



MINISTERIO
DE MEDIO AMBIENTE
Y MEDIO RURAL Y MARINO

acuaMed

Agencia de las Cuencas Mediterráneas

5th WORLD WATER FORUM
ISTANBUL 2009



DESALINATION AT THE SPANISH MEDITERRANEAN BASIN

March 20th 2009

CARLOS MASSA
ACUAMED'S General Director



1. **WHAT IS ACUAMED / LEGAL FIGURE**
2. **OPERATING ACTIVITY AND WORKS**
3. **FINANCING**
4. **DESALINATION**
5. **EXAMPLES OF SOME WORKS**



WHAT IS ACUAMED ?

Instrument of the Estate
General Administration
set up to provide
solutions to the growing
complexity of water
management at the
Mediterranean basin
arch .

Social Reason

(According to the given writing in
cabinet meeting July 22nd 2005)

- The hiring, construction, acquisition and exploitation of all kind of hydraulic works of general interest stated in the law of 11/2005.
- The management of contracts for studies, construction projects or exploitation of the previously mentioned works in the first paragraph as well as the execution of all those preparatory and complementary activities resulting from the preceding ones.

Boosts and facilitates
the intervention of
private initiative along
with public promotion of
water infrastructures
allocating resources
from the national public
sector, European, and
private.



LEGAL FIGURE OF ACUAMED

- **Trading company**
- **Share capital: 1.302 million €- Sole shareholder**
- **Government institutions and estructura:**

It is ruled by an administrative board made of 7-14 members chaired by the General Director of Water from the Environmental, Rural and Maritime Ministry.

✓ It is lead by a general director appointed by an administrative board

✓ It counts on more than 80 employees; its headquarters is in Madrid with delegations in the community of Valencia, Murcia, Almeria, Malaga y Tarragona



OPERATING ACTIVITY

The operating activity of Acuamed consists on

To carry out investment and exploitation projects the estate has awarded.

To establish agreements with the administration that allow taking on the direct management of the projects .

To promote and sign the agreements with users.

To obtain and manage the needed financial resources to successfully execute projects.

SHAPING OF WORKS (1)

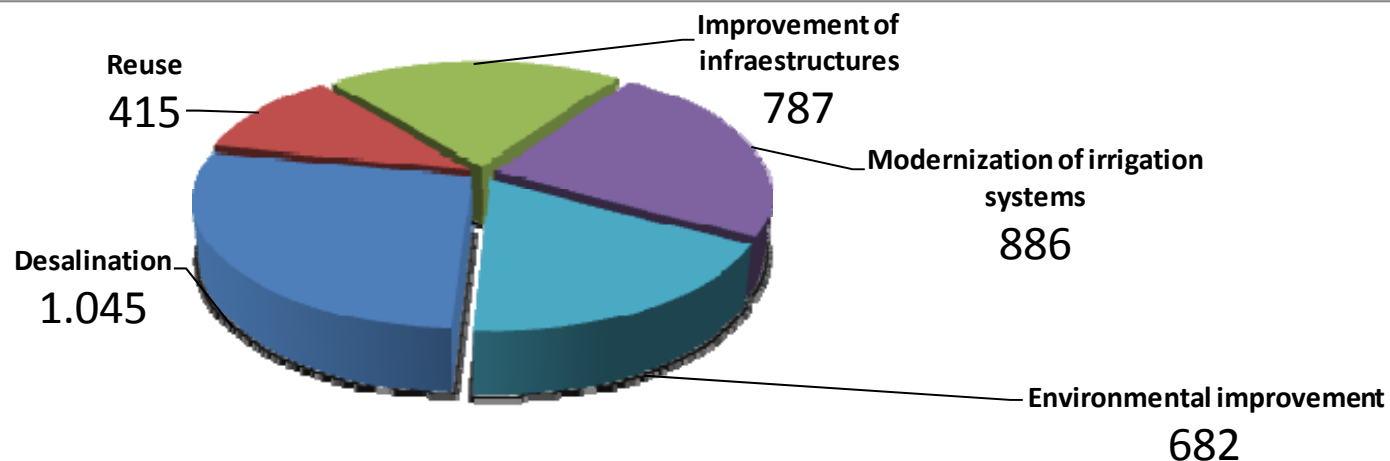
The works awarded to AcuaMed include solutions to solve varied problems at the lowest social and economic possible price

