment thanks to treatment to eliminate pollution caused by waste products from human activities,
- increased availability of water, with less wide-spread pollution,
- less pollution of the groundwater through leaching,
- systematic improvement in marine ecosystems which previously suffered from the discharge of insufficiently treated waste water.
- compliance with Directive 91/271/EEC,

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:	16 886 085
Eligible cost (after 7.4.1995):	16 886 085
Rate of assistance:	85%
Cohesion Fund assistance:	14 353 172

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/018

1. Name of project:

Collectors for central Asturias.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de Calidad de las Aguas

3.2. Address: Paseo de la Castellana, 67, 28071 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Asturias

Autonomous Community: Asturias

5. Description

This project involves the installation of the facilities needed for the disposal of waste water from the municipalities of El Berrón, Oviedo, Siero, Aller and Mierés, in central Asturias.

This will require the following work:

- (a) **GENERAL COLLECTOR FOR THE RIVER ALLER IN THE CAUDAL BASIN, FROM SOVILLA TO OYANCO**

The main section runs more or less parallel to the Aller river, along 6 421 m, with pipelines of 300 mm, 500 mm and 600 mm in diameter. In addition 14 connecting collectors are planned, involving a total of 9 074 m of pipeline.

(b) **GENERAL COLLECTOR FOR THE RIVER NOREÑA FROM LA FRESNEDA TO NOREÑA**

This section involves around 8 632 m of pipeline of 1 000 mm, 800 mm and 600 mm in diameter so that the water speed is always between 0.6 and 3.0 m/s. Maximum and minimum inclines are 0.4% and 0.2% respectively.

(c) **GENERAL COLLECTOR FOR THE RIVER NORA FROM LLAMARGAS TO EL BERRÓN**

The collector is 4 240 m long and consists of pipeline of 1 000 mm and 800 mm in diameter. It carries waste water from the municipalities of El Berrón in Villapérez to the treatment plant of Villapérez. The water speed is between 0.6 and 3.0 m/s. Maximum and minimum inclines are 0.29% and 0.2% respectively.

6. **Objectives**

To carry out the work and install the facilities for the three collectors which carry waste water from the municipalities of El Berrón, Oviedo, Siero, Aller and Mierés to the treatment plants of Villapérez and Baiña. This will reduce the pollution in the waste water from the municipalities in question, which have a population of 85 000 inhabitants. The collectors have the following basic parameters:

COLLECTORS IN CENTRAL ASTURIAS

95/11/61/018	Río Nora collector	Río Noreña collector	Río Aller collector	TOTAL
Current population (inhabitants)	16 297	18 075	13 170	47 542
Design population equivalent (PE)	30 000	40 000	15 000	85 000

7. **Work schedule**

Category of work	Commencement	Completion
Preparation of project	20.7.1994	25.1.1995
Purchase of land	6.6.1994	
Main work	21.11.1994	5.12.1996
Operational phase	21.11.1997	

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments with a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits,
- reuse of treated water.

The internal rate of return is 23.26%.

In addition to the above figures, the project will have an impact on the development of rural tourism, improvements in the quality of the environment, recovery of fish life and other productive activities, better river use, increase value of surrounding estates, enhanced quality of life, elimination of environmental degradation and increase in social awareness.

9. Assessment of environmental impact

The project will have a positive effect on the environment for the following reasons:

- compliance with Directive 91/271/EEC,
- improvement of the environment thanks to treatment to eliminate pollution caused by waste products from human activities,
- increased availability of water, with less wide-spread pollution,
- less pollution of the groundwater through leaching,
- systematic improvement in marine ecosystems which previously suffered from the discharge of insufficiently treated waste water.

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:	15 483 943
Eligible cost (after 7.4.1995):	15 483 943
Rate of assistance:	85%
Cohesion Fund assistance:	13 161 351

Breakdown of the aid:

River Aller collector:	5 938 160
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River Noreña collector:	5 760 120
River Nora collector:	3 785 663
(Las Llamargas-El Berrón segment)	

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/019

1. Name of project:

Sewerage for the left bank of the Avilés estuary.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de Calidad de las Aguas

3.2. Address: Paseo de la Castellana, 67, 28071 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Asturias

Autonomous Community: Asturias

5. Description

The project involves the installation of the facilities needed for the disposal of urban waste water from the left bank of the Avilés estuary.

The planned sewer system consists of a large collector and several secondary collectors to collect all the waste from the left bank of the estuary, including that from much of the municipality of Castrillón, in order to transport it to the inner harbour of the port, where it will be taken across the river.

The general collector is 5 999 m long.

6. Objectives

To install the collectors which will carry waste water from the municipality of Avilés to the planned treatment plant at Nieva. This will reduce the pollution in the waste water from the municipalities in question, which have a population of 140 000 inhabitants. The basic parameters are as follows:

SEWERAGE FOR THE LEFT BANK OF THE AVILÉS ESTUARY

95/11/61/019	TOTAL
Current population (inhabitants)	140 620
Design population equivalent (I.E.)	169 589

7. Work schedule

Category of work	Commencement	Completion
Preparation of project		
Purchase of land		
Main work	1.10.1995	31.12.1997
Operational phase	1.1.1998	

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments with a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits,
- reuse of treated water.

The internal rate of return is 44.24%.

In addition to the above figures, the project will have an impact on the development of rural tourism, improvements in the quality of the environment, recovery of fish life and other productive activities, better river use, increase value of surrounding estates, enhanced quality of life, elimination of environmental degradation and increase in social awareness.

9. Assessment of environmental impact

The project will have a positive effect on the environment for the following reasons:

- improvement of the environment thanks to treatment to eliminate pollution caused by waste products from human activities,
- increased availability of water, with less wide-spread pollution,
- less pollution of the groundwater through leaching,
- systematic improvement in marine ecosystems which previously suffered from the discharge of insufficiently treated waste water,
- compliance with Directive 91/271/EEC.

10. Cost and assistance (in ecus)

Total cost:	14 015 266
Eligible cost (after 7.4.1995):	14 015 266
Rate of assistance:	85%
Cohesion Fund assistance:	11 912 976

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/020

1. Name of project:

Waste-water treatment plant for Huelva

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de Calidad de las Aguas.

3.2. Address: Paseo de la Castellana, 67, 28071 Madrid

4. Location

4.1. Member State: Spain

4.2. Province: Huelva

Autonomous Community: Andalusia

5. Description

The project involves installing the facilities needed for the treatment of waste water in the municipality of Huelva. This will require the following work:

HUELVA TREATMENT PLANT:

The waste-water treatment system consists of pretreatment, physico-chemical treatment, initial settling, secondary settling and disinfection (chlorination)

The sludge treatment system consists of a sludge pump, aeration vat, recirculation of sludge, thickening by gravity, anaerobic digestion with energy recovery and deodorization.

6. **Objectives**

To build and fit out the plant that will treat the waste water from the collectors of Huelva. This will reduce the pollution in the waste water from the municipality, which has a population of 180 000 inhabitants equivalent, to acceptable levels for discharge via underwater outlet channels into the Atlantic Ocean.

The basic parameters of the treatment plants are as follows:

95/11/61/017	TOTAL
Current population (inhabitants)	144 008
Projected population equivalent IE)	180 000
Total average BOD ₅ on entry (mg/l)	200
Total average BOD ₅ on exit (mg/l)	25
Total average SS on entry (mg/l)	277
Total average SS on exit (mg/l)	35
Average daily volume of water (m ³ /day)	58 500

7. **Work schedule**

Category of work	Commencement	Completion
Preparation of project		
Purchase of land		
Main work	1.1.1995	30.6.1998
Operational phase	1.7.1998	

8. **Assessment of costs and socio-economic advantages**

The cost-benefit analysis was based on:

- investments with a useful life of 20 years,
- running and maintenance costs,

- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits,
- reuse of treated water.

The internal rate of return is 11.31%

In addition to the above figures, the project will have an impact on the economic development of the area as well as increasing the well-being of the local population.

9. Assessment

The project will have a positive effect on the environment for the following reasons:

- compliance with Directive 91/271/EEC,
- improvement of the environment thanks to treatment to eliminate pollution caused by waste products from human activities,
- increased availability of water, with less wide-spread pollution,
- less pollution of the groundwater through leaching,
- systematic improvement in marine ecosystems which previously suffered from the discharge of insufficiently treated waste water.

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:	22 794 059
Eligible cost (after 7.4.1995)	22 794 059
Rate of assistance:	85%
Cohesion Fund assistance:	19 374 950

**Publication of main points of decisions to grant financial assistance under Regulation
(EC) No 1164/94 establishing a Cohesion Fund**

No 95.11.61.021A

1. Name of project:

Sewerage, Madrid - 1995

2. Authority making the application

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Ayuntamiento de Madrid

3.2. Address: Barceló 6 - 28004 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Madrid

5. Description

Group of six projects relating to the deodorization of waste water to help improve the quality of the environment along the Manzanares river in Madrid.

1. Technical adjustment of the data acquisition system of waste water treatment plants in Madrid. Improvement and modification of the existing system by installing new equipment in the city council's control centre and in each of the seven waste water treatment plants. Installation of a local Ethernet network.
2. Extension of the deodorization system of the Viveros de la Villa treatment plant. Application of the system to coarse screening, sludge sieving and the filtration chamber; rearrangement of the three enclosures to achieve a satisfactory working environment for the staff without reducing the effectiveness of the deodorization process.
3. Covering of the primary settling tanks of the Viveros de la Villa treatment plant. Design and construction of the enclosures needed to insulate the tanks and prevent the escape of gases; design and installation of the devices required to extract the air from inside the tanks and treat it.
4. Construction of a biological sludge separator for the La China treatment plant.

Installation of a circular separator with a diameter of 15 m, a sludge storage tank and pump; replacement of existing sludge pumps with better quality ones; installation of a new separation line, an air injection and pressurization system, a sludge return device and the necessary electrical equipment; adjustment of pumping or digestion system and necessary ancillary works.

5. Second phase of the work to improve the environmental conditions at the La China treatment plant. Works and equipment to fully or partially eliminate the production of unpleasant odours in the areas where the pretreatment of raw waste water and anaerobic sludge digestion take place.
6. First phase in the work to improve the environmental conditions at the Butargue treatment plant. Construction of buildings to enclose the pretreatment areas (rough screening, sieving, conveyor belts and container-compacter) and insulate them from the outside. Each enclosure will be fitted with a system for the extraction of air which will subsequently require treatment.

6. Objectives

To improve and modify the data acquisition system to provide more accurate information in a shorter time.

To reduce the unpleasant odours inside treatment plants and prevent their escape into the surrounding area.

To improve sludge management.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.9.1995	31.12.1995

8. Economic and social cost-benefit analysis

The economic analysis of each of the projects was based on a 25 year period. The internal rate of return varies between 8% and 21.9%

The costs include the investments in civil engineering or equipment for each project and the running and maintenance costs.

The benefits taken into account were the environmental advantages and protection of public water resources.

9. Assessment of environmental impact

The projects are remedial in nature, aiming to improve the environmental conditions of treatment plants in Madrid by reducing the production of unpleasant odours. The data acquisition system will reduce the down time of the plants and consequently the quantity of untreated waste water discharged directly into the watercourse.

10. Cost and assistance (in ECU)
(Ecu 1 = Ptas 161.225)

Total cost: 2 013 335

Eligible costs: 2 013 335

Rate of assistance: 80%

Cohesion Fund assistance: 1 610 668

Breakdown of the aid

1. Technical adjustment of the data acquisition system of waste water treatment plants in Madrid:	380 090
2. Extension of the deodorization system of the Viveros de la Villa treatment plant:	129 012
3. Covering of the primary settling tanks of the Viveros de la Villa treatment plant:	198 480
4. Construction of a biological sludge separator for the La China treatment plant:	277 873
5. Second phase of the work to improve the environmental conditions at the La China treatment plant:	277 873
6. First phase in the work to improve the environmental conditions at the Butargue treatment plant:	347 341
TOTAL	1 610 668

**Publication of main points of decisions to grant financial assistance under Regulation
(EC) No 1164/94 establishing a Cohesion Fund**

No 95.11.61.021D

1. Name of project:

Urban waste, Madrid 1995

2. Authority making the application

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Ayuntamiento de Madrid

3.2. Address: Barceló 6 - 28004 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Madrid

5. Description

Five projects, four of which are to be carried out in Valdemingómez, where there is a municipal integral treatment plant for solid urban waste with a capacity of 1 200 tonnes/day. This facility comprises a recycling and composting plant and an energy recovery plant. The other project concerns the Migas Calientes plant.

1. Improvement and adjustment of the Valdemingómez recycling and composting unit to increase its capacity to 850 t/day.

The unit will be integrated with the existing facilities, which will be adjusted to cope with its new capacity, along with the necessary environmental improvements: separation of rain water and leachate, construction of new collecting tanks for leachate, landscaping with remodelling of buildings and embellishment of installations.

2. Improvement of composting unit of Madrid's integral treatment plant for solid urban waste.

The project concerns the treatment plant situated in Valdemingómez and involves expanding and automating the existing fermentation area and making some improvements to the compost refining system. These improvements will require the adaptation and extension of existing facilities and the installation of new equipment.

3. The automatic loading and unloading control system for Madrid's integral treatment plant for solid urban waste.

The main job of the planned system is to calculate and store information on the loads delivered by the trucks which feed the plant. It consists of entry and exit equipment, a central control unit and devices for identifying the trucks.

4. Activated charcoal treatment of flue gas at Madrid's energy recovery plant.

Inclusion in the Valdemingómez incinerator's gas treatment unit of a system for treating flue gas with activated charcoal in dust. The first step is to solve the problem of storing and mixing the two products to be injected: activated charcoal and hydrated lime dust. The second step is to inject a controlled and constant amount of the mixture into the flue.

5. Vegetable waste treatment plant at Viveros de Migas Calientes.

Construction of a vegetable waste treatment plant occupying a surfaced area of 15 314 m² including: reception and storage area, treatment area, final production and mixing area. 9 000 t/year of vegetable waste will be treated.

6. Objectives

To adapt the recycling plant to new process for selective collection at source and an increase in production.

To improve and optimize turning and fermentation in the composting process and the physical and biological quality of the compost.

Computerized data acquisition and management of access by trucks and the loads brought to the integral waste treatment plant.

To restore the tipping area.

To recover vegetable waste and use it in the production of compost.

7. Work schedule

Category of work	Commencement	Completion
Main work	7.4.1995	31.12.1996

8. Economic and social cost-benefit analysis

The economic analysis of each of the projects was based on a 15 year period.

The internal rate of return varies between 8% and 13%

The costs include the investment and running and maintenance costs.

The quantified benefits are: reduction in nuisance to those living in the area, savings in waste management, sale of byproducts (compost) and environmental advantages (reduction in bad odours, transport costs).

9. Assessment of environmental impact

The purpose of the projects is to eliminate most of the air, soil and water pollution generated by the treatment of waste, by reducing:

- the impact of fermentation odours on the environment,
- the level of emissions of mercury dioxins in flue gases.
- the disposal of vegetable wastes into the environment.

10. Cost and assistance (in ECU)

Total cost: 11 227 167

Eligible costs: 11 227 167

Rate of assistance: 80%

Cohesion Fund assistance: 8 981 733

Breakdown of the aid

1. Adjustment of the recycling and composting unit	2 472 073
2. Improvement of composting unit	4 573 980
3. Automatic loading and unloading access control system	174 167
4. Activated charcoal treatment of flue gas	355 280
5. Vegetable waste treatment plant	1 406 233
TOTAL	8 981 733

**Publication of main points of decisions to grant financial assistance under Regulation
(EC) No 1164/94 establishing a Cohesion Fund**

No 95.11.61.021E

1. Name of project:

Urban environment, Madrid. 1995.

2. Authority making the application

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Ayuntamiento de Madrid

3.2. Address: Barceló 6 - 28004 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Madrid

5. Description

This Decision concerns two projects:

1. Construction of a centre for acoustic research in Madrid.

- The centre will consist of a central building, a vehicle testing track and a platform for measuring the noise emitted by machinery in general.
- The building will have measurement laboratories for vehicles and machinery, a laboratory for maintaining and calibrating instruments, an anechoic chamber and a computerized library to centralize information.
- The entire construction has been designed with soundproofed partitions, in accordance with all the existing guidelines on the subject.

2. Restoration of run-down areas and improvement of the environment in the Casa de Campo park.

The following measures will be carried out:

- prevention of pollution in the park. To this end the springs and fountains will be decontaminated and watercourses will be cleaned;

- reforestation of areas of the park suffering from compaction and erosion. Specific measures will include the creation of drainage channels and replanting of shrubs and herbaceous plants in the affected areas;
- improvements to plants, particularly shrubs and herbaceous plants;
- installation of feeders, nesting boxes and platforms; planting of wild fruit trees and creation of small ponds;
- regeneration of the fauna by introducing cyprinids (carp, etc.), lagomorphs (rabbits and hares), sciuridae (squirrels) and anatidae (ducks, geese, swans, etc.);
- restoration of historical and environmental heritage and services;
- creation of nature trails and panoramic observation points.

6. Objectives

The two projects have different objectives:

1. For the centre for acoustic research:
 - to control the noise levels of cars, alarms, sirens, construction and public works equipment in order to reduce noise levels in the city;
 - to study the geometry of noise barriers;
 - to study and improve acoustic conditions of public transport with a view to reducing noise levels.

2. Restoration of run-down areas and improvement of the environment in the Casa de Campo park in Madrid:
 - to improve the physico-chemical and biological quality of the fountains, streams and water in circulation;
 - to reduce the risk of soil erosion;
 - to restore the area's indigenous vegetation and preserve plant formations of the greatest ecological value;
 - optimize the park's educational value;
 - to decontaminate an area of 13 400 m²;
 - to reforest an area of 2 147 512 m².

7. Work schedule

Category of work	Commencement	Completion
Main work	1.10.1995	31.12.1996

8. Economic and social cost-benefit analysis

The purpose of the cost-benefit analysis for these projects is to determine their economic profitability from the social viewpoint. Their useful life was estimated at 25 years.

The costs include the investment. Maintenance costs are estimated at 5% of the investment.

The benefits of the centre for acoustic studies are:

- protection of the population from noise pollution. Inspection capacity will be increased by around 500%. Reduction in noise emission (environmental benefit).

The social benefits of restoring the Casa de Campo park were evaluated on the basis of the cost of the trip, i.e. the time and money spent on visiting a place is considered as a reflection of the value given it by an individual. The sum of the figures collected from all the visitors represents the social value of the place.

The internal rates of return of the two projects are estimated at 11.5 and 16.2% respectively.

9. Assessment of environmental impact

The projects covered by this Decision will have a positive impact on the environment since their purpose is:

- to preserve, protect and improve the quality of the urban environment,
- to protect public health,
- to promote prudent and rational use of natural resources.

The projects will not affect any environmentally sensitive areas.

10. Cost and assistance (in ECU)

Total cost: 4 130 652

Eligible costs (after.....): 4 130 652

Rate of assistance: 80%

Cohesion Fund assistance: 3 304 522

Breakdown of the aid:

Centre for acoustic research: 811 715

Restoration of the Casa de Campo park 2 492 807

Total 3 304 522

**Publication of main points of decisions to grant financial assistance under
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ANNEX I

INFORMATION SHEET

Summary of project

No 95.11.61.022D

1. **Title**

Municipal waste in Barcelona. 1995.

2. **Body responsible for the application**

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. **Authority responsible for implementation**

3.1. Name: Ayuntamiento de Barcelona

3.2. Address: Plaza de San Miquel, s/n - 3ª planta - 08002 Barcelona

4. **Location**

4.1. Member State: Spain

4.2. Region: Catalonia

5. **Description**

A series of seven projects:

1. Technical management system for selective collection at source.

The project involves the installation of 1 500 containers for paper, glass and packaging, the installation of equipment for the automatic weighing of containers on the lorries used for collection, the purchase of mobile equipment (four lorries for packaging and four lorries for paper), fixed and control equipment, software and hardware (four units).

