



**Sustainable Water  
Integrated Management (SWIM) -  
Support Mechanism**



Project funded by  
the European Union

*Water is too precious to waste*

**Two days training on the operation and management of WWTPs**

**9-10 September, Murcia**

**Legal framework for wastewater treatment and reuse**

***Presented by: Ana Romero Barahona***

# Objectives

- Spanish legal framework of wastewater treatment and reuse
- Singularities in the Segura River Basin

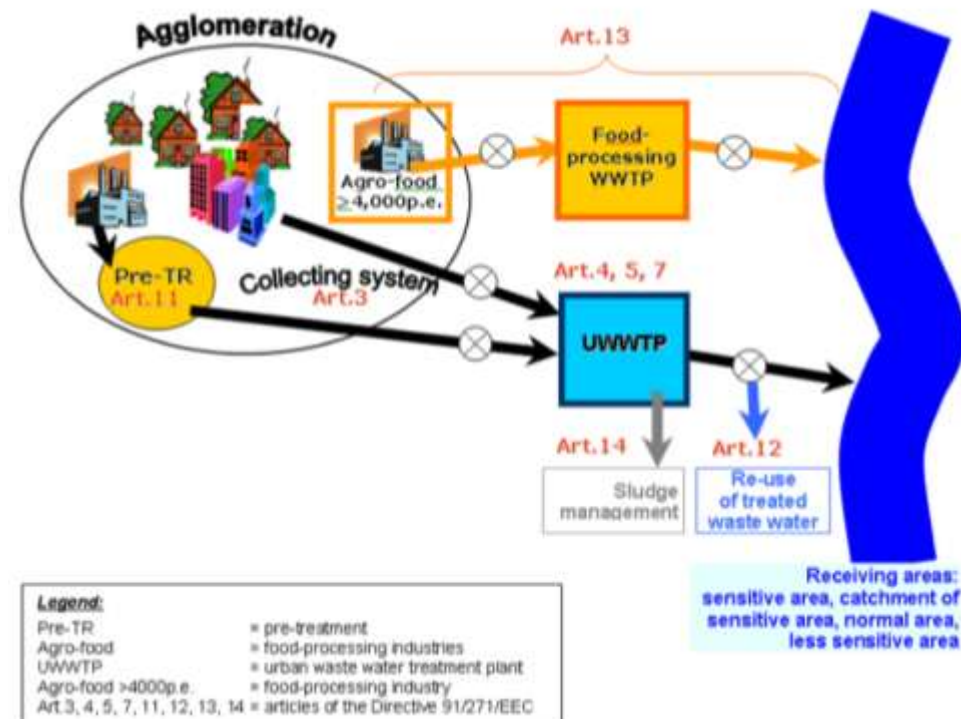
# Before reuse...