The main works are classified as follows:

| | | | |
|--|---|---|--|
| <p>The generation of new resources</p> <ul style="list-style-type: none">• Desalination• Reuse | <p>Improvement of infrastructures and management</p> | <p>Modernization of irrigation systems</p> | <p>Environmental improvements</p> |
|--|---|---|--|

SHAPING OF WORKS* (2)

| TYPE | NUMBER | INVESTMENT WITH AVT (M€) ** | PROVIDED RESOURCES (hm ³ /YEAR) |
|--|-----------|-----------------------------|--|
| Desalination | 18 | 1.045 | 479 |
| Reuse | 16 | 415 | 185 |
| Improvement of infrastructures and management | 9 | 787 | 112 |
| Works in irrigation | 24 | 886 | 145 |
| Environmental improvements and protection before floodings | 14 | 682 | |
| Total | 81 | 3.815 | 921 |



*Agreement of Direct Management 2

**Investment in million €.

FINANCING

For the development of the investment , Acuamed counts on three types of financial resources

Social capital

1.302 million €
+ enlargments

European Unión funds

FEDER funds
Cohesion funds

Operative program 2000/06
Operative program 2007/13
693 million €

Contribution of users

Rest



FINANCING

| WORKS OF ACUAMED | % ACUAMED'S OWN FUNDS | % DEBT | % EU FUNDS |
|---|-----------------------|--------------|--------------|
| DESALINATION | 57,8% | 14,1% | 28,0% |
| IMPROVEMENT OF INFRASTRUCTURES AND MANAGEMENT | 52,3% | 32,6% | 15,1% |
| IMPROVEMENT AND MODERNIZATION OF IRRIGATION | 46,6% | 42,9% | 10,5% |
| REUSE | 37,5% | 44,2% | 18,3% |
| ENVIRONMENTAL WORKS | 51,7% | 0,0% | 48,3% |
| TOTAL | 52,6% | 22,2% | 25,2% |



DESALINATION (1)

1965: The first desalination plant was built in **Lanzarote**

1969- 1971: First desalination plants promoted by the administration of Fuenteventura, Ceuta and las Palmas de Gran Canarias. Technology used: evaporation

1980's: First trials with reverse osmosis

1990's: Reverse osmosis substitutes evaporation

Nowadays: There are over **700 desalination plants in**

Produce a total de **5,2 million m³ of water per day**

Spain is **the fourth** in terms of desalinated water after Saudi Arabia , Arab Emirates, and The United States

DESALINATION (2)

The desalination program of the Environment, Rural, and maritime Ministry

- Assures the supply of almost 10 million people in Spain.
- It reinforces the guarantee of supply to 250.000 hectares to the most advanced agriculture and with it assures the economy of 100.000 farmers.
- The economic importance of the program is shown in the total investment expected: more than 2.000 million € destined to generate more than 860 hm³ of water

Acuamed's desalination

- Investment until 2011: 1.045 million €
Projects :construction of 18 plants
Production: 479 hm³ urban drinking water and irrigation

GENERATION OF NEW RESOURCES DESALINATION (3)

Number of works: 18

Total investment: 1.045 million €

Generated resources: 479 hm³ per year in the Mediterranean basin with water scarcity problems.

These works are part of the desalination plan of the Environment, Rural, and Maritime Ministry, which promotes 32 facilities that will produce 728 hm³/year with a total investment of 2.050 Million €





DESALINATION (4)

Works of Environment, Rural, and Maritime Ministry





DESALINATION (5) Works of Acuaamed South Hydrographic District

| DESALINATION | hm ³ /year | USE | LOCATION |
|----------------|-----------------------|----------------|------------|
| Marbella | 20 | Drinking water | In service |
| El Atabal | 60 | Drinking water | In service |
| Costa el Sol | 20 | Drinking water | -- |
| Adra | 5 | Drinking water | -- |
| Carboneras | 42 | Mixed | In service |
| Bajo Almanzora | 20 | Mixed | -- |
| Campo Dalías | 30 | Mixed | -- |
| Níjar | 20 | Agriculture | -- |
| TOTAL | 217 | | |