2. Scrubbing the gases and filtering the fumes from the Besós incinerator plant.

Gas emissions from the plant will be reduced using single-stage wet scrubbing and reheating. New installations will be built, new electro-mechanical equipment installed and existing equipment modified.

3. Collection, sorting and redespach centres for municipal waste not collected from households.

Construction of eight installations: four type-B installations, each covering an area of 2 400 m² and with a processing capacity of 6 300 tonnes per year, and four type-A installations, each covering an area of 4 500 m² and with a capacity of 12 600 tonnes per year. Ancillary work necessary for their operation.

4. Modifying and bringing into operation a municipal solid waste recycling and recovery plant.

This involves transforming the facilities by installing a new composting plant, adapting the two sorting lines at the plant for sorting the packaging collected, installing a compacting and baling line for bulky waste, a new plant for domestic waste incompatible with solid municipal waste and a plant for washing plastic and purchasing two vehicles for the collection and compacting of packaging.

5. Corrective measures at the Montcada incinerator plant.

The project involves additions to the existing installations: (a) two auxiliary burners, one in each furnace, with a nominal maximum power of 2 500 000 kcal/h each, and the relevant cooling fans, monitoring and control equipment and the necessary ancillary equipment, (b) installation of a semi-wet gas scrubbing system consisting of a reaction tower, pulverizing ramps, cooling-water system and control equipment and (c) gas analysis equipment.

6. Solid municipal waste sorting, recovery and transfer centres.

The construction, equipping and operation of 12 centres. Seven type-B centres, covering 2 275 m², will be constructed in Barcelona, Cerdanyola, S. Feliu de Llobregat, Montcada, Sr. Just D, St Vicens dels H. and St Andreu de la B. The other five will be type-C centres (4 500 m²), three of which will be sited in Barcelona, one in Badalona and one in Gavá.

7. Selective collection of packaging by means of containers located in public places.

This involves placing an estimated 2 800 "igloo" containers for domestic packaging at various points in the metropolitan area of Barcelona and

purchasing four 20 m³ capacity lorries for emptying the containers and transporting the waste to the sorting plant.

6. Aims

These vary according to the project:

1. The collection of 24 000 tonnes of waste per year.
2. Adapting the plant to reduce emissions of pollutants into the atmosphere in accordance with Community rules.
3. The collection and sorting of 75 600 tonnes of waste per year.
4. Transformation of the plant to treat 80 000 tonnes of waste per year.
5. Reducing gas emissions and thus pollution in the area.
6. The treatment of 70 000 tonnes of waste per year.
7. The collection of 35 000 tonnes of packaging waste per year.

7. Work schedule

Category of work	Commencement	Completion
Main work	7.4.1995	30.12.1998

8. Assessment of costs and socio-economic advantages

The economic analysis of the projects is based on an assumed life of 20 years, with the exception of selective collections at source, where the basis is 15 years.

The internal rate of return varies between 8.9% and 28%.

The costs include the investments planned for the achievement of the aims and the running and maintenance costs.

The advantages are the reduction of pollution, the recovery of materials, recycling (sales of materials), savings in energy and materials, improvements to the quality of life, reclamation of areas used for uncontrolled tipping and the creation of jobs.

9. Environmental impact assessment

- (a) The projects involve preventive measures to prevent waste affecting the environment. They will help to improve the management and recycling of solid waste so as to protect the environment. They will also cut back gas emissions to reduce atmospheric pollution in the area.

- (b) The projects "Scrubbing the gases and filtering the fumes from the Besós incinerator plant" and "Corrective measures at the Montcada incinerator plant" will comply with Directives 80/779/EEC, 84/360/EEC, 85/203/EEC, 88/609/EEC and 89/429/EEC.

10. Cost and assistance (in ecus)
(ECU 1 = PTA 161.225)

Total cost:	24 202 200
Costs prior to date of eligibility	155 063
Eligible cost (after 7.4.1995):	24 047 137
Rate of assistance:	80%
Cohesion Fund assistance:	19 237 708

Breakdown of the aid

		AID
1.	Technical management system for selective collection at source	347 340
2.	Scrubbing the gases and filtering the fumes from the Besós incinerator plant	8 221 554
3.	Collection, sorting and redespach centres for municipal waste not collected from households	1 488 603
4.	Modifying and bringing into operation a municipal solid waste recycling and recovery plant	1 985 300
5.	Corrective measures at the Montcada incinerator plant	2 624 900
6.	Solid municipal waste sorting, recovery and transfer centres	3 108 203
7.	Selective collection of packaging by means of containers located in public places	1 461 808
	TOTAL	19 237 708

**Publication of main points of decisions to grant financial assistance under Regulation
(EC) No 1164/94 establishing a Cohesion Fund**

No 95.11.61.022E

1. Name of project:

Urban renovation of Ciutat Vella, 1995-98. Casc Antic. Barcelona

2. Authority making the application

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Ayuntamiento de Barcelona

3.2. Address: Plaça de Sant Miquel, s/n 3a planta - 08002 Barcelona

4. Location

4.1. Member State: Spain

4.2. Region: Catalonia

5. Description

Renovation of the Casc Antic is part of the project to revitalize the historical centre of Barcelona. The purpose of the project is to renovate the urban fabric and ensure that residents are rehoused in either newly-built or renovated accommodation. The project consists of four complementary measures:

- expropriation, vacation and demolition of entire blocks (1 078 dwellings and 218 commercial premises), i.e. 124 buildings covering 75 290 m²;
- integrated urbanization with renovation of infrastructures: transition from town gas to natural gas; change-over to a 220 V electricity network; link-up to the urban water-supply network; new system of pipelines connected to waste-water treatment plants. Surfacing and lighting of green areas and new streets (28 476 m²).

6. Objectives

The project has the following objectives:

- to brighten up the urban fabric by restructuring the urban area and creating a mosaic of green spaces;

- to improve mobility in the area by introducing more pedestrian areas and cycle tracks;
- to remove physical and visual barriers by introducing a system of green spaces and pedestrian precincts at the heart of the district;
- to reduce urban congestion by reducing the density of the population and the number of parking places on the streets;
- to fully renovate all the pavements and street surfaces, the sewage network and infrastructures.

7. Work schedule

Category of work	Commencement	Completion
Purchase of land and main work	7.4.1995	31.12.1998

8. Economic and social cost-benefit analysis

The economic analysis was based on a five-year period.

The internal rate of return is 13.1%.

The costs include investments in land management and urbanization.

The environmental benefits were calculated using a method similar to the hedonic price method.

The benefits of the measure were calculated by comparing the prices of similar residences in Casc Antic and in outlying suburbs. The difference in prices shows the price component attributed to environmental value. The difference in value is multiplied by the number of dwellings in the area affected by the operation.

9. Assessment of environmental impact

The project will improve the quality of the environment in an urban area.

Opening up a large recreational area for the exclusive use of pedestrians and cyclists, will put a stop to vehicle emissions and bring about a reduction in noise levels as well as a reduction in congestion caused by traffic. In addition, the creation of squares and gardens, the planting of trees and the placing of street furniture will improve the urban landscape.

10. Cost and assistance (in ECU)
(ECU 1 = Ptas 161.225)

Total cost: 12 746 780

Eligible costs (after 7.4.1995): 12 746 780

Rate of assistance: 80%

Cohesion Fund assistance: 10 197 422

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95.11.61.023A

1. **Title:**

Disposal of waste water in the Metropolitan Area of Barcelona (1995).

2. **Body responsible for the application**

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. **Authority responsible for implementation**

3.1. Name: Area Metropolitana de Barcelona

3.2. Address: Carrer 62 n° 16-18 Edificio A. Zona franca 08040 Barcelona

4. **Location**

4.1. Member State: Spain

4.2. Region: Catalonia

5. **Description**

No 1 Improving the sewer system in calle del Rosselló between the plaza de Salvador Allende and calle de Pablo Picasso.

Municipality: Sant Boi de Llobregat

The construction and other work to be undertaken on the sewage system involves laying 168 m of 800 mm external diameter PVC pipe and five type A manholes.

No 2 Improving the sewer system and resurfacing calle del Rosselló between calle Joaquín Auger and the plaza Salvador Allende.

Municipality: Sant Boi de Llobregat

The work will basically involve laying a 51 m stretch of 80 cm diameter PVC sewer, supplying and laying 292 m of 300 mm diameter pipe and installing 21 syphon scuppers (30 cm x 70 cm) and six type A manholes.

No 3 Improving the sewer system and resurfacing calle Joan Martí between calle Antoni Gaudí and calle Eusebi Güell,

Municipality: Sant Boi de Llobregat

The construction and other work will involve supplying and laying 30 m of 60 cm diameter concrete pipe, laying 12 m of 800 mm diameter PVC pipe and installing five type A manholes and 12 syphon scuppers (30 cm x 70 cm).

No 4 Collector sewer in calle María Girona between the plaza del Ayuntamiento and the river Llobregat.

Municipality: Sant Boi de Llobregat

This project falls into two quite distinct parts:

1. Laying pipes which will replace the existing collector sewer, which is in very poor condition, and will form part of the municipal sewer system.
2. Laying a new collector sewer to take waste water from a sector of the city without such installations and carry it to the relevant interceptor sewer. A total of 200 m of 60 cm diameter PVC pipe will be laid.

No 5 Improving the sewer system and resurfacing the streets around the plaza de Cataluña.

Municipality: Sant Boi de Llobregat

The purpose of this project is to connect, in a simple and effective manner, outlets of rainwater and sewage to the municipal sewage system from which they will be carried to the Viladecans waste-water treatment plant. The work will be carried out in the streets around the plaza de Cataluña.

A single collector sewer is to be built to take both rainwater and sewage from sewers in the area covered by the project. A total of 1 748 m of 300 mm, 600 mm, 800 mm and 1 000 mm diameter pipe will be laid with 18 manholes (6 type A and 15 type B).

No 6 Improving the sewer system and resurfacing the Ronda de Sant Ramon between calle Eusebi Güell and calle de Girona.

Municipality: Sant Boi de Llobregat

This will involve constructing and laying 925 m of 30 cm, 40 cm and 60 cm diameter concrete pipe and installing eight type A manholes, 33 type A syphon scuppers and eight type B scuppers.

No 7 Improving the sewer system and resurfacing calle de Nord.

Municipality: Sant Boi de Llobregat

A single collector sewer is to be built for both rainwater and sewage from sewers in the area covered by the project. A total of 320 m of 600 mm diameter sewers will be laid and 194 m of 300 mm diameter concrete pipe. In addition, 30 syphon scuppers (70 cm x 30 cm), seven type A manholes and two type B manholes will be installed.

No 8 Disposal system and improvements in calle Canarias.

Municipality: Santa Coloma de Gramanet

The main sewer will be a 147 m long 80 cm diameter concrete pipe. Connections to private drains and scuppers will be by means of a total of 80 m of 30 cm diameter concrete pipe. The manholes will be 80 cm x 80 cm. Four 70 cm x 30 cm scuppers will be installed for the collection of rainwater.

No 9 Disposal system and improvements in Avda. Primavera.

Municipality: Santa Coloma de Gramanet

The state of the main sewer will be checked and six 80 cm x 80 cm manholes and five solid-brick syphon scuppers will be installed.

A total of 119 m of vibrated and pressed 30 cm diameter concrete pipe will be laid to provide connections to the main system.

No 10 Disposal system and improvements in calle Galceran Marquet and calle Letamendi.

Municipality: Santa Coloma de Gramanet

The existing sewer will be extended with 63 m of 60 cm diameter concrete pipe. Connections to the system will be provided by means of 14 pipes 30 cm diameter of a total length of 63 m.

No 11 Disposal system and improvements in calle Dante and calle Ausias March.

Municipality: Santa Coloma de Gramanet

The existing sewer in calle Roger de Flor will be extended into calle Dante. It will involve laying 60 m of 60 cm internal diameter concrete pipe. A new 50 cm diameter PVC sewer of a total length of 105 m will be laid in calle Ausias March.

Connections to private drains and the nine new 70 cm x 30 cm scuppers will be by means of 30 cm diameter pipes. A total of 69 m of this pipe will be laid.

No 12 Disposal system and improvements in "Barrios-95" (calle Mila and calle Fontanals).

Municipality: Santa Coloma de Gramanet

This project forms part of a series of measures entitled "Barrios-95 improvements" to be carried out in various streets of the municipality to provide basic waste-water disposal facilities. The system of scuppers needs improvement and piping is therefore required to connect to the main sewer system. A six metre length of 30 cm diameter concrete collector sewer with four syphon scuppers will be laid to connect to the main system. In total, 102 m of new pipe will be laid.

No 13 Disposal system and improvements in calle Alella, calle San José and calle San Silvestre.

Municipality: Santa Coloma de Gramanet

The project involves improvements to the system of scuppers and the laying of 8 m of 30 cm diameter prefabricated concrete piping to provide connection to the main sewer system. A total of 269 m of 30 cm x 20 cm pipe will also be laid.

Two solid-brick scuppers to collect rainwater and a number of syphon interceptors will be installed.

No 14 Disposal system and improvements in calle Beethoven and calle Camprodon.

Municipality: Santa Coloma de Gramanet

Work to widen the road will necessitate adjustments to and the extension of the system of scuppers (installation of ten 70 cm x 30 cm scuppers) and the connections to the main sewer system (laying of 31 m of 30 cm diameter pipe). In addition, 34.4 m of 800 mm diameter corrugated PVC pipe will be laid.

No 15 Disposal system and improvements in calle Aguileras.

Municipality: Santa Coloma de Gramanet

Work to widen the road will necessitate adjustments to the system of scuppers (installation of seven 70 cm x 30 cm scuppers) and the connections to the main sewer system (laying of 28 m of 30 cm diameter pipe).

No 16 Improvements to the urban environment and disposal systems in various areas in 1995.

Municipality: Santa Coloma de Gramanet

The work involves increasing the diameter of the collector sewers under two important urban thoroughfares, Av. Anselmo de Rius and Avda. Catalunya up to 150 cm and 110 cm diameter respectively. A total of 1 006 m of new pipe will be laid, 550 m at 150 cm and 456 m at 110 cm diameter.

No 17 Canalization of the "Torrente del Fondo" stream.

Municipality: Viladecans

The project is to canalize a 650 m stretch of the "Torrente del Fondo" stream.

The work consists of the construction of a corrugated steel vault leading into a reinforced-concrete channel which will carry the water to the existing river bed. The construction will not form part of the area's sewer system, from which it will only receive the overflow in peak periods.

A 600 mm diameter collector sewer of about 500 m long will be laid to solve the problem of rainwater disposal in the most historic areas of the municipality.

No 18 Canalization of the "Torrente de la Font" stream in Badalona

Municipality: Badalona

The project is for the canalization of the open stretch of the "Torrente de la Font" stream, the underground section having already been canalized. This involved changing the course of the municipal sewer which currently runs along the bed of the stream.

The channel will be 1 048 m long, 6 m wide and 1.5 m deep. In addition, 40 manholes will be installed.

No 19 Collector sewer in the C-245 between Av. Bertrán y Güell and the Riera Parets in the municipality of Gavá.

Municipality: Gavá

The 1.25 m diameter collector sewer will be of PVC. A total of 670 m of pipe will be laid, involving the removal and return of a considerable amount of earth

and the removal, replacement and extension of asphalted surfaces. A total of eight manholes will also be installed.

No 20 Outfall from the northern interceptor sewer in the municipality of Castelldefels.

Municipality: Castelldefels

Laying out and constructing an outfall from the interceptor sewer in the north of the municipality of Castelldefels. From the collector sewer, a section of pipe, which will serve as the by-pass for the future pumping station, will be laid, plus five sections of pipe (sections I to V) from the station to the sea.

Section I will be a 16 m section of pipe between the pumping station and the main road. Section II will pass under the main road and will be constructed using ten 3 m long caissons prefabricated on site. Section III will be 464 m long. Section IV, 117 m long, will run to the shore at Castelldefels. Finally, section V the final section of the collector, will be 30 m long.

No 21 Canalization of the "Torrent de Vallmajor y Velázquez" in Badalona.

Municipality: Badalona

Diversion of the waters of the "Torrent de Vallmajor" to calle Velázquez by means of a 1.5 m square section 400 m long collector sewer which will cope with the water from both catchment areas.

The collector sewer in calle Velázquez will be replaced by a 300 m long 100 cm diameter pipe. A 250 m section of the collector sewer along the N-II will be replaced by a 120 cm diameter pipe.

No 22 Work on local collector sewers.

Municipality: L'Hospitalet de Llobregat

Alterations and improvements to a series of local collector sewers throughout the city. The collectors requiring the most urgent work are located as follows: Riera del Frares, Riera de la Creu, calle Martí Codolar, calle Barcelona, calle Casanovas, calle Castelao, calle Modern, calle Natzaret, calle Renclusa, Av. Masnou, calle Pukos, calle Vallparada, calle Sant Josep and calle Farnés. The work will involve removing about 36 700 m³ of earth, laying 5 790 m of pipe of various diameters and installing 204 scuppers (70 cm x 30 cm), a 2 m square reinforced concrete double collector and 108 manholes of 80 cm diameter or larger.

No 23 Improvements to the waste-water disposal systems and repairs to the road surfaces in Pasaje del Mercat, calle Barcelona, Av. Pompeu Fabra, calle Tossa, calle Lloret, calle Tarragona and calle Empúries.

Municipality: El Prat de Llobregat

Improvement to rainwater drainage in four areas of the municipality: Pasaje del Mercat, calle Barcelona, Av. Pompeu Fabra, calle Tossa, calle Lloret, calle Tarragona and calle Empúries.

The existing collector sewer in Pasaje del Mercat will be replaced given the practical impossibility of laying a second parallel pipe. A new 630 mm diameter central collector sewer will be laid in calle Barcelona. In Av. Pompeu Fabra, the existing collector sewer under the pavement will be replaced by a new pipe under the centre of the road.

6. Aims

- Improvements to the urban waste-water disposal systems to prevent flooding.
- The installation of 17 829.4 m of pipe.

7. Work schedule

Category of work	Commencement	Completion
Main work	7.4.1995	31.12.1996

8. Assessment of costs and socio-economic advantages

The economic analysis of the projects is generally based on a life of twenty years: The internal rate of return generally varies between 8.0% and 14.4% and, in certain cases, is as high as 27.4%.

The costs include the planned investments.

The advantages were assessed by considering the aims from the widest possible point of view, selecting those which could be quantified, in accordance with the precision with which the projects are defined. In each case, an assessment of quantifiable intangible advantages and a qualitative description of unquantifiable advantages was made.

9. Environmental impact assessment

The work on waste-water disposal systems will aid compliance with Directive 91/271/EEC concerning urban waste-water treatment by improving the

disposal infrastructures of a number of municipalities and thus helping to achieve the objective of the Directive: protecting the environment from the harmful effects of waste-water discharges.