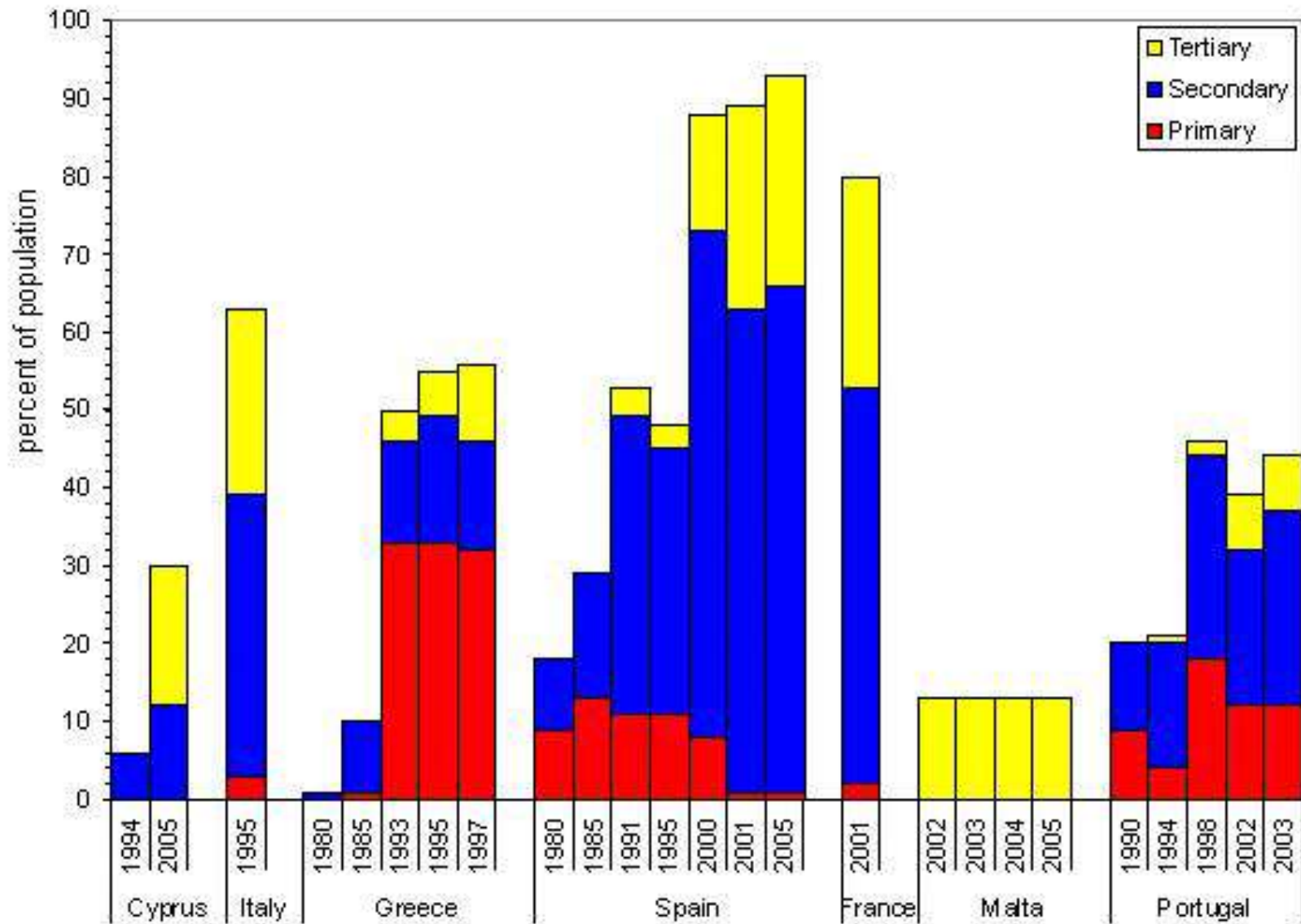
- At the EU level:
  - Directive 91/271/CEE concerning urban waste water treatment
- At the national level:
  - Royal Decree 11/1995, establish the standards of urban waste water treatment
  - Royal Decree 509/1996 that develops the RD 11/1995



# Directive 91/271/CEE concerning urban wastewater treatment

- **Objective:** protect the environment from the adverse effects of urban wastewater discharges and discharges from certain industrial sectors.
- **Concerns:** collection, treatment and discharges of:
  - Domestic waste water
  - Mixture of waste water
  - Waste water of certain agro-food industries





# WASTE WATER TREATMENT AND REUSE

- ✓ Long-awaited regulation
- ✓ Difficult consensus between different stakeholders
- ✓ Economic implications
- ✓ Technical and legal criticized
- ✓ Positive overall balance

# WASTEWATER REUSE REGULATION

- Wastewater reuse in the Royal Legislative Decree 1/2001
  - The government shall establish the **basic requisites** for water reuse
  - **Costs:** assumed by the concession or authorization holder
  - Necessary to obtain a **concession or authorization**
- The Regulation of Public Water Domain (Royal Decree 849/1986) defines the requisites and steps for obtaining a concession for water reuse.

# WASTEWATER REUSE REGULATION

## ROYAL DECREE 1620/2007

RD 1620/2007 which sets the legal regime for the reuse of treated wastewater, establishes both the basic requisites for water reuse, and the necessary procedures to obtain the concessions and authorizations



# ROYAL DECREE 1620/2007

## Index

- Chapter 1: General provisions  
*objectives, definitions, legal framework*
- Chapter 2: Basic conditions for the reuse of treated wastewater  
*authorized uses, quality criteria*
- Chapter 3: Agreements for assignments of reclaimed water rights
- Chapter 4: Procedures for the reuse of treated wastewater
- Annex I: Quality criteria for the reuse according to the uses
- Annex II: Application for a water reuse concession or authorization

# ROYAL DECREE 1620/2007

## Definitions

- Water reuse
- Treated wastewater
- Reclaimed water
- Water reclamation plant
- Storage and distribution infrastructures
- Water reuse system
- Primary user
- Reclaimed water user
- Point of delivery of treated wastewater
- Point of delivery of reclaimed water
- Location for use of reclaimed water
- Self-monitoring