DESALINATIO (7) WORKS OF Acuamed Segura Basin

| DESALINATION | hm3/year | USE | LOCATION |
|--------------------------------|------------|----------------|------------|
| Antonio León Martínez Campos * | 24 | Drinking water | In service |
| San Pedro del Pinatar II * | 24 | Drinking water | In service |
| Valdelentisco * | 50 | Mixed | In service |
| Águilas/Guadalentín | 70 | Mixed | -- |
| Torre Vieja | 80 | Mixed | -- |
| Mojón enlargement | 4 | Agriculture | -- |
| Vega Baja | 40 | Agriculture | -- |
| TOTAL | 292 | | |

* Managed by other entities





DESALINATION (8) Other works Rest of territory

| DESALINATION | hm ³ /year | USE | LOCATION |
|-----------------------|-----------------------|----------------|------------|
| Ceuta * | 7,5 | Drinking water | In service |
| Melilla * | 7,5 | Drinking water | In service |
| Barcelona * | 60 | Drinking water | -- |
| Baleares (4) * | 17 | Drinking water | -- |
| Tordera enlargement * | 10 | Drinking water | -- |
| Canarias I * | 9 | Drinking water | -- |
| Canarias II * | 10 | Drinking water | -- |
| Total | 121 | | |



* Managed by other entities

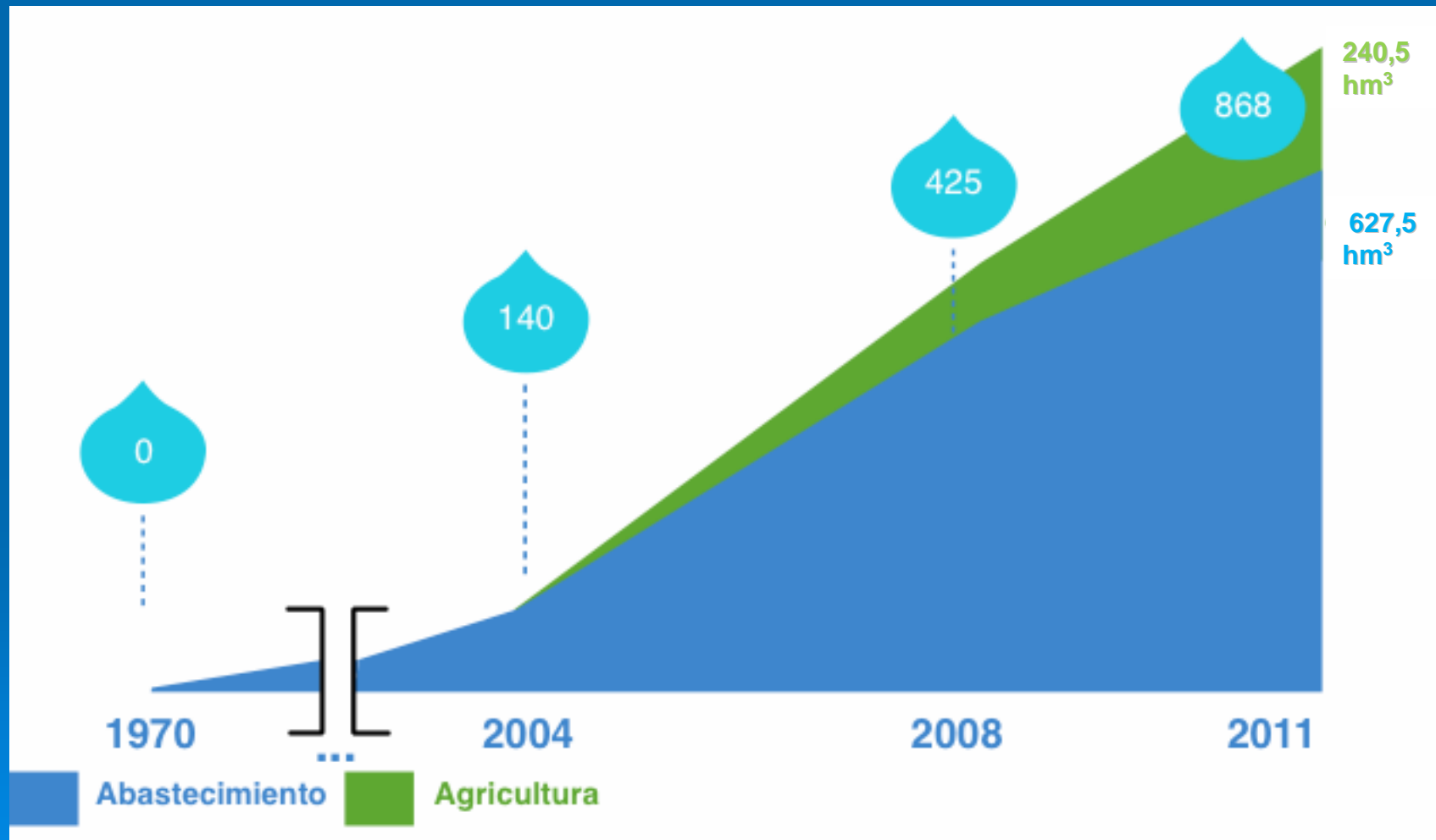


DESALINATION (9)

BALANCE OF DESALINATION PLANTS PROMOTED BY ENVIRONMENT, RURAL, AND MARITIME MINISTRY (MARM)

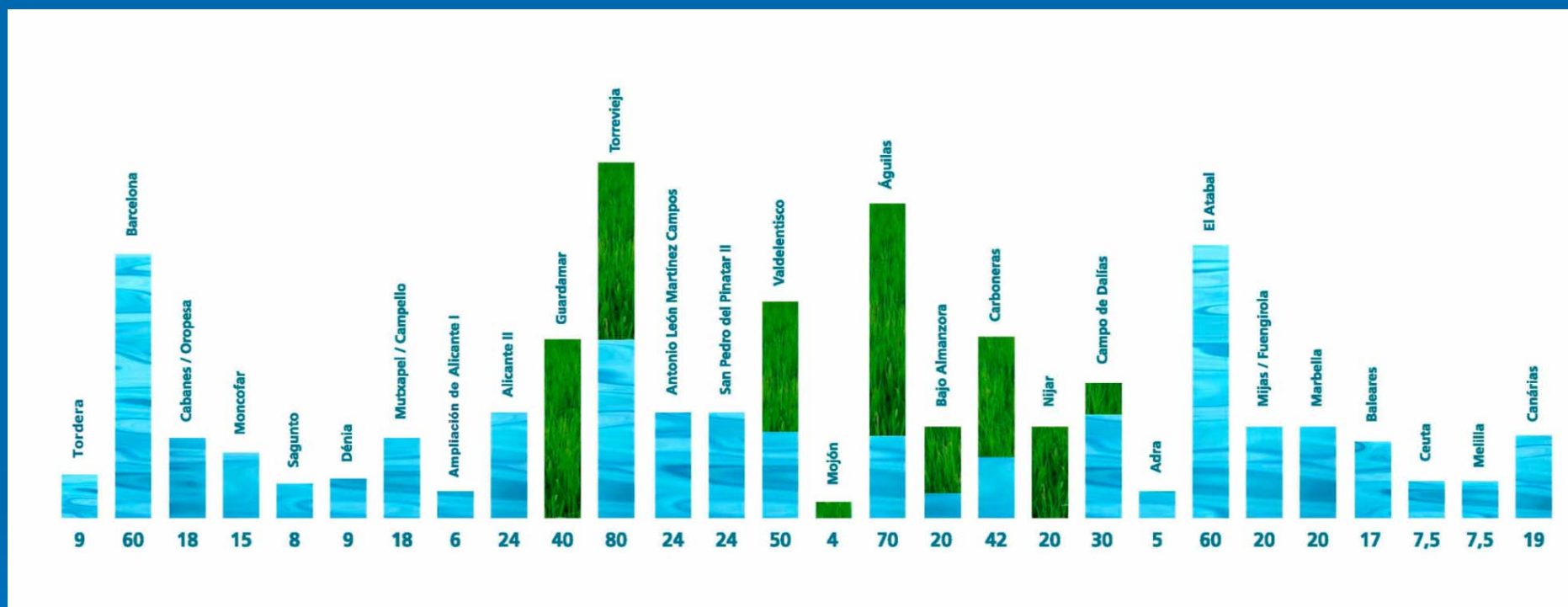
| SITUATION | HM3/YEAR | MILLION EUROS |
|-------------------------------------|------------|---------------|
| Desalinated water beginning of 2004 | 140 | |
| Operating since 2004 | 265 | 575 |
| In construction | 306 | 965 |
| Awarded | 112 | 315 |
| Close to be bided | 40 | 180 |
| Next to public information | 5 | 15 |
| Total promoted by MARM | 728 | 2.050 |
| TOTAL | 868 | |