10. Cost and assistance (in ecus)
(ECU 1 = PTA 161.225)

Total cost:	15 828 699
Costs incurred before eligibility date:	14 886
Eligible cost (after 7.4.1995):	15 813 813
Rate of assistance:	80%
Cohesion Fund assistance:	12 651 050

Breakdown of the aid

PROJECTS	TOTAL AID
N°1 - Improving the sewer system in calle del Rosselló between the plaza de Salvador Allende and calle de Pablo Picasso.	27 812
N°2 - Improving the sewer system and resurfacing calle del Rosselló between calle Joaquín Auger and the plaza Salvador Allende.	24 314
N°3 - Improving the sewer system and resurfacing calle Joan Martí between calle Antonio Gaudí and calle Eusebi Güell.	18 359
N°4 - Collector sewer in calle María Girona between the plaza del Ayuntamiento and the river Llobregat.	466 096
N°5 - Improving the sewer system and resurfacing the streets around the plaza de Cataluña	168 659
N°6 - Improving the sewer system and resurfacing the Ronda de Sant Ramon between calle Eusebi Güell and calle de Girona.	73 388
N°7 - Improving the sewer system and resurfacing calle de Nord.	58 398
N°8 - Disposal system and improvements in calle Canarias.	48 514
N°9 - Disposal system and improvements in Avda Primavera.	139 869
N°10 - Disposal system and improvements in calle Galceran Marquet and calle Letamendi.	85 218
N°11 - Disposal system and improvements in calle Dante and calle Ausias March.	87 307

N° 12 - Disposal system and improvements in "Barrios-95" (calle Mila and calle Fontanals).	54 101
N° 13 - Disposal system and improvements in calle Alella, calle San José and calle San Silvestre.	92 829
N° 14 - Disposal system and improvements in calle Beethoven and calle Camprodon.	66 243
N° 15 - Disposal system and improvements in calle Aguileras.	32 590
N° 16 - Improvements to the urban environment and disposal systems in various areas in 1995.	500 543
N° 17 - Canalization of the "Torrente del Fondo" stream.	331 214
N° 18 - Canalization of the "Torrente de la Font" stream in Badalona.	1 960 589
N° 19 - Collector sewer in C-245 between Av. Bertrán y Güell and the Riera Parets in the municipality of Gavá.	318 879
N° 20 - Outfall from the northern interceptor sewer in the municipality of Castelldefels.	2 159 139
N° 21 - Canalization of the "Torrent de Vallmajor y Velázquez" in Badalona.	2 046 169
N° 22 - Work on local collector sewers.	3 438 673
N° 23 - Improvements to the waste-water disposal systems and repairs to the road surfaces in Pasaje del Mercat, calle Barcelona, Av. Pompeu Fabra, calle Tossa, calle Lloret, calle Tarragona and calle Empúries.	452 147
TOTAL	12 651 050

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95.11.61.023E

1. Title:

Urban environment in the Metropolitan Area of Barcelona. 1995.

2. Body responsible for the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Authority responsible for implementation

3.1. Name: Area Metropolitana de Barcelona

3.2. Address: Carrer 62 n° 16-18 Edificio A. Zona franca 08040 Barcelona

4. Location

4.1. Member State: Spain

4.2. Region: Catalonia

5. Description

A series of four projects as described below.

1. Turó Caritg Park (Phases II and III)

Municipality: Badalona

Laying out a city park in a run-down area.

The project is being implemented in three phases.

Work has already been carried out in the first area and no funding is being applied for.

The second phase will involve work in the highest of the areas, a piece of woodland at the junction of Avenida Caritg and Calle Pere Martell. The work will involve the reforestation and environmental rehabilitation of a very degraded piece of public land. It is planned to reforest 9.5 ha with 6 000 trees.

The third area, lying on a hill to the north-east, is more urbanized and consists of a series of terraces.

2. Rehabilitation of the bed and banks of the "Riera Major"

Municipality: Cerdanyola del Vallés

The work involves moving earth, planting, a small amount of canalization and work to lay out a city park (gardening, pathways, lighting, seating). Around 20 ha will be reforested with a range of trees and shrubs. Access will be made difficult to an area extending to about 30 m from the banks to protect the biological processes of the riverside and aquatic species to be planted there.

3. Reclamation and restoration of the stretch of the River Llobregat running through the municipality of Cornellà de Llobregat.

Municipality: Cornellà de Llobregat

The work will be carried out along a two kilometre stretch of the river over an area of approximately 16 ha.

The work will have two objectives:

- (a) To improve the use made of environmental resources and stop the degradation of nature and the landscape.
- (b) To improve access to the site and its integration in the surrounding urban environment so that the recreational areas thus reclaimed will complement those already existing throughout the city.

4. Layout and integration of an area lying between the upper and lower parts of Cornellà de Llobregat.

Municipality: Cornellà de Llobregat

The work will be carried out over a total area of 117 799 m², although it is estimated that the work will have an impact on more than 34 ha. The aim of the project is the conversion of a very run-down area of the city of Cornellà de Llobregat into a large green area, including a zone of public facilities, in accordance with a special land-use plan, to permit the linking of two very important areas of the city which are currently cut off from each other.

The area has been divided into four zones according to the improvements to be carried out:

- Zone 1 (40 788 m²): consolidation, improvement and extension of the built-up area around Torre de la Miranda.
- Zone 2 (4 224 m²): passage under the railway line and new direct access to the station and Can Mercader Park from San Ildefonso.
- Zone 3 (38 787 m²): new lay-out of the area between the extension of Avenida Salvador Allende and the second ring-road and the football stadium.
- Zone 4 (34 000 m²): the work to be carried out in this area concerns the long stretches between the railway line and the rear of Can Mercader Park.

6. Aims

- To reclaim natural areas, improving the environment, eliminating existing risks, removing eyesores and reducing the impact of certain infrastructures.
- Reclamation of a total of 549 699 m².

7. Work schedule

Category of work	Commencement	Completion
Main work	15.1.1995	31.12.1999

8. Assessment of costs and socio-economic advantages

In order to calculate the costs and advantages, an analysis was made of the objectives of each project.

Cost were calculated on the basis of the information contained in the project descriptions, plus maintenance and running costs where appropriate.

The advantages were assessed by considering the aims from the widest possible point of view, selecting those which could be quantified, in accordance with the precision with which the projects are defined. In each case, an assessment of quantifiable intangible advantages was made and a qualitative description of unquantifiable advantages given.

The period of return varies from project to project.

The internal rate of return varies from 9.7% up to, in one case, more than 50%.

9. Environmental impact assessment

- (a) The reclamation of natural areas will have a positive environmental impact. The group of projects ties in perfectly well with the objective of improving the urban environment set out in the Green Paper on the Urban Environment, its ultimate objective being to create attractive surroundings for the inhabitants of towns and cities and to reduce the contribution made by towns and cities to overall pollution.
- (b) The projects for the rehabilitation, reclamation and restoration of the stretch of the River Llobregat in the municipality of Cornellà de Llobregat and the rehabilitation of the bed and banks of the "Riera Mayor" will proceed on the basis of an undertaking by the competent authorities to consider the rehabilitated areas as public areas which cannot be built upon.

10. Cost and assistance (in ecus)

(ECU 1 = PTA 162.323)

Total cost:	13 896 365
Eligible cost (from 7.4.1995):	13 896 365
Rate of assistance:	80%
Cohesion Fund assistance:	11 117 091

Breakdown of the aid

	AID
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1) Turó Caritg Park (Phases II and III)	4 581 975
2) Rehabilitation of the bed and banks of the "Riera Major"	2 612 075
3) Reclamation and restoration of the stretch of the River Llobregat running through the municipality of Cornellà de Llobregat.	492 844
4) Layout and integration of an area lying between the upper and lower parts of Cornellà de Llobregat.	3 430 197
TOTAL	11 117 091

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/025-2

1. Title:

Management of solid municipal waste. 1995. Waste recycling in Bilbao.

2. Body responsible for the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Authority responsible for implementation

3.1. Name: Ayuntamiento de Bilbao

3.2. Address: Plaza Ernesto Erkoreka, s/n Bilbao.

4. Location

4.1. Member State: Spain

4.2. Region: The Basque Country

5. Description

The Artigas rubbish tip in Bilbao serves 700 000 inhabitants. The principal aim of this waste-recycling plan is the recovery of materials delivered to the tip for subsequent reuse. More specifically, the plan is for the recycling of plastic, ferrous metals, paper and cardboard. This will be carried out on the premises of the current treatment plant at the Artigas tip. The new recovery plant will be built beside the current plant, fed from a by-pass leading from the conveyor which now carries waste to the tip. After the waste has been diverted, ferrous metals will be recovered using an electro-magnet. The waste will then be separated in a trommel and other materials recovered by sorting on conveyor belts. Finally, the recovered materials will be carried by conveyor belts to a hopper feeding a self-tying baling press. The material will then be ready for dispatch.

The remaining waste will return to the conveyor belt for tipping.

6. Aims

- To permit the recovery of 210 000 tonnes per year of plastic, ferrous metals, paper and cardboard for subsequent reuse.
- To permit the reuse of materials not sorted at the point of collection and to extend the life of the tip.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.10.1995	31.5.1996

8. Assessment of costs and socio-economic advantages

The purpose of the cost-benefit analysis of the project is to determine its economic profitability bearing in mind its social advantages. The plant is assumed to have a life of 15 years.

The costs include investments in various areas (construction work, equipment, engineering work, etc.).

The advantages are a reduction in pollution resulting from effective treatment of waste, reclamation of land for other uses, reduction of the cost of waste management by the introduction of recycling and savings in raw materials and energy.

The economic rate of return will be 16.92%.

To the above advantages must be added other unquantifiable social benefits.

9. Environmental impact assessment

- (a) The project will have a positive effect on the environment. The measures will correct environmental problems and improve the environment by eliminating waste, protect water and soil by reducing the risks of pollution and promote the rational use of the natural resources recovered by selective collections and recycling.

The project will have no impact on any environmentally sensitive area and contains measures to correct any environmental damage caused by the work for its implementation.

- (b) The competent authorities will have to send toxic and dangerous waste without delay to a suitable plant for treatment.

10. Cost and assistance (in ecus)
(ECU 1 = PTA 162.323)

Total cost:	1 169 888
Eligible cost (after 7.4.1995):	1 169 888
Rate of assistance:	80%
Cohesion Fund assistance:	935 910

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/027

1. **Title:**

Drinking-water supply works

2. **Body responsible for the application**

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. **Authority responsible for implementation**

3.1. Name: Dirección General de Obras Hidráulicas (MOPTMA)

3.2. Address: P^o de la Castellana, 67 - 28071 Madrid

4. **Location**

4.1. Member State: Spain

4.2. Region: Andalusia, Aragon, Castile-La Mancha and Murcia

5. **Description**

A set of 13 projects to supply water to various communities affected by serious and permanent drought in the provinces of Guadalajara, Huelva, Murcia, Málaga, Cuenca and Teruel.

The main details of each project are described below

1. Supply to Pezuela de Santorcaz el Pozo de Guadalupe and Pioz.

It is planned to build a branch conduit to alleviate the pressing need of Pezuela de las Torres for drinking water. The work involves the installation of 6 496 m of pipeline to increase the supply by 7 l/s. Vents and drains will also be fitted, together with their corresponding valves. The water will be channelled into the urban reservoir of the community concerned.

2. Supply to Zalamea la Real and Riotinto.

Connection of the Chanza-Piedras system, which supplies the southern part of Huelva province, to the system supplying the mining district of Huelva, in order to remedy the water shortage caused by the drought.

The project consists of laying pipelines and installing the necessary pumping stations between Valverde del Camino and the Riotinto drinking-water treatment plant.

- 300 mm diameter pipeline: 8 000 m
- vents 13 units
- valves 7 units

3. Supply to the Huelva mining basin pumping station

Expansion of the pumping capacity of the conduit from the Chanza-Piedras system. The existing pumps in the Trigueros and Beas lifting stations will be replaced.

A new pumping station will be built in Valverde del Camino to pump water to Zalamea la Real and Riotinto.

- | | |
|--|-----------------------------|
| - Trigueros pumping station: | Pumps: 3 |
| | Flow: 153 m ³ /h |
| | Hm: 120 m |
| - Beas pumping station: | Pumps: 3 |
| | Flow: 153 m ³ /h |
| | Hm: 140 m |
| - Valverde del Camino pumping station: | Pumps: 3 |
| | Flow: 100 m ³ /h |
| | Hm: 189 m |

4. Supply to Campo Cartagena western zone, Canteras reservoir

- Construction of a 10 000 m³ circular reservoir in reinforced concrete.
- Installation of 746.56 m of asbestos cement pipeline with a diameter of 400 mm, buried in a trench, between the Cartagena canal and the above-mentioned reservoir.

5. Supply to Campo Cartagena western zone, La Aljorra pumping facilities

- Pumping station to transport water from the new Cartagena canal, with three motor pumps (2-1), each with a flowrate of 315 l/s at 65 m and a 220 hp motor.
- 3.8 km of pressure pipeline 700 mm in diameter, all in asbestos cement except for 200 m in ductile iron.

- 10.000 m³ rectangular equalizing reservoir in reinforced concrete. The reservoir will act as the end of the circuit.

6. Supply to Campo Cartagena F2, conduits and branches

Installation of the following pipelines (buried in trenches):

- 7.95 km and 500 mm in diameter, from the Canteras reservoir to La Guía. This is the general conduit.
- 2.14 km, 300 mm in diameter and 5.77 km, 250 mm in diameter, from the end of the general conduit to connect to the existing branch supplying La Palma and La Aparecida. This is branch 1.
- 3.4 km, 450 mm in diameter; 4.1 km, 300 mm in diameter; 5.33 km, 250 mm in diameter; 5.12 km, 200 mm in diameter, from the end of the general conduit to connect to the La Aljorra pressure pipe and ending at the supply conduit for La Palma, closing the circuit with branch 1. This is branch 2.
- 0.5 km, 100 mm in diameter, from the general conduit to La Guía. This is branch 3.
- 1.25 km, 250 mm in diameter, from branch 2 to Pozo Estrechô. This is branch 4.
- All the pipelines are of asbestos cement, except for 1.15 km of ductile iron and the pipes in shafts (some 0.25 km), made in plate.

7. Supply to Campo Cartagena eastern zone, conduit for southern zone of Mar Menor, Cabezo Beaza Beal section.

- Pumping station to transport water from the Cabezo Beaza reservoir, with three motor pumps (2 + 1), each with a flowrate of 200 l/s at a manometric head of 24 m and a 100 hp motor.
- 13.3 km of asbestos cement conduit 600 mm in diameter, to the El Beal reservoir.

8. Supply to Campo Cartagena eastern zone, expansion of the La Guía syphon and initial construction works.

- Installation, buried in a trench, of 8.99 km of reinforced concrete pipeline with a plate core, 1 000 mm in diameter, between the new Cartagena canal and the El Cabezo Beaza reservoir.

9. Supply to Campo Cartagena eastern zone, Connection between Cabezo Beaza and the Alumbres reservoir.

- Pumping station to take water from the El Cabezo Beaza reservoir, with three motor pumps (2 + 1), each with a flowrate of 450 m³/h at 16 m and a 50 hp motor.

- 5.8 km of pressure pipe, 600 mm in diameter, almost entirely in asbestos cement, leading to the Alumbres reservoir of the *Mancomunidad de los Cánales del Taibilla*.

10. Supply to communities in the province of Málaga

This project involves the following work:

- Alozaina: installation of a bore hole and conduit to supply Jorox;
- Almachar and El Borge: deepening and adjustment of the intake well in the Benamargosa river;
- Casabermeja: catchment and conveyance of water from the Puerto de las Pedrizas area;
- Colmenar: catchment and conveyance of water from El Hundidero;
- Jimena de Librar: Improvement of supply and protection wall on the Guadiaro river;
- Málaga: vaulting of stream in the Calle Conde de Lemos.

11. Filtering at the Viñuela reservoir for the eastern Costa del Sol

Treatment of raw water at a rate of 1 200 l/s from the Viñuela dam by installing seven sand pressure filters and adding reagents, for the supply of the eastern Costa del Sol.

12. Catchment and conduits for the supply of drinking water to Minglanilla.

Measures to supply water to the community of Minglanilla: workover of a well 400 mm in diameter and 300 m deep. Installation of an 86 hp pump powered by a 150 kVA power unit, laying of a medium voltage line over 100 m and a low voltage line over 96 m; installation of a 160 kVA transformer; laying of a pipeline 200 mm in diameter.

13. Catchment and additional conduits for the supply to Teruel.

This involves:

- catchment of water,
- conduits to provide additional supply to the town of Teruel:

Materials required:

- 4 068 m of pressure pipeline for water,
- 691 m of drilling for wells and reconnaissance wells,
- two transforming centres,
- six centrifugal pumps for transporting water.

6. Aims

All of the measures in this set of projects are included in the preliminary drafts of the Water Plan for Cuenca and the National Water Plan, thereby ensuring consistency with the national water strategy.

The main objectives of this set of projects are:

- to supply drinking water to 340 100 people suffering the effects of drought,
- to build an infrastructure consisting of 93 868 m of conduits and various pumping stations and other ancillary facilities necessary for the supply of water and the sustainable development of the area,
- to improve the urban water supply,
- to improve water quality,
- to improve the health conditions and quality of life of the population concerned,
- to increase the availability of water through rational and coordinated use,
- to improve the management and use of water.

The specific objectives of the set of projects are as follows:

	POPULATION SUPPLIED	M ³ /DAY
Supply to Pezuela de Santorcaz el Pozo de Guadalajara and Pioz, Guadalajara	1 500	605
Supply to Zalamea la Real and Riotinto, Huelva	23 000	
Supply to the Huelva mining basin pumping station, Huelva	22 000	9 744
Supply to Campo Cartagena western zone, Canteras reservoir, Cartagena	170 000	250 128
Supply to Campo Cartagena western zone, La Aljorra pumping facilities, Cartagena		
Supply to Campo Cartagena F2, conduits and branches, Cartagena		
Supply to Campo Cartagena eastern zone, conduit for southern zone of Mar Menor, Cartagena		
Supply to Campo Cartagena eastern zone, expansion of the La Guía syphon and initial construction works, Cartagena		
Supply to Campo Cartagena eastern zone, connection between Cabezo Beaza and the Alumbres reservoir, Cartagena		
Supply to communities in the province of Málaga, Málaga		

Filtering at the Viñuela reservoir for the eastern Costa del-Sol, Málaga	70 000	103 680
Catchment and conduits for the supply of drinking water to Minglanilla, Cuenca	3 000	
Catchment and additional conduits for the supply to Teruel, Teruel	35 000	12 960
TOTAL	324 500	377 117

7. Work schedule

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. Assessment of costs and socio-economic advantages

It is not always possible to obtain directly the data needed to carry out a cost-benefit analysis on a set of projects like these. Some of the data have therefore had to be determined indirectly on the basis of certain criteria or initial premises.

In identifying the costs, account was taken of:

- investment costs, the figures for which are included in the information in the projects;
- operating costs, including all the costs arising from the use of the infrastructures in question as well as the costs of equipment with a lifespan shorter than that of the project.

In identifying the benefits, account was taken of the value of damages or costs avoided and of the goods and services made available to the communities in question as a consequence of the project.

The following benefits were identified:

- availability of water with service guaranteed,
- improvement in water quality,
- reduction in over-exploitation of aquifers.

The internal rate of return for the project is 212.66% (Pezuela: 29.30%; Zalamea: 100.67%; Huelva mining basin: 100.58%; Campo de Cartagena: 137.57%; Málaga province: 182.49%; eastern Costa del Sol: 833.67%; Minglanilla: 22.39%; Teruel: 92.28%.)

9. **Environmental impact analysis**

1. In view of the definition and objectives of this set of projects, it will contribute to:
 - the conservation, protection and improvement of the quality of the environment,
 - water management.
2. These measures will provide drought-stricken communities with the infrastructures needed to improve their quality of life.
3. This set of projects will have basically palliative effects, since the damage caused by the drought in recent years has obliged the Spanish government to attend to the urgent needs caused by it. At the same time, these measures will make it possible to prevent such situations of scarcity arising in the future.
4. All the measures in this set of projects must concern water for domestic use.

Compliance with Directive 75/442/EEC on the quality of surface water. This set of projects also complies with the guidelines set out in Directives 85/337/EEC, 80/778/EEC, 74/440/EEC and 79/869/EEC.

10. **Cost and assistance (in ecus)**

Total cost:		14 046 069
Eligible cost (after 11.4.1995):	14 046 069	
Rate of assistance:	85 %	
Cohesion Fund assistance:	11 939 158	

Breakdown of costs by project

PROJECT	ELIGIBLE COST
Supply to Pezuela de Santorcaz el Pozo de Guadalajara and Pioz, Guadalajara	272 449
Supply to Zalamea la Real and Riotinto, Huelva	810 729
Supply to the Huelva mining basin pumping station, Huelva	811 345
Supply to Campo Cartagena western zone, Canteras reservoir, Cartagena	461 425
Supply to Campo Cartagena western zone, La Aljorra pumping facilities, Cartagena	1 081 793

Supply to Campo Cartagena F2, conduits and branches, Cartagena	1 980 619
Supply to Campo Cartagena eastern zone, conduit for southern zone of Mar Menor, Cartagena	1 641 172
Supply to Campo Cartagena eastern zone, expansion of the La Guía syphon and initial construction works, Cartagena	1 896 835
Supply to Campo Cartagena eastern zone, connection between Cabezo Beaza and the Alumbres reservoir, Cartagena	1 048 526
Supply to communities in the province of Málaga Málaga	271 064
Filtering at the Viñuela reservoir for the eastern Costa del Sol, Málaga	1 811 203
Catchment and conduits for the supply of drinking water to Minglanilla, Cuenca	425 078
Catchment and additional conduits for the supply to Teruel, Teruel	1 533 978

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/028-1

1. Name of project:

Water supply in areas affected by drought in the catchment areas of southern Spain and the Guadalquivir.

2. Authority making the application

- 2.1. Name: Dirección General de Planificación
- 2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Body responsible for implementation

- 3.1. Name: Dirección General de Obras Hidráulicas (MOPTMA)
- 3.2. Address: Paseo de la Castellana 67, 28071 Madrid

4. Location

- 4.1. Member State: Spain
- 4.2. Region: Almería, Granada, Córdoba, Málaga and Seville
Autonomous Community: Andalusia

5. Description

PROJECTS IN THE CATCHMENT AREA OF SOUTHERN SPAIN

Projects in the province of Almería

Owing to the persistence of the drought, the work to supply water to the communities concerned by the projects described hereafter is considered emergency work.

5.1 Water supply to Roquetas de Mar

The urban centres on the coast of Almería (Roquetas de Mar and Aguadulce) are currently supplied by wells. This source of water is on the verge of

drying up because of its continual use as an available resource in view of the drought. The infrastructures needed to solve the supply problem must therefore be built.

The project involves the construction of:

a reservoir, with a capacity of 10 000 m³, made up of two basins measuring 40 m x 30 m x 4.25 m with straight walls of reinforced concrete H-200, 0.35 m thick and pillars of 0.30 x 0.30 m, spaced at intervals of 5 m x 5 m, to support the cover made of precast girders of reinforced concrete;

conduit from Roquetas to Aguadulce: two sections of pipeline made of ductile cast iron 400 mm in diameter, buried in a trench filled with selected excavation materials, covered and protected by a layer of sand:

Section 1 has an overall length of 432 m and connects the reservoir at the end of the Beninar-Aguadulce conduit with the Aguadulce equalizing reservoir. It includes two valves with elastic seals, 300 mm in diameter for connections to the Aguadulce system.

Section 2 has an overall length of 6 352 m and extends the final section of the existing conduit which will connect the Aguadulce and Roquetas equalizing reservoirs. The work includes the installation of eight shafts for bypasses, seven for air vents, and four for drains, together with five hydrants, as well as providing for future connections with the installation of a pressure reducing valve.

5.2 Water supply for Cabo de Gata (Almería).

The current drought has worsened the already precarious water supply to the town of Cabo de Gata, which depends mainly on wells. This project will therefore solve a particularly critical water-supply problem, especially in the summer.

The work involves expanding the existing desalination plant by adding a new reverse osmosis treatment system with an additional capacity of 500 m³/day.

Installing the drinking-water plant will have no negative effects on the environment. The improved water supply will enhance general living conditions and prevent over-exploitation of the wells, which are currently in danger of drying up.

5.3 Third system for the water purification plant at Bajo Almanzora (Almería).

Analysis has found the water from the Cuevas de Almanzora reservoir to contain sulphate levels (937 mg/l) which do not comply with European

standards. The reservoir must supply water to 120 000 inhabitants, so the construction of the drinking-water plant is both necessary and urgent.

In order to treat a maximum volume of 30 000 m³/day it is planned to supplement the two treatment lines included in the project to build a purification plant for water from the Bajo Almanzora reservoir with a third line consisting of 128 pressure tanks and 768 membranes, able to treat a daily volume of 10 000 m³ of water, reducing levels of sulphate (SO₄) from 937 to 250 mg/l and magnesium (Mg) from 682 to 50 mg/l.

Work also includes the necessary connections and a raw water pumping station as well as electric connections, inspection facilities and the necessary instrumentation.

5.4 Reservoir and conduits in districts of Los Guiraos and Guazamara (municipality of Cuevas de Almanzora) (Almería).

The current drought has worsened the already precarious water supply to numerous villages which depend mainly on wells. This project will therefore solve a particularly critical water-supply problem.

The work involves laying a series of pipes and secondary conduits in PVC with internal diameters of 110 and 60 mm, buried in trenches, over a distance of 1 000 m to supply water to districts of Los Guiraos and Guazamara, in the municipality of Cuevas de Almanzora.

Work includes connections to the general supply system as well as special parts and accessories.

5.5 Reservoir and conduits in Palomares and Terreros (municipality of Cuevas de Almanzora) (Almería).

The worsening drought has aggravated the situation in many villages. An urgent solution is needed to their water-supply problems.

The work involves supplementing the measures included in the project to install conduits for the supply of water to the communities of Bajo Almanzora:

- a) a cast iron pipeline 3 500 m long, with an internal diameter of 250 mm, to the Terreros reservoir (Pulpí), with special fittings;
- b) a concrete equalizing reservoir for the official collection system, with a capacity of 500 m³ for Pozo Esparto and Cala Panizo in the municipality of Cuevas de Almanzora;
- c) a ductile iron pipeline 3 200 m long, with an internal diameter of 150 mm, to the Palomares reservoir, with special fittings;
- d) connection to the general distribution system.

5.6 Water supply for Garranchuelo and Santa Cruz (municipality of Gador) (Almería).

The work includes:

- installing a water distribution system consisting of low-density polyethylene pipes with a diameter of 90 mm;
- installing domestic water-supply connections;
- extending the distribution system from the Plaza de la Constitución to the end of Calle Canalejas, using PVC tubing with an external diameter of 160 mm and elastic joints;
- placing a set of 27 valves with elastic seals at strategic points in the municipal system to improve service;
- adapting the water conveyance systems converging on the Plaza de la Constitución;
- replacing all the services affected by the work.

Projects in the province of Granada

The critical drought in the province of Granada has caused serious water shortages for many small communities because water sources which supplied them have been exhausted. These municipalities are on red alert and urgently need a solution to their supply problem, because the over-exploitation of the wells and the depletion of surface resources means that not even minimum supplies can be ensured.

5.7 Izbor-Los Acebuches. Water-supply conduits for the municipalities of Acebuches (Granada)

This project will ensure the supply of water to a population of 1 750.

Work entails:

- 4.5 m of 100 mm diameter cast-iron pipeline from the base of the Beznar dam to the Izbor reservoir and improvement of the conduit from Izbor to Los Acebuches by placing 1 m of 75 mm diameter pipeline;
- a pump unit with a capacity of 10 l/s.

5.8 Equalizing reservoir for the water supply to the villages of the Barranco del-Porteira: Capilera, Bubion and Pampaneira (Granada).

The 6 200 inhabitants of these villages will be supplied with water thanks to this new infrastructure.

The project involves:

- construction of a reinforced concrete equalizing reservoir with an approximate capacity of 2000 m³ beside the Los Lugares intake at Capileira.

- installation of a water distribution system using 4 km of PVC piping 110 mm in diameter.

5.9 Equalizing reservoir for the water supply to La Taha: Pitres, Capilerilla, Mecina, Ferreirola, Atalbeitar, Portugos (Granada).

The 4 500 inhabitants of these villages will be supplied with water thanks to this new work, which involves the construction of an equalizing reservoir with a capacity of 25 000 m³ at La Haza del Cerezo (Pitres).

5.10 Equalizing reservoir for the water supply to the municipalities of Busquistar and Trevezal (Granada).

The municipalities affected by this measure have a population of over 1 400, and three times that number in the summer season, so that next summer there will be a water-supply crisis.

The project entails supplying drinking water to Busquistar and Trevezal by building an equalizing reservoir.

5.11 Adaptation of the reservoir for the municipalities of Vélez Benaudalla.

In the summer months, this project will supply water to a population of 5 000.

The purpose of the project is to improve the water supply to Vélez de Benaudalla, by installing a conduit made up of 2.5 km of PVC piping 250 mm in diameter and ancillary equipment for the existing reservoir and covering the reservoir in order to ensure the quality of the water.

5.12 Water supply to the municipalities of Murtos and Turón (Granada).

The population concerned by this project (1 650 persons), is currently supplied by tankers.

The work involves:

- the construction of a conduit 17 820 m long to supply these two communities, which have serious supply problems, with water from the Trevezal river. The conduit will consist of the following sections:
 - 13 481 m of ductile iron pipe 150 mm in diameter,
 - 3 013 m of ductile iron pipe 80 mm in diameter,
 - 1 326 m ductile iron pipe 60 mm in diameter.
- the related facilities: 7 intakes for surrounding hamlets.

5.13 Water supply to Notaez (Granada).

This project concerns a small village with absolutely no water, which urgently needs a solution to its supply problem.

Work involves:

- building a conduit 4 450 m long, with an external diameter of 110 mm, to bring in water from Almegijar;
- related facilities: two 4 hp pumps.

5.14 Equalizing reservoirs for the municipalities of Laroles and-Castaras (Granada).

This project involves the water supply to a population of 1 500 in a critical situation.

The reservoirs have a capacity of 12 000 m³ and are concrete coated. They will partially equalize the irregular flow from the tributaries on the right bank of the Guadalfeo. Water from this source will be used to replenish supply and then drained off and conveyed by conduits in PCV, 200 mm and 125 mm in diameter.

5.15 Lifting water from the canal at 100 m above sea level to the municipality of Molvizar (Granada).

This project will supply water to a population of 950. It involves installation of:

- a pumping station to lift water from the Molvizar reservoir at an altitude of 100 m to Molvizar and Itrabao.
- 1 300 m of pipeline to lift water to the treatment plant.
- a water-wheel.

Projects in the province of Málaga.

Projects on the eastern Costa del Sol

The communities of the eastern Costa del Sol, between Rincón de la Victoria and Nerja, on the border between the provinces of Málaga and Granada, are supplied by wells where the ground water is overexploited and salted by sea water.

This area is particularly densely populated during the summer, when there can be 350 000 inhabitants. The drinking-water supply is uncertain and so needs an infrastructure to solve the problem definitively.

5.16 Viñuela-Málaga connection (municipality of Vélez Málaga) (Málaga)

Installation of a pipeline 800 mm in diameter between the Toro reservoir (Torre del mar) and the Jaboneros reservoir (Málaga) over a distance of 28 km. All kinds of special parts, including connections with the eastern Costa del Sol pipeline. The project includes resurfacing the roadway, replacing services, paths, etc.

The project will supply drinking water to the eastern Costa del Sol and the city of Málaga.

5.17 Trafiche drinking-water plant for the supply of the coast between Rincón de la Victoria and Nerja (Vélez Málaga)

Owing to the critical situation of the eastern Costa del Sol, there is an urgent need to build a drinking-water plant to treat water from the Viñuela reservoir and channel it to the existing supply systems.

This will involve the addition to the existing facilities of five pressure filters and all the related valves and fittings, a system for air washing and draining off wash water, as well as devices for automatic operation. In addition the plant will be landscaped, an operation and control room will be built and 200 m of piping laid.

5.18 Water supply for Rincón de la Victoria - Torre del Mar.

The project involves laying 2.135 m of 1.200 mm diameter steel pipeline at the beginning of the eastern supply network of the Plan Guaro and 1.600 m of 400 mm diameter cast iron pipeline for connection to the El Romeral reservoir and from there to the existing network of Vélez-Málaga. The project includes the replacement of services, road resurfacing and installation of valves and fittings.

5.19 Water supply for Vélez Málaga-Rincón de la Victoria.

This project, like the preceding ones, is designed to solve the problem of drinking-water supply to the eastern Costa del Sol.

Work includes:

- the replacement of defective portions of pipeline of different types and diameters over 4.000 m of the existing conduit between Torre del Mar and Rincón de la Victoria via communities administratively dependent on Vélez Málaga;
- the repair of defective connections to the Viñuela system (Plan Guaro);
- the construction of an equalizing reservoir at Rincón de la Victoria with a capacity of 2000 m³ and the installation of 250 mm diameter pipelines connecting it to the distribution network.

5.20 Filtering facilities for Viñuela.

This project complements the preceding ones and also plays a role in supplying drinking water to the eastern Costa del Sol.

It involves the additional work necessary to ensure the smooth operation of the existing filtering plant (pressurization of filters, preparation of valley for laying conduits) as well as eight complete connections to the Vélez Málaga network (pressure valve, flow valve, shut-off valve, ventilation systems, inspection shafts, etc).

Drinking-water supply for several localities in the province of Málaga.

Because of the serious drought affecting southern Spain, small communities are facing intolerable drinking-water shortages. Communities in the province of Málaga are among the most seriously affected.

The proposed water conveyance works are those which are strictly necessary to meet the needs of the population, improve the quality of the water supply and cope with future shortages.

The sole purpose of the projects described hereafter is to improve and guarantee the supply of water to the inhabitants of these seriously affected communities.

5.21 Water supply to the municipality of Casabermeja (Málaga).

This project will supply water to a population of 3 700 by installing 10 km of supply pipeline.

It includes installation of special parts (valves, drains, manholes, road crossings, etc).

5.22 Water supply to Pizarra and Cartama (Málaga).

The project will supply drinking water to a population of 14 500 by installing a pumping station and the necessary connecting pipelines (2 300 m) to a prefabricated reservoir. The project also involves the installation of electrical equipment.

5.23 Conduit for Campillos (Málaga)

The project will concern a population of 7 600. Work consists in placing 4 400 m of distribution conduits in the Moheda area.

5.24 Water supply to Alcaucín and Periana.

Completion of the water-supply works for small hamlets in Alcaucín and Periana, i.e. a population of 1 700, involving the laying of 2 000 m of conduit, including special parts, valves, drains, etc.

5.25 Water supply to Moclinejo and Macharaviaya (Málaga).

This project will concern a population of 1 500. It involves connection of the pressure pipeline to the distribution network of the Costa del Sol.

5.26 Water supply to Monda (Málaga).

Completion of the water-supply works for Monda (1 650 inhabitants) by installing:

- 1 000 m of conduit,
- a pumping unit,
- electrical and mechanical equipment.

5.27 Water supply to districts of Cerro Atalaya (Vélez Málaga).

This project involves supplying water to a population of 500 persons, by installing:

- 15 800 m of conduit,
- 2 equalizing reservoirs,
- the necessary fittings: valves, drains, etc.

5.28 Repairs at Colmenar (Málaga)

Repairs and improvements to the supply infrastructure will benefit a population of 3 500:

- replacement of a section of pipeline in the conduit from El Realengo,
- 1 tank,
- fittings: valves, drains, road crossings, etc.

5.29 Connection to the Benalauria-Benaldid system (Málaga)

The supply of water to a number of municipalities in the administrative area of Málaga will be ensured by means of connection to the Benalauria-Benaldid system. This will require installation of:

- 1 300 m of conduit,
- 1 reservoir,
- fittings: valves, drains, road crossings, etc.

PROJECTS IN THE CATCHMENT AREA OF THE GUADALQUIVIR

Project in the province of Córdoba

5.30 Measures in Córdoba city. Floating intakes (Córdoba)

This project involves the installation of a floating intake in the San Rafael de Navallana reservoir which supplies the city, with a view to making maximum use of its water.

Specifically: extension of the Guadalmellato canal intake in the San Rafael de Navallana dam, including a pump so that surface water can be used, after treatment, as drinking water for the supply of the provincial capital, between altitudes 144 (54 Hm³) and 137 (27.5 Hm³).

Project in the province of Seville

5.31 Connection of Seville's supply systems of the Ecija Consortium to the southern Sierra (Seville)

The aim of the project is to supply water from the Ecija Consortium to the association of municipalities of the southern Sierra. This will involve channeling a flow of 4 054 m³ per day through a conduit linking Osuna with the distribution reservoir of the association of municipalities of the southern Sierra situated in El Saucejo. This will make it immediately possible to use water from the Retortillo reservoir to supply the following villages: Algámitas, El Saucejo, Los Corrales, Martín de la Jara, Pruna and Villanueva de San Juan.

The work involves supplying and installing 18 km of ductile cast iron pipeline 300 mm in diameter lined with cement mortar and placed in a trench with an average depth of 1.5 metres on a bed of sand 15 cm thick. The tube will be protected by a polythene sleeve where it crosses through ground containing gypsum.

To ensure that the conduit functions properly, it will be fitted with 28 vents, 26 drains and the corresponding valves, all installed in inspection shafts 1.40 m in diameter.

It is also planned to replace the fencing on the affected farms and to build a crossing under the SE-460 highway, as well as stream crossings protected by concrete. The paving on roads used by livestock will also be replaced.

6. Aims

The aim of this set of projects is to solve the problems posed by drought in areas suffering from serious water shortages.

In particular:

Main objectives

To provide adequate infrastructure for the supply of drinking water to the population concerned.

To improve urban water supply.

To improve water quality.

To prevent over-exploitation of surface and ground water and the negative effects this has on the environment.

Secondary objectives

To improve health conditions and the quality of life of the population concerned.

To increase the availability of water by managing and coordinating its use.

7. Work schedule

Category of work	Commencement	Completion
Main work	15.3.1995	31.12.1996

8. Cost-benefit analysis

It is not always possible to obtain directly the data needed to carry out a cost-benefit analysis on a set of projects like these. Some of the data have therefore had to be determined indirectly on the basis of certain criteria or initial premises.

In identifying the costs, account was taken of:

- investment costs, the figures for which are included in the information in the projects;
- operating costs, including all the costs arising from the use of the infrastructures in question as well as the costs of equipment with a lifespan shorter than that of the project.

In identifying the benefits, account was taken of the value of damages or costs avoided and of the goods and services made available to the communities in question as a consequence of the project.

The following benefits were identified:

- availability of water with service guaranteed,
- improvement in water quality,
- reduction in over-exploitation of aquifers.

The internal rate of return for each of the projects ranges between 352.87 and 5.36%.

9. Assessment of environmental impact

This set of projects contributes to the attainment of the objectives set out in Article 130 r of the EC Treaty by providing drinking water to communities suffering from serious water shortages, thereby preserving their quality of life.

All measures in this set of projects will be concerned with domestic use.

10. Cost and assistance (in ecus)

Total cost:	30 168 245
Eligible cost (after 11 4 1995):	30 168 245
Rate of assistance:	85 %
Cohesion Fund assistance:	25 643 008

CATCHMENT AREA OF SOUTHERN SPAIN	27 642 416
Water supply to Roquetas de Mar	1 848 166
Third desalination system for water supply to Cabo de Gata (Almería)	616 055
Third system for Bajo Almanzora drinking-water treatment plant (Almería)	1 232 111
Reservoir and conduits in districts of Los Guiraos and Guazamara (municipality of Cuevas de Almanzora) (Almería).	123 211
Reservoir and conduits in Palomares and Terreros (municipality of Cuevas de Almanzora) (Almería).	628 378
Water supply for Garranchuelo and Santa Cruz (municipality of Gador) (Almería).	154 014
Water supply to Izbor and Los Acebuches (Granada)	184 817
Equalizing reservoir for the water supply to the villages of the Barranco del Porqueira (Granada)	308 028
Equalizing reservoir for the water supply to La Taha (Granada)	308 028

Equalizing reservoir for the water supply to the municipalities of Busquistar and Trevezlez (Granada)	308 028
Adaptation of the reservoir for the municipality of Vélez de Benaudalla	92 408
Water supply to the municipalities of Murtos and Turón (Granada)	800 872
Water supply to Notaez (Granada)	123 211
Equalizing reservoirs for the municipalities of Laroles and Castaras (Granada)	123 211
Lifting water from the canal at 100 m above sea level to the municipality of Molvizar (Granada)	492 845
Viñuela-Málaga connection (municipality of Vélez Málaga)	13 676 435
Trafiche drinking-water plant for the supply of the coast between Rincón de la Victoria and Nerja (Vélez-Málaga)	1 724 956
Water supply for Rincón de la Victoria - Torre del Mar (Málaga)	1 324 520
Water supply for Vélez Málaga-Rincón de la Victoria (Málaga)	616 055
Filtering facilities for Viñuela (Málaga)	800 872
Water supply to the municipality of Casabermeja (Málaga)	757 749
Water supply to Pizarra and Cartama (Málaga)	400 436
Coinduit for Campillos (Málaga)	400 436
Water supply to Alcaucín and Periana (Málaga)	92 408
Water supply to Moclinejo and Macharaviaya (Málaga)	30 803
Water supply to Monda (Málaga)	12 321
Water supply to districts of Cerro Atalaya (Vélez Málaga)	308 028

Repairs at Colmenar (Málaga)	123 211
Connection to the Benalauria-Benaldid system (Málaga)	30 803
CATCHMENT AREA OF THE GUADALQUIVIR	10 534 551
Measures in Córdoba city. Floating intakes	369 633
Connection of Seville's supply systems of the Ecija Consortium to the southern Sierra	2.156.195

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/028-2

1. Name of project:

Water supply in areas affected by drought in the catchment areas of the Guadiana, Segura, Tagus and Jucar.