DESALINATION (10) Water distribution according to use



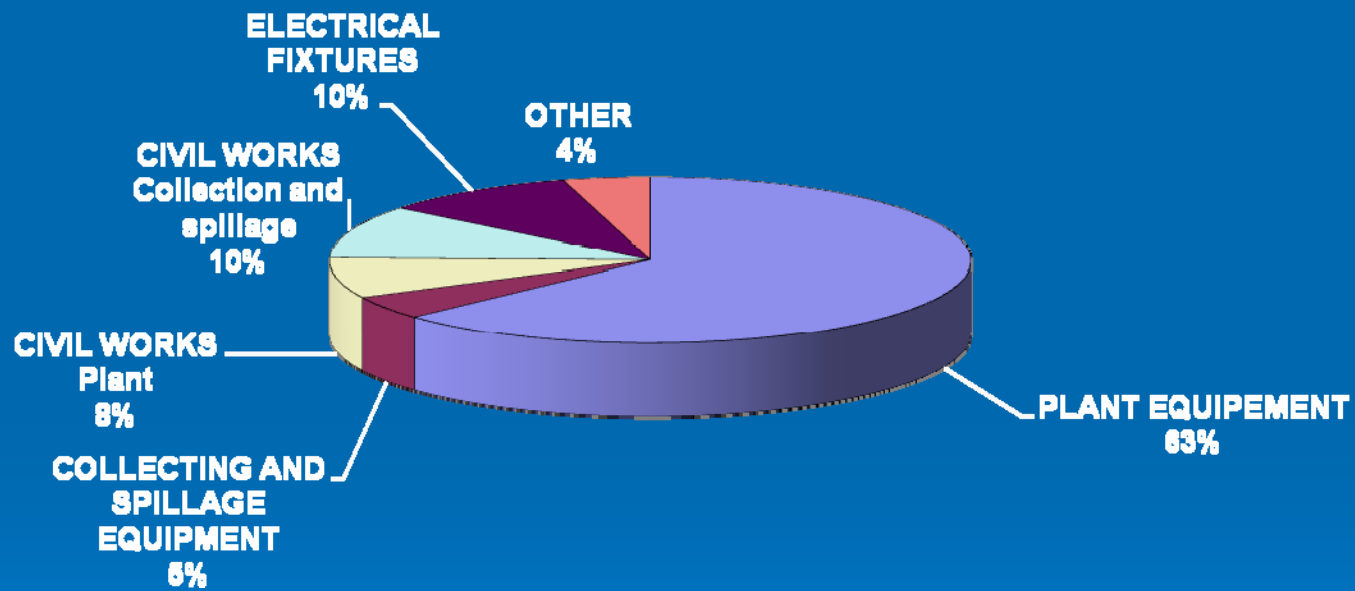


DESALINATION (11) Water distribution according to use

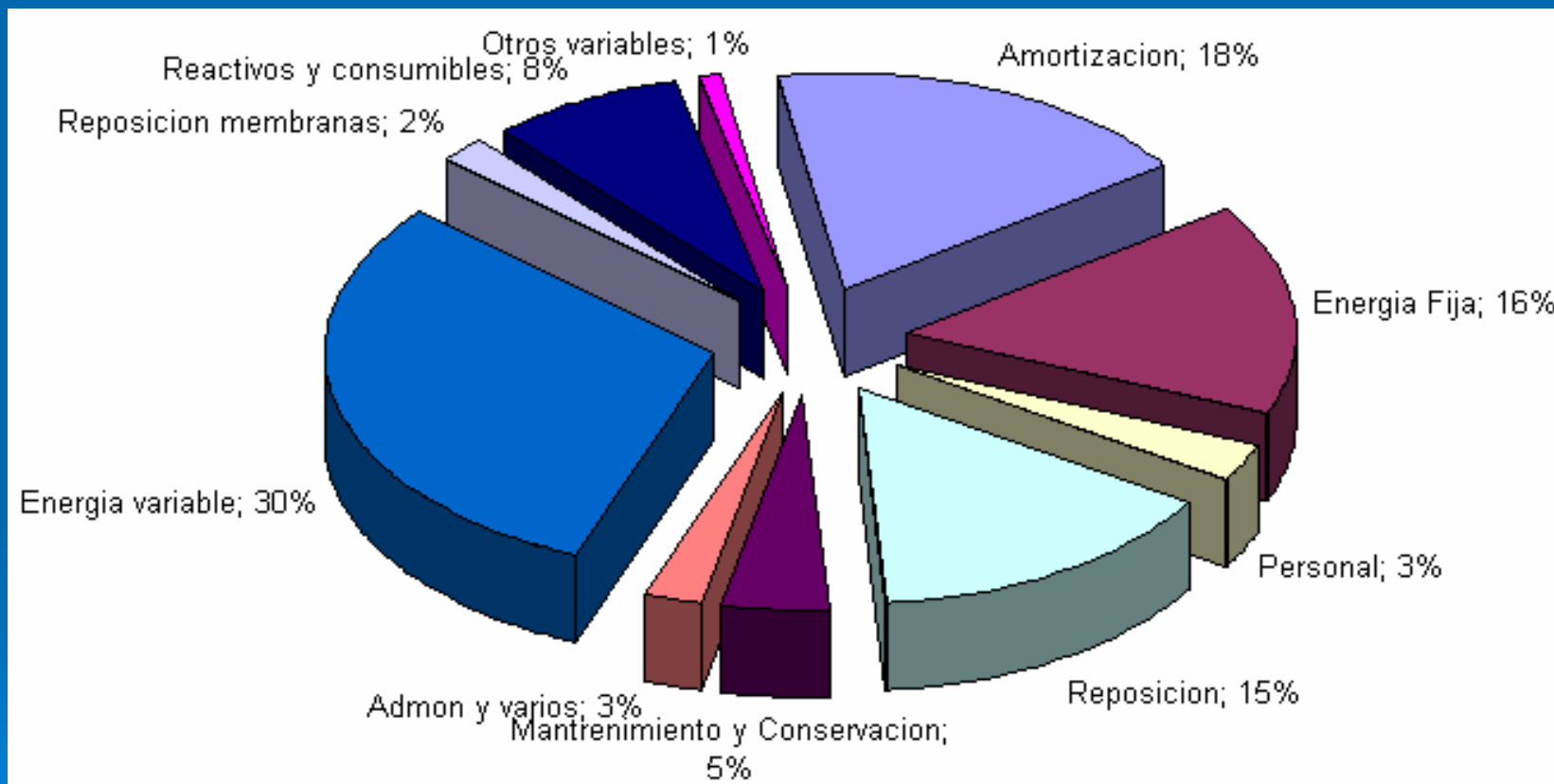


En hm³ /año

INVESTMENT COST OF DESALINATION



EXPLOITATION COST OF DESALINATION PLANT





EXAMPLES OF WORKS BEING DEVELOPED DESALINATION PLANT OF TORREVIEJA (Alicante)



Starting of the works in February 2007



Current state of the works



Final project

80 Cubic hectometers per year for irrigation and supply (40- 40, respectively)
Investment: 297 million €. It counts on EU financing 55 million €
At an advanced stage of construction



EXAMPLES OF WORKS BEING DEVELOPED DESALINATION PLANT OF AGUILAS (Murcia)



Starting of the works in June 2007



Current situation of the works



Final Project

70 cubic hectometers per year
Investment: 239 million €. It counts on EU financing 47 million €
At an advanced construction stage



MINISTERIO
DE MEDIO AMBIENTE
Y MEDIO RURAL Y MARINO

acuaMed

Agencia de las Cuencas Mediterráneas

5th WORLD WATER FORUM
ISTANBUL 2009



DESALINATION AT THE SPANISH MEDITERRANEA BASIN

March 20th 2009

CARLOS MASSA
ACUAMED'S General Director