2. Body responsible for the application

- 2.1. Name: Dirección General de Planificación
- 2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. Authority responsible for implementation

- 3.1. Name: Dirección General de Obras Hidráulicas (MOPTMA)
- 3.2. Address: Paseo de la Castellana, 67. 28071 Madrid-España

4. Location

- 4.1. Member State: Spain
- 4.2. Region: Cáceres, Badajoz, Toledo, Ciudad Real, Alicante and Murcia.
Autonomous Communities: Extremadura, Castile-La Mancha, Murcia and Valencia

5. Description

Owing to the severe drought in the Segura basin, there is an urgent need for work to enable treated waste water to be re-used. This work will release water resources to increase the drinking-water supply.

Project in the province of Alicante

**5.34 Treatment plant for brackish run-off water from the Pedrera
(municipality of San Miguel de Salinas, Alicante).**

Water from the drainage of the land owned by Riegos de Levante Margen Derecha flows into the Fayona watercourse at a rate of approximately 4000 m³ per day. In future that volume is expected to increase to 12 000 m³/day.

The planned work comprises:

- a) collection of the used irrigation water from the Pedrera by means of a pumping station consisting of two motor pumps with a capacity of 75 l/sec. of water at a height of 6 m, with a view to its disinfection, clarification and filtering, followed by treatment in a desalination plant involving microscreening, dechlorination and desalination;
- b) channeling of brine to the existing outfall discharging into the Mediterranean;
- c) a 3 000 m³ covered reservoir for storage of the desalted water until it is lifted to the Cartagena supply channel;
- d) pumping station consisting of three pumps with a capacity of 50 l/sec. at 100 mca to pump the treated water to the Cartagena channel near San Miguel de Salinas;
- e) 7 500 m of ductile iron conduit to withstand pressures of up to 12.5 atmospheres long to convey the current volume of drainage water during low-load hours and capable also of conveying the volume expected once the irrigation land of Riegos de Levante M.D. has been standardized, at all hours of the day without needing enlargement;
- f) ancillary operations involving landscaping, construction of a building to accommodate the filtering and desalination plant and station for pumping the treated water, delivery to the Cartagena channel belonging to the Mancomunidad de Canales de Taibilla; restoration of roads and affected services.

Once the water has been desalinated by reverse osmosis it will be discharged into the Cartagena channel to meet the demand for drinking water.

The project will make it possible to desalinate 4000 m³/day of brackish water (the brine will be discharged into the sea). The water thus reclaimed will be used to supply the coastal belt and the Campo de Cartagena, i.e. some 15 000 people.

The project will prevent the discharge of the water into the ecosystem of the lagoons of Salinas de Torrevieja and La Mata (Alicante).

Projects in the province of Murcia

5.35 Reutilization of waste water from the Bullas treatment plant (municipality of Bullas, Murcia).

Because of unfavourable weather conditions the La Refa well has dried out and the source of the Osamenta is also nearly dry.

The planned work will provide water from a different origin to increase the drinking-water supply.

Completion of the work to enable the treated waste water to be reused is therefore urgent.

The work involves:

- construction of a pumping station at 607 m altitude to pump water at a rate of 150 l/s at a manometric head of 55 m, including 300 m of medium voltage line, a pump house for four pumps (3+1) to lift 75 l/s at a manometric head of 55 m, equipped with power controllers, force and suction pipes, control and protection panels and a 250 kVA transformer;
- installation of a pressure pipe in asbestos cement 1 200 m long and 400 mm in diameter, to withstand pressures of 7.5 to 10 atm.;
- construction of two earth reservoirs proofed with high density polythene 2 mm thick, with capacities of 100 000 and 30 000 m³, at 640 and 625 m altitude respectively;
- 2.500 m of piping in asbestos cement, 400 mm in diameter, to withstand a pressure of 7.5 atm., to connect both reservoirs to the irrigation network.

5.36 Emergency work for the re-use of waste water from the Torre de Cotilla waste-water treatment plant (Murcia)

Work includes:

- collection of treated water by means of 2 600 m of pipeline 500 mm in diameter;
- channeling the water to an equalizing reservoir with a capacity of 150 000 m³; connection of the reservoir to the distribution system (3 700 m of pipes 450 mm in diameter);
- lifting the water from the equalizing reservoir for connection with the irrigation network by means of a pumping station consisting of two pumps (1+1) with a capacity of 80 l/s and 350 m of pressure pipe 350 mm in diameter.

5.37 Re-use of waste water from Alguazas (municipality of Alguazas)

As a result of the water shortage caused by the drought, there is less water than normal available for the Heredamiento de Alguazas irrigation network. This is threatening the survival of existing stands of trees.

This city has a waste-water treatment plant operating at full capacity and discharging treated water into the Mula. Re-use of the treated water would keep the stands alive through irrigation.

It is therefore urgent to carry out the work needed to re-use the treated waste water, so as to release resources to increase the drinking-water supply.

Work includes:

- collection of the treated water by means of 500 m of pipeline 500 mm in diameter;
- an equalizing reservoir for treated water, lined with high-density polyethylene 2 mm thick on geotextile, with a capacity of 100 000 m³;
- an equalizing reservoir for treated water lifted to the level of the highest irrigated areas, lined with high-density polyethylene 2 mm thick on geotextile, with a capacity of 100 000 m³;
- installation of 5 500 m of asbestos cement conduit 700 mm in diameter, to withstand pressures of 7.5 atm, between the reservoir and the irrigation network (main conduit);
- installation of 875 m of asbestos cement conduit 400 mm in diameter, to withstand pressures of 7.5 atm, connecting the main conduit to the Saladar pressure pipe;
- 1200 m of asbestos cement pressure pipe 350 mm in diameter, to withstand pressures of 7.5 atm, between the waste-water treatment plant and the equalizing reservoir;
- service road alongside the main conduit, 3 000 m long and 4 m wide;
- pumping station consisting of 150 hp units, including electrification, automation, civil engineering and valves and fittings.

5.38 Re-use of waste water from the Mula treatment plant (municipality of Mula)

The water supply of the town of Mula is seriously jeopardized by the overexploitation of the ground water and the persistence of the drought in the region.

This work will make it possible to release resources to increase the supply of drinking water.

Arable land is currently irrigated using water from the La Cierva reservoir and wells which are unquestionably overexploited.

Treated waste water is discharged into the Mula, downstream from the irrigable area. There is an urgent need to complete the work necessary for these vital water resources to be used to maintain wealth already created and jobs which provide the only income of the inhabitants of Mula.

Work includes:

- construction of a reservoir for water from the treatment plant and lifting of the water 80 m using four 80 hp pumps (3+1);
- a 250 KVA transformer;
- 5 250 m of pressure pipe, 300 mm in diameter, to withstand pressures of 10 atm;
- an equalizing reservoir made of earth with a capacity of 50 000 m³, proofed with high-density polythene 2 mm thick;
- a 1 000 m pressure pipe 400 mm in diameter, to withstand pressures of 7.5 atm. for connection with the irrigation network.

PROJECTS IN THE CATCHMENT AREA OF THE TAGUS

Projects in the provinces of Toledo and Guadalajara

5.39 Increasing the supply to Toledo from the Las Aves canal (Castile-La Mancha)

In periods of prolonged drought, the El Torcón and Guajaraz reservoirs cannot supply enough water to meet the needs of the town of Toledo. The shortfall used therefore to be made up by taking water from the Tagus via the Las Aves canal, upstream from Aranjuez.

This project involves increasing the pumping capacity from the high point at the end of the canal and extending the pressure pipeline to the equalizing reservoir, as well as doubling the first section of the pipeline. To avoid intermittent supply cuts as the water reaches the pumping station, a problem caused by the difficulty of maintaining a minimum flow rate at the end of an irrigation pipeline 40 km long, it is planned to build a small equalizing reservoir near the Algodor river where it can utilize the only difference in level in the canal.

The following work is planned:

- construction of an equalizing reservoir on the Las Aves canal, proofed with sheeting, with usable capacity of 15 000 m³;
- extension of the pump house in order to install a third pump-motor unit identical to the most powerful of the two existing units, ie 486 hp.
- installation of a 800 CVA three-phase transformer.
- doubling the first section of the pressure pipe along approximately 3 160 m, using pipe 500 mm in diameter;
- installation of approximately 4 000 m of pipeline 400 mm in diameter to the Cerro de los Palos equalization reservoir.

5.40 Water supply system for three villages in the district of Talavera de la Reina and Entrepeñas, sewer system and construction of a waste-water treatment plant at Entrepeñas (Toledo and Guadalajara).

This project is intended to supply water to the 10 000 inhabitants of three villages in the district of Talavera. The work involves:

- installation of 15 000 m of PVC pipeline with an operating pressure of 6 atm. (diameters of 300, 250 and 200 mm), to convey treated water from the Talavera de la Reina supply system to Talavera la Nueva at a rate of 5 l/s, Alberche, at 10 l/s and Choza at 15 l/s. The conduit will be laid in a trench 1.5 m deep, which will require the excavation and replacement of 30 000 m³ of earth;
- installation of 15 valves, of 10 air vents and 5 drains placed in standardized shafts and four meters housed in huts.

The work to supply the village of El Olivar (Entrepeñas) comprises:

- improvement to existing collection arrangements, the drilling of a well 450 mm in diameter and 120 m deep, installation of a pump unit with a capacity of 3 l/s and construction of a new tank with a capacity of 100 m³;
- the sewerage work involves extending the existing collector by 400 m and installing a prefabricated treatment unit comprising settling, digestion and filtering, designed to cater for 500 inhabitants.

5.42 Emergency work to extend the system supplying water to the Mancomunidad del Algodor: sections I and II (Toledo).

The water supply to the 26 villages making up the Mancomunidad del Algodor was supplied by a system taking water from the Finisterre dam. When the dam ran out of water, the supply system had to be modified to its current form, which consists in lifting water from the Tagus to the village of Ocaña and conveying it from there at a rate of 165 l/s, in the opposite direction to that intended, to Tembleque for distribution. The flow is insufficient in summer (the maximum

capacity permitted by the existing pipelines). The current requirement is 250 l/s (162.5 l/s through a new conduit, the rest through the existing conduit).

The planned work consists of:

- installation of a new section of conduit (7 700 m) parallel to the first, running from the existing tanks of Ocaña in the direction of Tembleque, and joining the existing conduit. This section will be able to convey 162.5 l/s to meet immediate needs, but will be able to be expanded to 600 l/s to meet future needs at a cost of 350 million. This first section is not able on its own to transport a sufficient quantity to the altitude required (764 m) at Tembleque for distribution to the surrounding villages, owing to a loss of pressure in the rest of the existing pipeline;
- installation of a second section, continuing on from the first (7 700 m long, described above and not capable of conveying the necessary quantity to an altitude of 764 m). The second section will be 6 600 m long and its function will be to limit the pressure loss so that at the altitude of Ocaña (manometric head of 63 m) the water can be transported to Tembleque with the delivery head at 764 m altitude provided for in the original project which is sufficient for correct distribution of water to the surrounding villages using the existing system.

Additionally, the council of local authorities of Castile-La Mancha will expand the existing pumping station on the Tagus to provide an immediate flow of 250 l/s (in future it will have to be 750 l/s) to the existing tanks at Ocaña.

The work described will make it possible to provide water to Tembleque at the altitude of 764 m at the rate of 150 l/s needed to meet present needs at the distribution point. However, at the same time, it is intended that the new pipelines, together with the existing ones, will meet the future needs of the Mancomunidad on arrival at Tembleque with a flow rate of 550 l/s through the new pipelines and 50 l/s through the existing ones.

Project in the province of Cáceres

5.45 Additional work for the town of Cáceres and Malpartida de Plasencia (Cáceres).

The work in Cáceres involves laying a 44 kV power line over an estimated distance of 15 km, in order to provide a permanent electricity supply to the pumping station located on the Almonte river. At present, the station has only temporary electricity supply. The connection will be taken from a power line at Iberdrola, 6 km from Cáceres.

The power line will be carried on metal pylons with cement anchor points. It is also planned to instal a 2 000 kVA transformer.

The works for Malpartida de Plasencia involve the construction of a diversion dam with a capacity of 60 l/s in the Garganta del Obispo from which water will be transported by gravity to the existing equalizing reservoir. In the winter the waste water treatment plant will be supplied directly and the reservoirs will be filled, and in summer, if the Garganta dries out, water can be lifted from the reservoirs.

The 4 713 m long pipeline, made of 300 diameter tubing, will be laid in a trench. Work will include the shafts needed to house vents and drains.

PROJECTS IN THE CATCHMENT AREA OF THE GUADIANA.

5.41 Conduit for emergency supply to La Luciana and other localities from the Torre de Abraham reservoir (Ciudad Real)

The municipality of Luciana has 700 inhabitants in the winter (and double that number in the summer). It is located at the convergence of the Bullaque river and the Guadiana. The village is currently supplied by a well which is practically dry. The population will be therefore shortly have a serious water shortage.

The other localities concerned are small villages attached to the municipality of Porzuna, each supplied by a single well, all of which are in the process of drying up, as in the previous case.

The problem will be solved by laying 15 km of PCV pipeline 160 mm in diameter, including installation of the necessary vents, drains, road crossings, etc., to supply the municipality of Luciana from existing conduits conveying water from the Torre de Abraham reservoir.

Water can be supplied to all the Porzuna villages by laying 12 km of PCV pipeline 110 mm in diameter including the necessary vents, drains, special fittings, road crossings, etc.

In view of the disastrous situation of the water supply of these localities, the absence of any immediate measure would mean that the inhabitants concerned would have to be supplied using tankers as from next summer.

Project in the province of Huelva

5.32 Water supply to western Andévalo (Huelva).

The district of western Andévalo covers various localities, including Puebla de Guzmán, Tharsis and Alonso, with a population of 15 000 inhabitants in winter (double that number in the summer). The district suffers from water-supply difficulties because of the the generalized drought, and particularly the situation in the Guadiana basin.

The different possibilities for solving the problem in this area have been studied. The feasible solution is described below.

The planned solution involves diverting water from the Chanza-Pedras system once it has been treated at the facilities of the water utility of the west coast of Huelva, situated at Aljaraque, by means of 40 km of pipeline 300 mm in diameter to the district concerned.

This work will provide a definitive solution to the water-supply problem affecting the inhabitants of the district.

Projects in the province of Badajoz

5.43 Emergency supply to district of Los Montes, Capilla and other localities (Badajoz)

The municipalities of Capilla, Garlitos and Tamurejo have a population of 7 500 inhabitants in winter (double that number in the summer) in the province of Badajoz, situated on the banks of the La Serena reservoir. These localities are served by the Gadalemar water utility.

In the case of Capilla, repair work was carried out to connect the newly built intake and the treatment plant to the old supply conduits. These old conduits are in a very bad state of repair, so that the water is not being delivered to the population.

Although the two other localities are close by and could easily be connected to the supply system, this work has not yet started. These two localities therefore take their water from sources which, because of the drought, no longer provide enough water of sufficient quality, so they are in constant crisis.

In view of the disastrous water-supply situation in these villages, which depend on deliveries by tankers, the planned work must be carried out as quickly as possible.

The solution to the problem involves laying 17 280 m of cast iron pipeline 200 mm in diameter, fitted with the necessary drains, valves, etc., and restoration of the services affected by the work. The project will make it possible to meet the water requirements of the 7 500 inhabitants of these municipalities, as well as the 15 000 present at weekends and during the summer.

The sections to be installed are as follows:

Siruella-Tamurejo conduit

The conduit will run from the Siruela distribution reservoir to the Tamurejo distribution reservoir, and will consist of 10 086.52 m of cast iron pipeline 125 mm in diameter.

Conduit to Zarza Capilla la Nueva

The project concerning the supply to the Guadalemar water utility includes a conduit from Sancti Spiritus to Peñalsordo, so that this new conduit need only be connected at one point to the existing conduit to Zarza Capilla la Nueva. It is planned to run 1 070 m of cast-iron pipeline 100 mm in diameter from that point.

Conduit to Zarza Capilla la Vieja

Since there is already a conduit from Sancti Spiritus to Peñalsordo, a branch will be installed to Zarza Capilla la Vieja. The new cast iron pipeline will be 381 m long and 100 mm in diameter.

Conduit from Peñalsordo to Capilla

Construction of a conduit between the two localities parallel to the existing conduit, except for a section 947.23 m long which will branch off in order to reduce the impact of the work on the Peñalsordo urban area. The new cast iron pipeline will be 2 771.82 m long and 150 mm in diameter.

Pressure pipe from the La Serena reservoir

Since the water level in the Guadalemar reservoir is too low for water to be pumped from the intake tower, water will be transferred from the La Serena reservoir. This will be carried out using a 100 kVA pump (absorbed power) with a flow of 250 l/s at 25 m and a conduit made of PCV piping 500 mm in diameter and 2 961.83 m long. The pump will be situated on a raft with anchoring for the discharge into the Guadalemar reservoir.

5.44 Emergency work to extend the supply network of the Mancomunidad de Tentudia to Fuentes de León and Bienvenida and other complementary work (Badajoz)

Fuentes de León and Bienvenida suffer from serious water-supply problems because of the persistent drought in the Guadiana basin.

The two above-mentioned localities had not been included in the supply system of the Mancomunidad de Tentudia to which they belong because they were supplied by wells which covered all their water requirements.

The wells are no longer sufficient and prospection has had no results. These localities will be supplied from the existing systems at times when they are not currently in use.

The different possibilities for solving the problem in this area have been studied. The feasible solution is described below.

The planned solution involves installing a branch conduit from the supply system of the Mancomunidad de Tentudia.

In the case of Fuentes de León, the branch will lead from the western pipeline and will carry the water to the reservoir at La Alameda. The conduit will be 5 500 m long, with a diameter of 150 mm. It will be necessary to adapt the reservoir and the existing arrangements for lifting the water to the equalizing tank at Fuente de León (including the electromechanical system and 2000 m of conduit).

In the case of Bienvenida, the branch will lead from the northern conduit, between the branch off towards Montemolin and the Fuente de Cantos reservoir. 200 mm diameter pipeline will transport water over 13 km to the village's equalizing reservoir. The reservoir and valve room will also have to be modified and repaired.

This work will solve the water-supply problem of the inhabitants of Fuentes de León and Bienvenida.

PROJECTS IN THE CATCHMENT AREA OF THE JUCAR

Project in the province of Alicante

5.46 Work in the district of Marina Baja (Alicante).

The purpose of this work is to supply drinking water to the municipalities of the Marina Baja Consortium (Benidorm, Villajoyosa, Altea, Finestrat, Polop, La Nucia, Alfaz del Pi and Callosa de Ensarria), the water reserves of which are threatened because of the persistent drought. 300 000 inhabitants are affected. A study of the situation shows that there is an urgent need to install a supply infrastructure. The work involves:

- doubling part of the existing supply conduit which connects the Guadalest reservoir to the municipalities of the Marina Baja Consortium over a length of 8 km, using cast-iron or asbestos-cement pipeline, 700 mm and 500 mm in diameter respectively;
- installing of special fittings (30 units) for protection of the conduit.

6. Aims

The purpose of this set of projects is to help those areas most affected by water shortages to cope with the drought.

In particular:

Main objectives

To provide adequate infrastructure for the supply of drinking water to the population concerned.

To improve urban water supply.

To improve water quality.

To prevent over-exploitation of surface and ground water and the negative effects this has on the environment.

Secondary objectives

To improve health conditions and the quality of life of the population concerned.

To increase the availability of water through economic and coordinated use.

Detailed information on each of the projects is attached.

7. Work schedule

Category of work	Commencement	Completion
Main work	15.3.1995	31.12.1996

8. Cost-benefit analysis

It is not always possible to obtain directly the data needed to carry out a cost-benefit analysis on a set of projects like these. Some of the data have therefore had to be determined indirectly on the basis of certain criteria or initial premises.

In identifying the costs, account was taken of:

- investment costs, the value of which is included in the information in the projects;
- operating costs, including all the costs arising from the use of the infrastructures in question as well as the costs of equipment with a lifespan shorter than that of the project.

In identifying the benefits, account was taken of the value of damages or costs avoided and therefore of the goods and services made available to the communities in question as a consequence of the project.

The following benefits were identified:

- availability of water with service guaranteed,
- improvement in water quality,
- reduction in over-exploitation of aquifers.

The internal rate of return for each of the projects ranges between 569 and 2.94% .

9. **Assessment of environmental impact**

This set of projects contributes to the attainment of the objectives set out in Article 130r of the EC Treaty by providing drinking water to communities suffering from serious water shortages, thereby preserving their quality of life.

All measures in this set of projects will be concerned with domestic use.

10. **Cost and assistance (in ecus)**

Total cost:	30 476 273
Eligible cost:	30 476 273
Rate of assistance:	85%
Cohesion Fund assistance:	25 904 832

CATCHMENT AREA OF THE SEGURA	12 290 310
Treatment plant for brackish run-off water from the Pedrera (Alicante) ,	3 634 728
Reutilization of waste water from the Bullas treatment plant (Murcia)	1 909 773
Reutilization of waste water from the Torre de Cotilla treatment plant (Murcia)	2 587 434
Reutilization of waste water from the Alguazas treatment plant (Murcia)	2 063 786
Reutilization of waste water from the Mula treatment plant (Murcia)	2 094 589
CATCHMENT AREA OF THE TAGUS	8 532 370
Increasing the supply to Toledo from the Las Aves canal (Castile-La Mancha)	1 971 378

Water supply system for the district of Talavera de la Reina and Entrepeñas, sewer system and waste-water treatment plant at Entrepeñas	1 324 520
Water-supply system for the Mancomunidad del Algodor: sections I and II (Castile-La Mancha)	4 004 361
Additional work for the town of Cáceres and Malpartida de Plasencia (Extremadura)	1 232 111
CATCHMENT AREA OF THE GUADIANA	8 113 453
Water supply to western Andévalo (Puebla de Guzmán, Tharsis and Alonso) (Huelva)	3 696 334
Conduit for supply of drinking water to La Luciana and other localities from the Torre de Abraham reservoir (Barrio Bullaque, Castile-La Mancha)	905 601
Additional work for emergency supply to the district of Los Montes (Badajoz)	1 601 745
Extension of the drinking-water supply system of the Mancomunidad de Tentudía to include Fuentes de León and Bienvenida (Extremadura)	1 909 773
CATCHMENT AREA OF THE JUCAR	1 540 139
Doubling of the supply system in the district of La Marina Baja (Alicante)	1 540 139

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/030

1. Title

Jaén waste-water treatment plant.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana, 162 - 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de Obras Hidráulicas

3.2. Address: C/Sierpes N° 41, 41075 Sevilla

4. Location

4.1. Member State: Spain

4.2. Region: Andalusia

5. Description

COLLECTION: enlargement of the existing sewer which terminates in a headbox. This leads to a spillway with a gate, connected to a bypass and a sump for the collection of solids.

PRETREATMENT:

- removal of solids by passage through three channels fitted with grids and screens,
- passage through channels and a grease trap to remove grit and grease.

PRIMARY SEDIMENTATION: water passes from pretreatment to a distributor. The installation has two stationary 30-metre diameter settling tanks. The resulting sludge then passes to the pumping station.

BIOLOGICAL PRETREATMENT: water from the primary settling tank passes to a distributor and from there to the different treatment chains. After settling, and mixed with the sludge, the water passes into two 14m x 61m multi-compartment aeration basins. Aeration is carried out in the aeration compartment by means of fine-bubble diffusers and submerged screw agitators.

SECONDARY SEDIMENTATION: the installation has two suction settling tanks in which the sludge is sucked up through tubes and which is fitted with paddles to direct the sludge to the suction tubes. The sludge is circulated by means of submersible pumps. The water is treated with chlorine and the sludge is passed through screens, thickened, homogenized, digested, dehydrated and stored.

SLUDGE TREATMENT: screening, thickening, anaerobic digestion, storage and dehydration.

6. Objectives

SPECIFIC OBJECTIVES

- Design population: 135 000 inhabitants
- Design population equivalent: 146 000 inhabitants
- Total average BOD₅ on entry: 260 mg/l
- Total average BOD₅ on exit after reduction: >90%
- Total average SS on entry: 340 mg/l
- Total average SS on exit after reduction: >90%
- Average daily volume of water: 33 750 m³/day

7. Work schedule

Category of work	Commencement	Completion
Construction work	1.12.1994	31.8.1996

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 10.18%, not including the net book value of the treatment plant.

9. Assessment of environmental impact

The project will contribute to the integrated control of pollution, the prevention of waste and the management of water resources.

Compliance with Directive 91/271/EEC.

The municipal rules on waste disposal apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:	11 628 050
Eligible cost (after 11.4.1995):	11 628 050
Rate of assistance:	80%
Cohesion Fund assistance:	9 302 440

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/031

1. **Name of project:**

Waste-water treatment plants for Huesca and Teruel

2. **Authority making the application**

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. **Body responsible for implementation**

3.1. Name: D.G. del Agua. Diputación General de Aragón

3.2. Address: Pº María Agustín, 36 - 50071 Zaragoza

4. **Location**

4.1. Member State: Spain

4.2. Region: Aragon (Huesca and Teruel)

5. **Description**

Construction of collectors and two urban waste-water treatment plants for Huesca and Teruel. The system includes secondary treatment using conventional biological digestion and mechanical dehydration of activated sludge at half load.

6. **Objectives**

- to improve the water quality of the Isuela, Flumen, Acanadre and Cinca rivers in Huesca and the Turia river in Teruel from the current quality levels (C5 and C4) to C3;
- to facilitate water economies and reuse.

SPECIFIC OBJECTIVES

	HUESCA	TERUEL
Population (customers)	13 400	8 200
Design population equivalent	130 000	67 500
Total average BOD ₅ on entry	300 mg/l	360 mg/l
Total average BOD ₅ on exit	≤ 25 mg/l	≤ 25 mg/l
Total average SS on entry	297 mg/l	440 mg/l
Total average SS on exit	≤ 25 mg/l	≤ 30 mg/l
Average daily volume of water	25 920 m ³ /d	11 232 m ³ /d
Percentage of industrial water	25%	25%

7. Work schedule

Category of work	Commencement	Completion
Main work	1.10.1995	31.5.1998

8. Economic and social cost-benefit analysis

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for waste disposal and sewerage, water rates (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 8.93% overall: 11.85% for the Huesca treatment plant and 4.57% for the Teruel treatment plant.

9. Assessment of environmental impact

- Preservation, protection and improvement of the quality of the environment;
- careful and rational use of natural resources;
- management of water resources;
- protection of human health;

- compliance with Directive 91/271/EEC for agglomerations with a population equivalent of more than 15 000 discharging into fresh water in a non-sensitive area;
- the municipal rules on waste disposal apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ECU)

Total cost:	19 511 952
Eligible cost (after 11.4.1995):	19 138 631
Rate of assistance:	80%
Cohesion Fund assistance:	15 310 905

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/032

1. **Name of project:**

Sewerage for the Sella and Piloña basin

2. **Authority making the application**

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162 - 28071 Madrid

3. **Body responsible for implementation**

3.1. Name: Consejería de Medio Ambiente y Urbanismo

3.2. Address: Coronel Aranda S/N - 33005 Oviedo

4. **Location**

4.1. Member State: Spain

4.2. Region: Asturias

5. **Description**

Sewerage for Cangas de Onís and Caño

The work involves three separate parts:

- (a) a system of collectors for Caño; connection to the Cangas de Onís system.
Total length: 3 452 m;
- (b) improvements to the internal system of Cangas de Onís, total length:
5 673 m;
- (c) interceptors for Cangas de Onís along both banks of the river Sella. In the future there will be a river crossing and sewage will be concentrated at one point from where it will be pumped to the planned treatment plant. This will require the laying of 2 669 m of pipeline of various materials and diameters.

Collector/interceptors for Infiesto and Villamayor (Piloña)

The work involves the installation of a collector/interceptor for waste water from the segment of the Piloña river between Infiesto and Sevares, in the municipality of Piloña. This will require the laying of 15 680 m of pipeline of various materials, chiefly stoneware and reinforced concrete.

Sewerage for Ribadesella, phase 1

The first phase of the project involves renovation of the Ribadesella collectors located on the right bank of the river Sella and any of the supply pipelines needing replacement as a direct or indirect consequence of the sewerage work. Once the entire project has been completed, these collectors will be connected to the system's general collectors and to the general treatment and discharge systems. The sewer system will consist of pipelines of diameters ranging from 300 to 1 500 mm made of stoneware and reinforced concrete.

6. Objectives

To improve the quality of the water in the river Sella along its final 25 km. The measures included in this set of projects are the first phase only, since in the near future it will be necessary to install the treatment systems needed to comply with Community rules.

The Sella and Piloña basin has 33 500 inhabitants, of whom 10 496 (31%) will be directly affected by this project, broken down as follows:

- Sewerage for Cangas de Onís and Caño: 3 600 inhabitants
- Collector/interceptors for Infiesto and Villamayor (Piloña): 3 076 inhabitants
- Sewerage for Ribadesella, phase 1: 3 820 inhabitants

SPECIFIC OBJECTIVES

- Current population: 10 496 inhabitants

7. Work schedule

Category of work	Commencement	Completion
Construction	31.8.1995	31.12.1997

8. Economic and social cost-benefit analysis

The internal rate of return is 6% overall, broken down into 6% for Ribadesella; 4% for Infiesto; 9% for Cangas and 7% for Onís-Caño.

9. Assessment of environmental impact

Preservation, protection and improvement of the quality of the environment.
Environmental improvement in urban centres and protected areas and landscapes.
Improvements in public health.
Compliance with Directive 91/271/EEC.

10. **Cost and assistance (in ECU)**

Total cost:	11 125 965
Eligible cost (after 11.4.1995):	11 125 965
Rate of assistance:	80%
Cohesion Fund assistance:	8 900 772

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/033

1. Name of project:

Waste-water treatment plants for Castile-La Mancha.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. Body responsible for implementation

3.1. Name: D.G. de Carreteras, Obras Hidráulicas y Transportes, Dirección
General de Carreteras

3.2. Address: Pº del Cristo de la Vega, S/N - 45071 Toledo

4. Location

4.1. Member State: Spain

4.2. Region: Castile-La Mancha

5. Description

Construction of collectors and eight waste-water treatment plants in the following municipalities of the Autonomous Community of Castile-La Mancha: Talavera de la Reina, Tarancón, Madridejos, Villacañas, Navalcán and Parrillas; San Pablo de los Montes, Camuñas, Mariana, Sotos and Zarzuela.

The project includes secondary biological treatment.

6. Objectives

The basic objective of this group of projects is to provide the above-mentioned municipalities with secondary treatment of waste water to prevent its discharge from having a negative impact on the environment.

The following data show the quantified objectives of the projects:

SPECIFIC OBJECTIVES

95/11/61/033	1	2	3	4	5	6	7	8
Current population (inhabitants)	126 000	21 000	10 000	14 000	8 325	2 000	3 200	2 750
Design population equivalent (PE)	126 500	52 800	25 000	14 000	10 240	4 858	4 670	2 750
Population in the summer (PE)	n.a.	n.a.	n.a.	n.a.	n.a.	2 000	n.a.	---
Total average BODs on entry (mg/l)	220	600	600	350	369	243	554	400
Total average BODs on exit (mg/l)	25	25	25	25	25	25	28	20
Total average SS on entry (mg/l)	220	750	350	300	554	240	249	600
Total average SS on exit (mg/l)	35	35	35	35	35	35	5	12
Average daily volume of water (m ³ /day)	34 500	5 280	2 500	2 400	1 655	1 200	510	412,5
Percentage of industrial water (estimate)	0%	60%	60%	0	20	30	30	0

n.a. - no data available

1. - Talavera de la Reina
2. - Tarancón
3. - Madridejos
4. - Villacañas
5. - Navalcán and Parrillas
6. - San Pablo de los Montes
7. - Camuñas
8. - Mariana, Sotos y Zarzuela

7. Work schedule

Category of work	Commencement	Completion
Main work	1.3.1995	30.6.1996

8. Economic and social cost-benefit analysis

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for waste disposal and sewerage, water rates (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 5.66%.

9. Assessment of environmental impact

The set of projects will contribute to:

- preserving, protecting and improving the quality of the environment and
- satisfactory management of water resources.

All these measures will provide adequate treatment of waste water to municipalities which do not now have this. This will reduce the pollution of the municipalities' rivers, thereby producing a substantial improvement in water quality

Compliance with Directive 91/271/EEC on the treatment of urban waste water.

The municipal rules on waste disposal apply. These require industrial waste to be pretreated before it is discharged into the general sewer system.

10. Cost and assistance (in ECU)

Total cost:	18 512 914
Eligible cost (after 11.4.1995):	18 512 914
Rate of assistance:	80%
Cohesion Fund assistance:	14 810 331

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/034

1. Title

Collection and treatment of waste water on the Catalan coast.

2. Authority making the application

- 2.1. Name: Dirección General de Planificación
- 2.2. Address: Paseo de la Castellana, 162 - 28071 Madrid

3. Body responsible for implementation

- 3.1. Name: Junta de Sanejament
- 3.2. Address: Provença, 204-208 - 08036 Barcelona

4. Location

- 4.1. Member State: Spain
- 4.2. Region: Catalonia

5. Description

Integrated group of nine projects for the construction of a complex of waste-water treatment plants, a network of sewers and underwater sewage outfalls.

All the plants will carry out the following treatments: filtering of coarse and fine solids, removal of sand and grease, flow-metering, mixing and flocculation, primary decantation, biological reaction, secondary decantation, recirculation of sludge and chlorination.

Sludge treatment will involve extraction and run-off of primary sludge, thickening of primary sludge, mixing, digestion, storage of digested sludge, dehydration by means of press-filters and storage of dehydrated sludge. In most cases it is planned to use the sludge in agriculture.

- 1. Vilanova i la Geltrú system

Water-treatment will involve passage through a static screen, removal of sand and grease, mixing of flocculation, primary decantation, biological reaction and secondary decantation. Sludge-treatment will involve thickening, dehydration and passage through press-filters. It is planned to pass the sludge after dehydration through a thermal dryer for subsequent treatment in an existing incinerator.

The sewers will be of reinforced concrete.

There already exist 14 600 m of sewers of 600 mm diameter and above and five pumping stations.

2. Cunit-Cubelles system

The Cunit-Cubelles waste-water treatment plant will be of precisely the same type as the Teià plant, including the dehydration of the sludge using press-filters.

The Cunit-Cubelles sewage outfall will be 500 mm diameter, 2 267 m long and built of asbestos-cement.

Part of the sewer system has already been built: one sewer, 400 mm diameter by 400 m long, will take water from Avda. de la Font via a double pipe 250 mm diameter and 300 m long. The other sewer, 500 mm diameter and 2 600 mm long, will run from the Cubelles pumping station.

3. Cambrils system

Water treatment: flow-metering, filtering of fine solids, removal of sand and grease, primary decantation, passage via a by-pass spillway for biological treatment, secondary decantation and flow-metering.

Sludge treatment: thickening of primary sludge, thickening of excess biological sludge, mixing, pumping to digestion tank, anaerobic digestion, storage of sludge, mechanical drying using press-filters.

The planned average daily through-flow is 64 424 m³ with a peak flow of 4 107 m³/h.

A newly constructed sewer on the coast to collect waste from independent outlets has two pressure pipes, one of 400 mm diameter and 1 776 m long, the other 630 mm diameter and 2 193 m long.

Pumping from the point of collection to the future treatment plant will be by means of two pressure pipes 900 mm diameter and 3 675 m long.

Treated water will be disposed of via a 900 mm diameter outfall.

A sewer, 400 mm diameter and 986 m long, will connect the town of Vinyols to the system.

4. Altafulla system

The planned treatment plant will have a capacity of 10 000 to 40 000 p.e., with a seasonal variation of 10 to 1, with no reduction in the level of nutrients. The plant will carry out pretreatment, chemical precipitation with primary decantation in the high season, biological treatment of activated sludge by full oxidation in the low season and by traditional methods in the high season, secondary decantation and aerobic digestion in the high season and, possibly, chemical stabilization.

Sludge treatment will use a thickener with anaerobic digestion and a press-filter, the product of which will be suitable for agricultural use.

The sewers will be 400 mm diameter and 10 000 m long.

5. Torredembarra system

Water treatment: filtering of coarse and fine solids, removal of sand and grease, primary decantation, passage via a by-pass spillway for biological treatment, secondary decantation, flow-metering.

Sludge treatment: thickening of primary sludge, thickening of excess biological sludge, mixing, pumping to the digestion tank, anaerobic digestion, storage of sludge, mechanical drying using press-filters.

6. Blanes system

Water treatment: flow-metering, filtering of fine solids, removal of sand and grease, primary decantation, passage via a by-pass spillway for biological treatment, secondary decantation, flow-metering, disinfection.

Sludge treatment: thickening of primary sludge, thickening of excess biological sludge, mixing, pumping to digestion tank, anaerobic digestion, storage of sludge, mechanical drying using press-filters.

7. Sitges system

Water treatment: filtering of fine solids, removal of sand and grease, primary decantation, biological treatment, secondary decantation.

Sludge treatment: thickening of primary sludge, thickening of excess biological sludge, mixing, pumping to digestion tank, anaerobic digestion and mechanical drying.

8. Mataró system

The following treatments will be carried out: pretreatment and primary decantation, biological reaction, secondary decantation, chlorination, recirculation of active sludge, sludge thickening, sludge pumping, dehydration of sludge and deodorization.

9. Teià system

The plant has a design capacity of more than 40 000 p.e., with a seasonal variation of 3 to 1, with no reduction in the level of nutrients. The plant will carry out pretreatment, primary decantation, biological treatment of conventional activated sludge, secondary decantation and mesophilic anaerobic digestion.

The sludge will be dehydrated and composted.

Given the increase in the population and the establishment of new industries, it is planned to increase the number of sewers. The new sewers will be of glass-fibre-reinforced polyester with a diameter of between 350 mm and 600 mm and a length of 20 950 m. There are eight pumping stations.

6. Objectives

The objectives of the different subprojects are given in the following tables:

SPECIFIC OBJECTIVES:

95/11/61/034	Vilanova i la Geltrú	Cubelles	Cambrils	Altafulla	Torredem-barra
Current population (inhabitants)	80 000	43 200	171 252	39 528	100 194
Design population equivalent (p.e.)	80 000	65 000	171 252	65 000	106 896
Additional summer population (p.e.)	30 000	40 000	151 130	25 350	88 600
Average total BODs on entry (mg/l)	300	375	250	375	250
Average total BODs on exit (mg/l)	25	25	25	25	25
Average total SS on entry (mg/l)	300	300	300	228	300

Average total SS on exit (mg/l)	35	35	25	25	25
Average daily volume of water (m ³)	15 000	16 250	25 000	8 292	33 381
Percentage from industry	15%			10%	10%

95/11/61/034	Blanes	Sitges	Mataró	Teià
Current population (inhabitants)	89 796	95 000	172 000	82 400
Design population equivalent (p.e.)	109 989	60 000	172 000	82 400
Additional summer population (p.e.)	64 133	75 000	35 000	28 260
Average total BODs on entry (mg/l)	350	360	475	400
Average total BODs on exit (mg/l)	20	20	25	20
Average total SS on entry (mg/l)	420	320	375	600
Average total SS on exit (mg/l)	25	20	35	20
Average daily volume of water (m ³)	19 296	18 000	57 000	22 500
Percentage from industry	10%		20%	5%

7. Work schedule

Category of work	Commencement	Completion
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Construction work	1.3.1995	31.12.1995
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8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments with a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage and water rates (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 8.2% overall and 5.09% for Cambrils, 28.5% for Mataró, 7.4% for Teià, 2.8% for Cunit-Cubelles, 5.3% for Sitges, 4.6% for Vilanova, 9.1% for Blanes, 0.2% for Altafulla and 0.9% for Torredembarra.

9. Assessment of environmental impact

The conservation, protection and improvement of the coastal environment is of vital importance in this area which is subject to very considerable population pressure from mass tourism and property development.

Furthermore, the use of water for bathing requires that it reach suitable health standards.

Satisfactory management of water resources in marine environments involves the reduction of all effluent which might, because of its continuing toxicity or through bioaccumulation, damage the environment.

It is also important to put a stop to the contamination of ground water and bring water that is already contaminated up to drinking-water quality, whilst at the same time protecting the quality of ground water not suffering from the effects of pollution.

When discharged, treated water will meet the requirements of Directive 91/271/EEC.

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost: 73 649 452

Eligible cost (after 11.4.1995):

73 649 452

Rate of assistance:	80%
Cohesion Fund assistance:	58 919 562

The total cost can be broken down as follows (in ecus);

Vilanova i la Geltrú	6 751 969
Cubelles	5 267 275
Cambrils	931 476
Altafulla	6 480 905
Torredembarra	13 368 407
Blanes	9 099 142
Sitges	9 635 110
Mataró	8 747 990
Teià	4 983 890

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/035

1. **Title:**
Integral clean-up of the Vigo Estuary
2. **Body responsible for the application**
 - 2.1. Name: Dirección General de Planificación
 - 2.2. Address: Paseo de la Castellana 162. 28071 Madrid
3. **Authority responsible for implementation**
 - 3.1. Name: Consellería de Política Territorial, Obras Públicas e Vivenda
(Dirección Xeral de Obras Públicas)
 - 3.2. Address: Edificios Administrativos de San Caetano
4. **Location**
 - 4.1. Member State: Spain
 - 4.2. Region: Galicia
5. **Description**
 - **Installation of the Lagares river waste-water treatment plant (Vigo)** to treat most of the urban waste water from the town of Vigo currently discharged totally untreated into the Vigo estuary and the river Lagares.
 - **Construction of the main interceptors for Cangas de Morrazo and installation of the Cangas waste-water treatment plant** with a view to treating waste which is currently discharged directly without treatment.
 - **Collector on the bank of the river Lagares (Parroquia de Cabral) provided for in the PESIV (special plan for the integral clean-up of Vigo).** Extension of the collectors installed by the Xunta to the headwaters of the river Lagares in Cabral parish with a view to completing the clean-up of the river basin so that its banks can be rehabilitated for urban use. This

is of great importance because the Lagares runs through the city centre of Vigo.

- **Collectors for the banks of the estuary, sections 1, 2, 3, 4, 7,8, 9, 10; pretreatment, spillway and pumping station, calle Coruña.** These measures, provided for in the PESIV, involve installing an interceptor sewer to run along the full length of the coastal front of the city of Vigo from the La Gufa forest to the Bouzas church. This project is supplemented by the sections already installed by the Vigo town council to channel waste water from Bouzas to the Lagares treatment plant. The town council is currently completing sections 5 and 6.
- **Installation of collectors and waste-water treatment plant at Teis (municipality of Vigo).** This project involves the installation of interceptors running from the borders of the municipalities of Vigo and Redondela to the area of Teis and the construction of a waste-water treatment plant there. All of the waste water produced north of the La Gufa forest will then be channelled to the treatment plant to be built at Teis.
- **Zamans waste-water treatment plant.** This project involves treating waste water from the area of Zamans (a high area situated in the south of the municipality of Vigo) and from Vigo's university campus. This will mean that waste water from the area of Vigo currently discharging into the Vilaza river (a tributary of the river Miñor which empties into the Baiona estuary) can be treated.
- **Integral clean-up of the bed of the Vigo estuary.** Installation of interceptors for Vilaboa, Arcade, Pontesampaio and the rest of the bed of the Vigo estuary and a waste-water treatment plant to solve the problem caused by discharges throughout this area, where the population density is increasing, with countless communities and considerable population pressure, particularly in coastal areas.
- **Expansion of Redondela's collectors.** The Redondela waste-water treatment plant was completed in 1992. It carries out secondary treatment and discharges into the sea through an outfall. Ever since the plant began operating there has been a need to improve the system of interceptors, which were poorly built in the 1970s and are currently in a poor state of repair. It is also necessary to expand the system so as to channel to the Redondela plant all the waste water produced from the municipality of Vigo to the northern area, waste water from which will be channelled to the plant for the system serving the bed of the Vigo estuary.
- **Waste-water collector and treatment plant at Moaña.** Installation of the main interceptors for Villa de Moaña and the Moaña waste-water treatment plant, with a view to treating urban waste water which is currently discharged directly without treatment.

- **Integral clean-up of Gondomar and the Miñor river.** Clean-up of the bed of the Baiona estuary and the Miñor river and rehabilitation of the Ramallosa wetlands.
- **Installation of collectors and secondary waste-water treatment plant at Nigrán.** The municipality of Nigrán carries out pretreatment before discharging through an outfall which has recently been extended. In view of the number of inhabitants equivalent discharging in this area and the substantial seasonal increase in population which has resulted from the strong development of tourism in the area, a secondary treatment plant is needed. The system of collectors must also be extended to increase its length and the number of inhabitants served.

6. Aims

The main objective of this project is to provide urban waste-water treatment facilities for the inhabitants of the Vigo estuary who currently discharge their waste into the estuary. This means providing treatment facilities for some 754 000 inhabitants equivalent. The volume of water to be treated in treatment plants amounts to around 8 000 m³/h at normal flow rate, i.e. around 192 000 m³/day.

Secondary objectives concern the recovery of various coastal areas of the estuary for public and tourist use.

SPECIFIC OBJECTIVES for the Vigo waste-water treatment plant, which represents 70% of the total project:

- current population: 400 000 inhabitants
- design population equivalent: 500 000 inhabitants
- total average BOD₅ on entry: 231 mg/l
- total average BOD₅ on exit: ≤ 25 mg/l
- total average SS on entry:
- total average SS on exit: ≤ 25 mg/l
- average daily volume of water: 129 600 m³/day.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.12.1994	31.12.1998

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments with a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 7.4% overall and 8.9% for the Zamans treatment plant, 8.2% for the Cangas treatment plant, 7.6% for the Teis treatment plant and collectors, 8.3% for the integral clean-up of Moaña, 7.3% for the bed of the Vigo estuary and Redondela, 8.0% for the clean-up of the Miñor river and 6.9% for the clean-up of the Lagares basin.

9. Environmental impact analysis

The project will have a positive effect on the preservation, protection and improvement of the quality of the environment, as well as to the protection of public health and the rational use of water

Compliance with Directive 91/271/EEC on urban waste water treatment as well as Directives 79/923/EEC on the quality required of shellfish waters and 76/160/EEC on the quality of bathing water.

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:		86 198 505
Eligible cost (after 11.4.1995):	85 459 239	
Rate of assistance:	80%	
Cohesion Fund assistance:	68 367 391	

Breakdown of the aid

	(in ecus)
- Lagares river treatment plant	1 609 735
- Cangas collector and treatment plant	4 059 806
- Cabral collector	3 622 407
- Estuary bank collector, sections 7 and 8	2 981 709
- Estuary bank collector, sections 9 and 10	4 688 183
- Pretreatment, spillway and pumping station, C/ Coruña	3 037 154
- Zamans treatment plant	2 513 507
- Integral clean-up of Moaña	7 540 521
- Teis collector and treatment plant	14 101 513
- Clean-up of the bed of the Vigo estuary	5 797 083
- Estuary bank collector, sections 1, 2, 3 and 4	8 439 962
- Expansion of Redondela collectors	4 189 178

- Expansion of Nigrán collectors and secondary treatment plant 3 862 668
- Integral clean-up of Gondomar and the river Miñor 4 836 036

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/036

1. Name of project:

Construction of collectors and waste-water treatment plants in Valencia.

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162, 28071 Madrid

3. Body responsible for implementation

3.1. Name: Entitat Pública de Sanejament d'Aigües Residuals

3.2. Address: C/General Elio, 8 - 46010 Valencia

4. Location

4.1. Member State: Spain

4.2. Region: Valencia

5. Description

Set of three sewerage projects involving the collection and treatment of waste water to prevent it from being discharged untreated into public water courses. The projects are part of the master plan for sewerage of the Comunidad Valenciana.

6. Objectives

SPECIFIC OBJECTIVES

95/11/61/036	Buñol Alborache	Turia	Xatiya
Current population (inhabitants)	12 000		

Design population equivalent (PE)	45 000	95 000	40 000
Total average BOD ₅ on entry (mg/l)	400	345	325
Total average BOD ₅ on exit	25	25	20
Total average SS on entry (mg/l)	760	422	250
Total average SS on exit (mg/l)	35	35	20
Average daily volume of water (m ³ /day)	7 000	24 500	7 000
Percentage of industrial water	67.2	11	8

7. Work schedule

Category of work	Commencement	Completion
XATIVA	27.5.95	27.8.96
CAM DEL TURIA	18.8.95	19.2.97
BUNOL ALBORACHE	22.2.95	22.5.96

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments with a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 12% for Buñol-Alborache, 10% for Camp del Turia and 10% for Xàtiva.

9. **Assessment of environmental impact**

Conservation, protection and improvement of the environment. Improvement of the quality of the environment in urban and protected areas.

Better public health.

Compliance with Directive 91/271/EEC.

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. **Cost and assistance (in ecus)**

Total cost:	21 636 538
Eligible cost (after 11.4.1995):	21 636 538
Rate of assistance:	80%
Cohesion Fund assistance:	17 309 231

Breakdown of the aid

Campo de Turia	8 444 390
Xativa	5 717 652
Buñol-Alborache	7 474 496

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/037

1. **Title:**

Treatment of waste water at Lorca, Murcia

2. **Body responsible for the application**

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. **Authority responsible for implementation**

3.1. Name: C.A. de Murcia. C. de Medio Ambiente. Dirección General del
Agua

3.2. Address: Plaza Santoña S/N, 5ª Planta - 30071 Murcia

4. **Location**

4.1. Member State: Spain

4.2. Region: Murcia

5. **Description**

The project involves collecting waste water from the town of Lorca for transport to a treatment plant and discharge into a public watercourse after treatment. It also includes the waste water from the small district where the treatment plant is located (2 000 inhabitants).

The work involves the following:

(a) Outfalls:

Four outfall sections will be built leading to the treatment plant:

Section I: from the existing tannery treatment plant to the intersection with water from the existing treatment plant at Tiata.

Section II: from the existing treatment plant at Tiata to the intersection with water from the existing tannery treatment plant.

Section III: from the above-mentioned intersection to the new treatment plant.

Section IV: from the La Hoya district to the new treatment plant.

This will require a total of 7 820 m of gravity pipeline 1 000 mm in diameter and 2 300 m of pressure pipe 500 mm in diameter.

(b) The treatment plant will include at least two identical systems entailing the following processes:

- entry works, tank for coarse materials, general bypass;
- lifting of raw water;
- pretreatment, including:
 - * coarse screening
 - * fine screening
 - * desanding and degreasing
 - * withdrawal and concentration of sand
 - * skimming and concentration of grease;
- flow meter;
- initial settling (with or without addition of reagents);
- biological treatment with activated sludge;
- secondary settling;
- recirculation of biological sludge;
- disinfection of effluent using chlorine, ozone or ultraviolet.

6. Aims

General objective:

- To improve the conditions of the receiving water (Guadalentín river).

Specific objectives:

- Current population: 100 000 inhabitants
- Current population equivalent: 292 667 inhabitants equivalent
- Total BODs: 17 560 kg/day - 878 mg/l domestic and 12 261 kg/day industrial
- BODs effluent: 25 mg/l
- Total SS: 343 mg/l; 6 860 kg/day domestic and 11 586 kg/day industrial
- Current volume of water treated: 20 000 m³/day
- Rate, characteristics and % of industrial water: chromium, sulphides, 23% of water treated.

7. Work schedule

Category of work	Commencement	Completion
Main work	1.9.1995	30.3.1997

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits,
- reuse of the treated water.

The internal rate of return is 13.662%.

In addition, there are other benefits which are difficult to quantify, regarding the impact which the project could have on the waters of the Guadalentín river and its associated aquifers.

9. Environmental impact analysis

- Compliance with Directive 91/271/EEC.
- The clean-up of the river Lorca is important because this is the third largest city in Murcia, so that the project will contribute to the conservation, protection and improvement of the quality of the environment and particularly to integrated pollution control and the prevention of discharge of liquid waste.
- The degree of treatment before discharge of waste water from the tanning industry must comply with Directive 76/464/EEC, particularly with regard to the pollution load of chromium.
- The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:	10 349 735
Eligible cost:	10 349 735
Rate of assistance:	80%
Cohesion Fund assistance:	8 279 788

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/038

1. **Title**

Waste-water treatment plant for Pamplona

2. **Body responsible for the application**

- 2.1. Name: Dirección General de Planificación
- 2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. **Authority responsible for implementation**

- 3.1. Name: Departamento de Administración Local (NILSA)
- 3.2. Address: Blas de la Serna, 1, Edif. Fuerte Príncipe II

4. **Location**

- 4.1. Member State: Spain
- 4.2. Region: Navarre

5. **Description**

The district of Pamplona currently has only primary treatment eliminating 34% of BOD₅.

This project will add water, sludge and gas treatment systems and additional installations to the existing facilities.

Treatment will be biological by activated sludge.

There will be six circular settling tanks with an upward flowrate at normal flow of 0.5 m/hour, and diametral bridges.

The current digestion capacity of the sludge treatment system will be doubled with the construction of new anaerobic digesters.

6. Aims

MAIN OBJECTIVES

- To solve Navarre's most serious environmental problem.
- To provide adequate treatment of the largest discharge of waste water in the Ebro basin which is not biologically treated.
- To comply with Directives 92/271/EEC and 78/759/EEC, with current values of 178 mg/l in the discharged water and 100 mg/l in the river.

SECONDARY OBJECTIVES

- To improve the river environment and eliminate nuisance along a 70 km stretch of the river Arga.
- To revive the traditional recreational uses along the same stretch of river.

SPECIFIC OBJECTIVES

- Current population: 263 000 inhabitants
- Design population equivalent: 466 000 inhabitants
- Total average BODs on entry: 270 mg/l
- Total average BODs on exit: ≤ 12 mg/l
- Total average SS on entry: 246 mg/l
- Total average SS on exit: ≤ 15 mg/l
- Average daily volume of water: 129 600 m³/day
- Percentage of industrial water: 44%

7. Work schedule

Category of work	Commencement	Completion
Main work	1.7.1995	1.8.1998

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- charges for discharge and sewerage, and water rates (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 9.33%.

9. Assessment of environmental impact

Conservation, protection and improvement of the quality of the environment.
Improvement of the quality of the environment in urban centres and protected areas and landscapes.

Improvement in public health.

Compliance with Directive 91/271/EEC as well as Directives 78/659/EEC on the quality of fresh waters needing protection or improvement in order to support fish life and 76/160/EEC on the quality of bathing water.

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:		23 639 577
Eligible cost (after 11.4.1995):	23 639 577	
Rate of assistance:	80%	
Cohesion Fund assistance:	18 911 662	

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/039

1. **Title:**

Waste-water treatment plants for Madrid

2. **Body responsible for the application**

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. **Authority responsible for implementation**

3.1. Name: Agencia de Medio Ambiente de la Comunidad de Madrid.

3.2. Address: C/ Princesa, 3 - 28008 Madrid

4. **Location**

4.1. Member State: Spain

4.2. Region: Madrid

5. **Description**

This set of projects are all priority measures included in Madrid's waste water disposal and treatment plan for 1995-2005.

The measures include: construction of 11 (on-land) outfalls or waste-water collectors, construction of five other on-land outfalls to transport waste water from 24 municipalities to waste-water treatment plants which exist already or are soon to be built.

All of these measures comply with all the requirements of Directive 91/271/EEC on the treatment of urban waste water.

Five of the measures constitute the first phase in the construction of collectors and outfalls. The first phase concerns the conceptual design, preparation of expropriation contracts and, where applicable, the environmental impact analysis.

6. Aims

The general strategy of the set of projects concerning Madrid coincides with Madrid's waste water disposal and treatment plan for 1995-2005, which involves the treatment of all waste water from the Madrid region in compliance with legislation and planning, and particularly with Directive 91/271/EEC.

The main objective of this set of projects, included in the Fifth European Community Programme of Policy and Action in relation to the Environment and Sustainable Development, is the management of water resources. Intermediate objectives of all the proposed measures include:

- reducing river pollution,
- reducing the degree of eutrophication of supply reservoirs or environmentally protected reservoirs,
- recovery of soil, flora, fauna and landscape of river banks and reservoirs,
- improving the security and quality of the drinking-water supply,
- facilitating the reuse and economizing of water,
- preventing waste water from having a negative effect on public health and the environment, thereby improving the quality of life.

All of the proposed measures are directly related to the attainment of these objectives, being waste-water disposal and treatment works intended to comply with the deadlines and quality standards laid down in Directive 91/271/EEC.

7. Work schedule

Category of work	Commencement	Completion
Main work	20.1.1994	1.8.1996

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments with a useful life of 20 years,
- running and maintenance costs,
- sewerage charges (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 14.83% overall; Brunete outfall: 11.32%; the Griñón-Torrejón de la Calzada-Torrejón de Velasco outfall: 13.13%; El Alamo: 10.26%; the Humanes collectors: 31.16%; the Fuenfría valley collector, Cercedilla: 19.88%; the San Agustín de Guadalix outfall: 9.78%; outfall from Valdemanco to the Bustarviejo treatment plant: 16.80%; northern collector for Moraleja de Enmedio: 19.73%; Braojos-Gascones-La Serna outfall: 6.24%;

outfall for Sevilla la Nueva 7.87%; outfall for Nuevo Baztán-Olmeda-Villar del Olmo: 10.95%; outfall for Boadilla II treatment plant: 37.35%; outfall from Boadilla to the Guadarrama Medio treatment plant: 11.32%; Navalagamella outfall 8.08%; Valdeolomos-Alalparto outfall: 11.50%

9. Environmental impact analysis

Conservation, protection and improvement of the quality of the environment.
Improved environmental quality in urban and protected areas.

Improved public health

Compliance with Directive 91/271/EEC

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:		4 324 711
Eligible cost (after 11.4.1995):	4 324 711	
Rate of assistance:	80%	
Cohesion Fund assistance:	3 459 768	

Breakdown of the aid

	Ecus
1 Brunete outfall	757 748
2 Griñón-Torrejón de la Calzada-Torrejón de Velasco outfall	462 041
3 El Álamo outfall	640 697
4 Humanes collectors	258 743
5 Adapted collector for Valle de la Fuenfría, Cercedilla	154 013
6 San Agustín de Guadalix outfall	437 399

7 outfall from Valdemanco to Bustarviejo treatment plant	505 165
8 northern collector for Moraleja de Enmedio	246 422
9 Braojos-Gascones-La Serna outfall	43 123
10 Sevilla la Nueva outfall	36 963
11 Nuevo Baztán-Olmeda-Villar del Olmo outfall	43 124
12 Outfall for treatment plant Boadilla II	92 408
13 outfall from Boadilla to the Guadarrama Medio treatment plant	92 408
14 Navalagamella outfall	308 027
15 Valdeolomos-Alalpardo outfall	246 422
Total	4 324 711

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/039-1

1. **Title:**

Waste water treatment plants in the Balearic Islands

2. **Body responsible for the application**

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. **Authority responsible for implementation**

3.1. Name: Consejería de Obras Públicas (Instituto Balear de Saneamiento)

3.2. Address: Avda. Gabriel Alomar y Villalonga, 33 Palma de Mallorca

4. **Location**

4.1. Member State: Spain

4.2. Region: Autonomous Community of the Balearic Islands

5. **Technical description**

The project involves the construction and expansion of five waste-water treatment plants and the installation of a collector to serve one of the treatment plants.

Description of the work

1. **SON SERVERA TREATMENT PLANT**

The plant's treatment process currently consists of screening, initial settling, digestion, thickening and drying of sludge.

The project to expand the plant involves the use of some of the existing facilities and demolition of others, specifically:

- new pretreatment consisting of screening, de-sanding and grease removal. All of these processes will take place inside a deodorized building;
- overhauling of the existing settling tank and associated sludge digestion facilities;
- double, carousel-type activation tank with turbine aerator to operate at low load during the winter and at medium load during the summer;
- double secondary settling tank;
- improvements to the sludge drying building, including deodorization;
- restyling of the existing operations building.

2. SA RAPITA Y S'ESTANYOL TREATMENT PLANT (municipality of Campos)

The treatment plant for the urban centres of Sa Rápita and S'Estanyol consists of the following works and facilities:

- screening in canal
- double-line carousel-type biological treatment
- double secondary settling tank
- sludge thickening
- sludge drying on filter belt.

The screening and sludge dehydration processes take place inside a building which can be deodorized. The building also houses a workshop, laboratory and control room.

3. SA RAPITA Y S'ESTANYOL COLLECTORS (municipality of Campos)

Waste water from Sa Rápita is concentrated at two points at both edges of the urban area close to the shore line. At each of these points a pumping station will be built to transport the water to a third main pumping station which will transport the water to the treatment plant. The total installed power is $13.5 = 7.35$ kW.

4. CAPDEPERA TREATMENT PLANT - CALA RATJADA

The treatment processes at the existing plant at Cala Ratjada consist of screening, desanding and grease removal, two compact units for secondary biological treatment, each consisting of a circular aeration device and circular central settling tank with scrapers and a tertiary clarification basin. The process is completed by a double-sludge digester and double thickener.

Screening takes place inside a building. Another building houses a blower unit to produce air and the belt filter for sludge drying.

The following work is involved:

- replacement of the existing screening installation with one of sufficient capacity,

- deodorization of the screening building,
- new system for desanding and grease removal,
- additional biological treatment to receive the flow which cannot be treated by the existing facilities,
- new secondary settling tank,
- replacement of the blowers with new ones able to cope with the entire flow,
- replacement of the belt filter with two centrifuges, each capable of taking 70% of the flow.

5. ALCUDIA TREATMENT PLANT

This project concerns the expansion and improvement of the waste-water treatment plant for the municipality of Alcudia (Mallorca) in order to attain the treatment capacity currently required.

The plant will have two treatment systems.

A new sludge treatment system will be installed to be shared by both waste-water treatment systems.

The following treatment will be included:

- joint pretreatment for both treatment systems,
- fine screening (replacement of existing phase),
- lamination and storage of the effluent (integration of existing phase),
- desanding, grease removal, pre-aeration (existing)

A - System 1 (exists already)

- initial settling,
- denitrification (improvement of existing oxidation tank),
- oxidation/nitrification,
- final settling,
- chlorination,
- recirculation of biological sludge,
- pump for surplus sludge,
- pump for primary sludge.

B - System 2 (new)

- initial settling,
- denitrification,
- oxidation,
- final settling,
- chlorination (existing)

Sludge treatment system (new)

- pre-thickening of primary sludge (existing thickeners),
- anaerobic digestion of primary sludge (existing),
- aerobic stabilization of surplus biological sludge,

- mechanical drying for all sludge (expansion).

6. SAN LORENZO TREATMENT PLANT

The aim of this project is to study and design the expansion of the waste water treatment plant for the municipalities of Sant Llorenç des Cardassar (Mallorca). It will involve the following treatment processes:

WATER SYSTEM

- flow distribution
- fine screening
- desanding, grease removal
- flow meter
- initial settling (existing)
- biological treatment of waste water
- secondary settling
- chlorination

SLUDGE SYSTEM

- recirculation of biological sludge
- pumping of surplus biological sludge
- sludge digestion
- sludge drying
- storage and disposal of sludge.

6. Aims

Specific objectives

	Son Servera	Sa Rápita*	Cardepera	Alcudia	San Lorenzo
Current population (inhabitants)		7 000			
Design population equivalent (IE)	25 000		28 000	70 000	50 000
Total average BOD ₅ on entry (mg/l)	450	300	450		

Total average BOD ₅ on exit (mg/l)	25	30	25	25	25
total average SS on entry (mg/l)	450	350	300		
total average SS on exit (mg/l)	25	35	35	35	35
Average daily volume of water (m ³ /day)	6 250	1 750	7 000	18 000	12 500

* The project includes the construction of the collectors.

7. Work schedule

Category of work	Commencement	Completion
Main work	11.4.1995	31.12.1996

8. Assessment of costs and socio-economic advantages

The cost-benefit analysis was based on:

- investments for a useful life of 20 years,
- running and maintenance costs,
- sewerage charges (running costs are covered by contributions from users),
- environmental benefits.

The internal rate of return is 14.64% overall; Capdepera: 11.39%; Son Servera: 8.58%; San Lorenzo: 23.15%; Alcudia: 27.58%; Sa Rápita: 6.68%.

9. Assessment of environmental impact

Conservation, protection and improvement of the quality of the environment.

Improved environmental quality in urban and protected areas.

Improved public health

Compliance with Directive 91/271/EEC

The municipal rules on the discharge of liquid waste apply. These require industrial waste to be pretreated before it is discharged into the sewer system.

10. Cost and assistance (in ecus)

Total cost:	8 386 982
Eligible cost (after 11.4.1995):	8 386 982
Rate of assistance:	80%
Cohesion Fund assistance:	6 709 585

Breakdown of costs (in ecus)

Son Servera	1 983 699
Sa Rápita	1 453 892
Rápita collectors	729 409
Cardepera	1 626 387
Alcudia	1 158 185
San Lorenzo	1 435 410

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/043-1

1. Name of project:

Project concerning waste management and the decontamination of polluted ground in the Autonomous Community of Asturias.

2. Authority making the application

2.1 Name: Dirección General de Planificación

2.2 Address: Paseo de la Castellana 162, 28071 Madrid

3. Body responsible for implementation

3.1 Name: Consejería de Medio Ambiente y Urbanismo

3.2 Address: C/ Coronel Aranda s/n - 33005 Oviedo

4. Location

4.1 Member State: Spain

4.2 Region: Asturias

Autonomous Community: Asturias

5. Description

Marpol - Asturias

Implementation of a plan for the collection of waste from ships moored in the ports along the Asturian coastline. The measure includes:

- a preliminary study to determine the quantities of oily waste to be collected in the various ports;
- creation of an infrastructure for collection in commercial ports, fishing ports and marinas, consisting of 49 collection centres, including 17 autonomous centres with a capacity of 500 to 30 000 litres and 32 secondary centres with capacities ranging from 100 to 1 000 litres;

- construction of a plant for the pretreatment of the waste, with a total capacity of 150 000 litres and of a treatment capacity of 10m³/hour, permitting the treatment of 141 250 m³ in under 24 hours;

6. Objectives

Marpol - Asturias

To eliminate irregular discharge of oil generated by maritime activities which pollute the water, to recover the hydrocarbons and obtain effluents with concentrations of less than 15 ppm.

To build collection centres with a total capacity of 72 000 litres and 6 500 litres in the autonomous and secondary centres, respectively, in area I.(Vegado-Aviles), and 66 000 litres and 7 500 litres respectively in the autonomous and secondary centres of area II (Llumeres-Busto).

7. Work schedule

Category of work	Commencement	Completion
Main work	1.4.1995	31.12.1995

8. Assessment of costs and socio-economic advantages

The internal rate of return of the Marpol project is 6%, an average rate if one does not consider the unquantifiable advantages for the environment, which include:

- reduction of environmental risks and pollution,
- conservation of marine resources,
- improvement of public health,
- useful life of the project: 20 years.

9. Assessment of environmental impact

Marpol - Asturias

The treatment of oily waste will prevent water pollution control, stop the deterioration of the landscape and enable the land to be used for other purposes.

10. Cost and assistance (in ecus)

Total cost:	979 528
Eligible cost (after 11.4.1995):	979 528
Rate of assistance:	80%
Cohesion Fund assistance:	783 623

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/043-2

1. Name of project:

Project concerning waste management and the recovery of contaminated ground at Boecillo (Valladolid).

2. Authority making the application

2.1. Name: Dirección General de Planificación

2.2. Address: Paseo de la Castellana 162, 28071 Madrid.

3. Body responsible for implementation

3.1. Name: Consejería de Medio Ambiente y Orientación del Territorio

3.2. Address: C/ Nicolás Salmerón 5, 47071 Valladolid

4. Location

4.1. Member State: Spain

4.2. Region: Valladolid

Autonomous Community: Castile-León

5. Description

Clean-up of ground contaminated by industrial waste at Boecillo (Valladolid) owing to the location of the rubbish tip near a public watercourse and an urban centre.

The project distinguishes three different areas, each to receive specific treatment:

- areas II and III: sealing, drainage of surrounding area using baffles;
- area I: removal of waste and restructuring of space.

6. **Objectives**

The principal objective is to decontaminate a site polluted by various types of industrial waste and convert it into a recreational area. The secondary objectives are to increase awareness of the population, restore a deteriorated site and reafforest of the banks of the river.

The project covers 150 000 m² of waste and 100 000 m² of bare ground.

7. **Work schedule**

Category of work	Commencement	Completion
Construction	1.10.1995	31.3.1996

8. **Assessment of costs and socio-economic advantages**

The cost-benefit analysis was based on the following elements:

- Investments with a useful lifetime of twenty years;
- Maintenance costs;
- Removal of the risk of pollution;
- Net book value of the property after environmental rehabilitation;
- Environmental benefits arising from the reduction of pollution.

The internal rate of return is 61%.

9. **Assessment of environmental impact**

This project will have a major impact on the environment: the site will be recovered for use and there will be no more danger of pollution of the groundwater.

10. **Cost and assistance (in ecus)**

Total cost:	1 780 401
Eligible cost (after 11.4.1995):	1 780 401
Rate of assistance:	80%
Cohesion Fund assistance:	1 424 321

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/043-3

1. Name of project:

Projects concerning the closure and sealing of clandestine tips in Extremadura.

2. Authority making the application

- 2.1. Name: Dirección General de Planificación (MEH)
- 2.2. Address: Paseo de la Castellana 162, 28071 Madrid

3. Body responsible for implementation

- 3.1. Name: Consejería de Obras Públicas, Urbanismo y Medio Ambiente
- 3.2. Address: C/ Enrique Diez Canedo, s/n, Badajoz

4. Location

- 4.1. Member State: Spain
- 4.2. Region: Badajoz
Autonomous Community: Extremadura

5. Description

The general characteristics of this set of 22 projects, all of which are similar, can be summarized as follows:

- Transport of waste:
If necessary (because of the location of the tipping site), waste is transferred by lorry (15 km maximum) for burial in another area. The old rubbish tip is cleaned by excavation and the spoil is treated as waste. The total volume to be transported is estimated at 243 960 m³.
- Transfer and compaction of waste:
For the purposes of sealing, the waste is moved to the burial site for compaction. During this phase, the waste is levelled so as to fit in with the

surrounding relief. The total volume to be dealt with is estimated at 975 848 m³.

- **Proofing of waste using geotextiles.**
The area concerned is estimated at 4 630 000 m².

- **Burial and integration with the relief**
Once compacted and waterproofed, waste is covered with a drainage layer and then with filling material of suitable agronomic quality (final adjustment to surrounding relief at this stage). Lastly it is covered with a third layer of topsoil. The volume of material required for sealing is estimated at 4 360 000 m³, broken down as follows: 0.10 m³ of drainage material, 0.60 m³ of filling material, 0.30 m³ of topsoil.

- **Restoration of the natural environment**
Reafforestation with indigenous herbaceous and woody species, covering a total estimated area of 463 ha.

6. Objectives

The number of tips to be sealed varies substantially between projects. The grouping of tips was determined on the basis of geographical proximity in order to reduce the clean-up and transport costs to a minimum.

The following table shows the tip sites and the areas and volumes concerned:

PROJECT	Transport and waste m ³	Moving and compacting m ³	Proofing m ²	Burial and integration m ³	Environ-mental restorat ion Ha.
BADAJOS 1	6 687	26 668	18 446	18 446	12.65
BADAJOS 2	7 638	30 555	21 135	21 135	14.50
BADAJOS 3	29 476	117 904	81 555	81 555	55.95
BADAJOS 4	10 780	43 121	29 827	29 827-	20.46
BADAJOS 5	4 316	17 265	11 942	11 942	8.19
BADAJOS 6	14 635	58 541	40 493	40 493	27.78
BADAJOS 7	11 765	47 060	32 552	32 552	22.33
BADAJOS 8	21 438	85 751	59 314	59 315	40.69
BADAJOS 9	10 314	41 256	28 537	28 537	19.57
BADAJOS 10	21 512	86 048	59 520	59 520	40.83
BADAJOS 11	10 096	40 380	27 931	27 931	19.16
CACERES 1	8 812	635 244	24 379	24 379	16.72
CACERES 2	6 638	26 553	18 367	18 367	12.60
CACERES 3	24 069	96 277	66 595	66 595	45.68
CACERES 4	7 512	30 048	20 784	20 784	14.26
CACERES 5	4 878	19 512	13 497	13 497	9.26
CACERES 6	8 100	32 399	22 411	22 411	15.37
CACERES 7	9 966	39 864	27 574	27 574	18.91
CACERES 8	5 356	21 440	14 830	14 830	10.17
CACERES 9	4 898	19 589	13 550	13 550	9.29
CACERES 10	7 898	31 593	21 853	21 853	14.98
CACERES 11	7 196	28 780	19 907	19 907	13.65

7. **Work schedule**

Category of work	Commencement	Completion
Construction	1.4.1995	31.12.1995

8. **Assessment of costs and socio-economic advantages**

The cost-benefit analysis was based on the following:

- investments with a useful life of twenty years;
- maintenance costs;
- social value of the restored woodland;
- net book value of environmentally restored property;
- environmental advantages arising from the reduction in pollution.

The internal rate of return is 68%.

9. **Assessment of environmental impact**

The positive effects of the project on the environment can be summarized as follows:

- reduction of the risks of pollution of the environment,
- improvement of public health and safety,
- promotion of projects for sustainable socio-economic development by solving environmental problems from the past.
- improvement of the quality of life in rural communities.
- increase in the awareness of citizens and industry to the policies to encourage recycling.

10. **Cost and assistance (in ecus)**

Total cost:	9 610 468
Eligible cost (after 11.4.1995):	9 610 468
Rate of assistance:	80%
Cohesion Fund assistance:	7 688 374

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ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/043-5

1. Name of project:

Construction of collection centres for recyclable waste

2. Authority making the application

2.1. Name: Dirección General de Planificación (MEH)

2.2. Address: Paseo de la Castellana 162. 28071 Madrid

3. Body responsible for implementation

3.1. Name: Dirección General de Medio Ambiente de Madrid

3.2. Address: C/ Princesa, 3 - 28008 Madrid

4. Location

4.1. Member State: Spain

4.2. Region: Madrid

Autonomous Community: Madrid

5. Description

Construction of collection centres for recyclable waste in Getafe, Alcobendas and Madrid to extend the existing network.

Users will be able to bring their domestic waste to these collection points after having sorted it themselves. This service is free to users and takes waste cardboard, paper, tetra-bricks, plastic, glass, used motor oil, X-rays, button batteries, car batteries, aerosols and paint remnants.

6. Objectives

- To separate at source the various types of domestic waste, in order to recycle the raw materials that they contain.

- To reduce the quantity of waste deposited in rubbish tips and lengthen the lifetime of the tips.
- To prevent the formation of highly toxic leachate, formed when domestic waste is eliminated together with other types waste, like batteries, X-rays, medicines or paint.

7. **Work schedule**

Category of work	Commencement	Completion
Construction	1.6.1995	31.12.1995

8. **Assessment of costs and socio-economic advantages**

The cost-benefit analysis was based on the following:

- investments with a useful life of twenty years;
- running and maintenance costs;
- recycling of the deposited waste;
- economies in terms of tips and clean-ups.

The internal rate of return is 9.68%, showing that the project is both economically and environmentally profitable.

9. **Assessment of environmental impact**

The environmental impact is positive. The selective treatment of certain types of waste (batteries, X-rays, paint, etc) will prevent the risks posed by joint elimination of such products with domestic waste. This project will also help to educate the population to sort their waste before disposing of it.

10. **Cost and assistance (in ecus)**

Total cost:	739 431
Eligible cost (after 11.4.1995):	739 431
Rate of assistance:	80%
Cohesion Fund assistance:	591 545

**Publication of main points of decisions to grant financial assistance under
Regulation (EC) No 1164/94 establishing a Cohesion Fund**

ANNEX I

INFORMATION SHEET

Summary of project

No 95/11/61/043-7

1. Title:

The treatment of waste and recovery of polluted sites in the Basque Country

2. Body responsible for the application

- 2.1. Name: Dirección General de Planificación
2.2. Address: Paseo de la Castellana 162, 28071 Madrid

3. Authority responsible for implementation

- 3.1. Name: Departamento de Urbanismo, Vivienda y Medio Ambiente
3.2. Address: C/ Sameniego, 2 - 01008 Vitoria

4. Location

- 4.1. Member State: Spain
4.2. Autonomous Community: Basque country

5. Description

Study relating to the construction of a safety cell for contaminated waste and soil: this involves determining the possibility of placing a safety cell for waste and soil contaminated with HCH on the left bank of the Nervión river.

The operation includes:

- a viability study for cleaning soil contaminated with HCH (pesticide) in the municipalities concerned, in order to determine the real volume of waste and contaminated soil to be removed and stored in the cell;
- a study on the geological, hydrogeological and geotechnical characteristics of the selected site, in order to determine how to seal it and ensure the stability of the structure over time.

6. **Aims**

Study relating to the construction of a safety cell.

The project will seek to solve the environmental and public health problems caused by the existence of numerous dumping sites on the left bank of the Nervión (more than twenty) where a large part of the 82 000 tonnes of waste from production of the pesticide Lindane (HCH) have been dumped.

The ultimate objective is to eliminate all of this waste and to recover the contaminated soil, in view of the toxic effects for humans.

At present, the construction of a safety cell for the storage of this waste and contaminated soil is the best available solution.

7. **Work schedule**

Category of work	Commencement	Completion
Studies	1.1.1995	31.12.1995
Construction	1.1.1995	31.8.1995

8. **Assessment of costs and socio-economic advantages**

The cost-benefit analysis was based on the following elements:

- investments with a useful lifetime of twenty years;
- maintenance costs;
- reduction of pollution;
- savings in raw materials from the recovered products;
- recovery of land for alternative uses.

The internal rate of return for the safety cell is 69%.

9. **Environmental impact analysis**

The project will have a positive effect on the environment:

- by minimizing the danger to the environment by better protecting ecosystems,
- by improving public health and safety,
- by raising the awareness of citizens and industry by enlisting their collaboration in policies to support recycling,
- by creating a recycling management sector,
- by improving the appearance of many polluted sites.

10. Cost and assistance (in ecus)

Total cost:	4 971 569
Eligible cost (after 11.4.1995):	4 971 569
Rate of assistance:	80%
Cohesion Fund assistance:	3 977 255