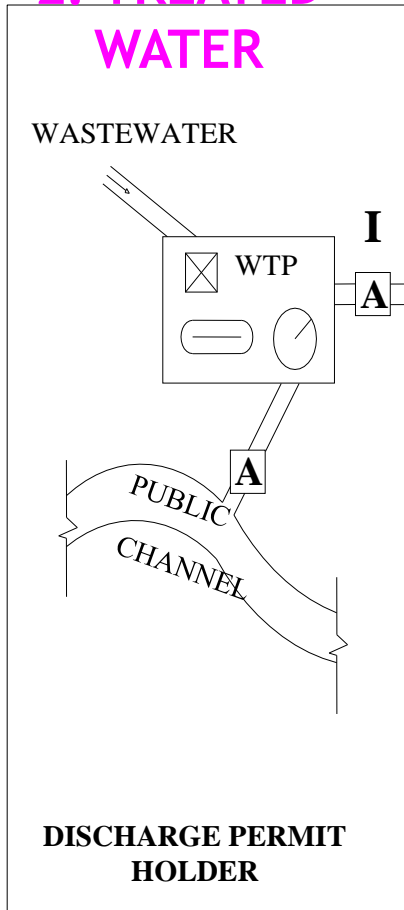
# ROYAL DECREE 1620/2007 STAKEHOLDERS

1. Primary water user
2. Discharge permit holder
3. Water reuse concession or authorization holder
4. Reclaimed water user

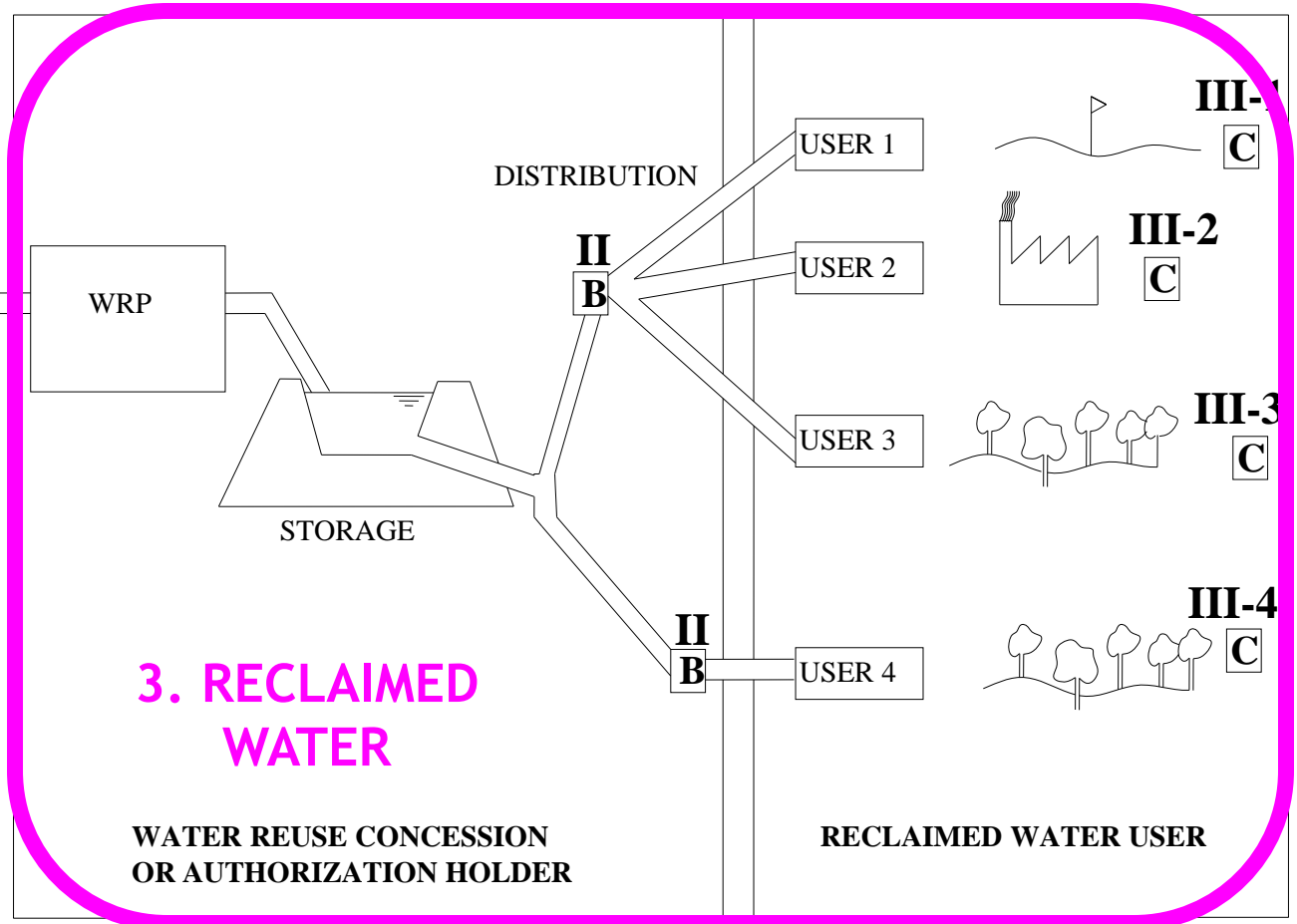
# ROYAL DECREE 1620/2007

## Definitions Diagram (1)

### 2. TREATED WATER



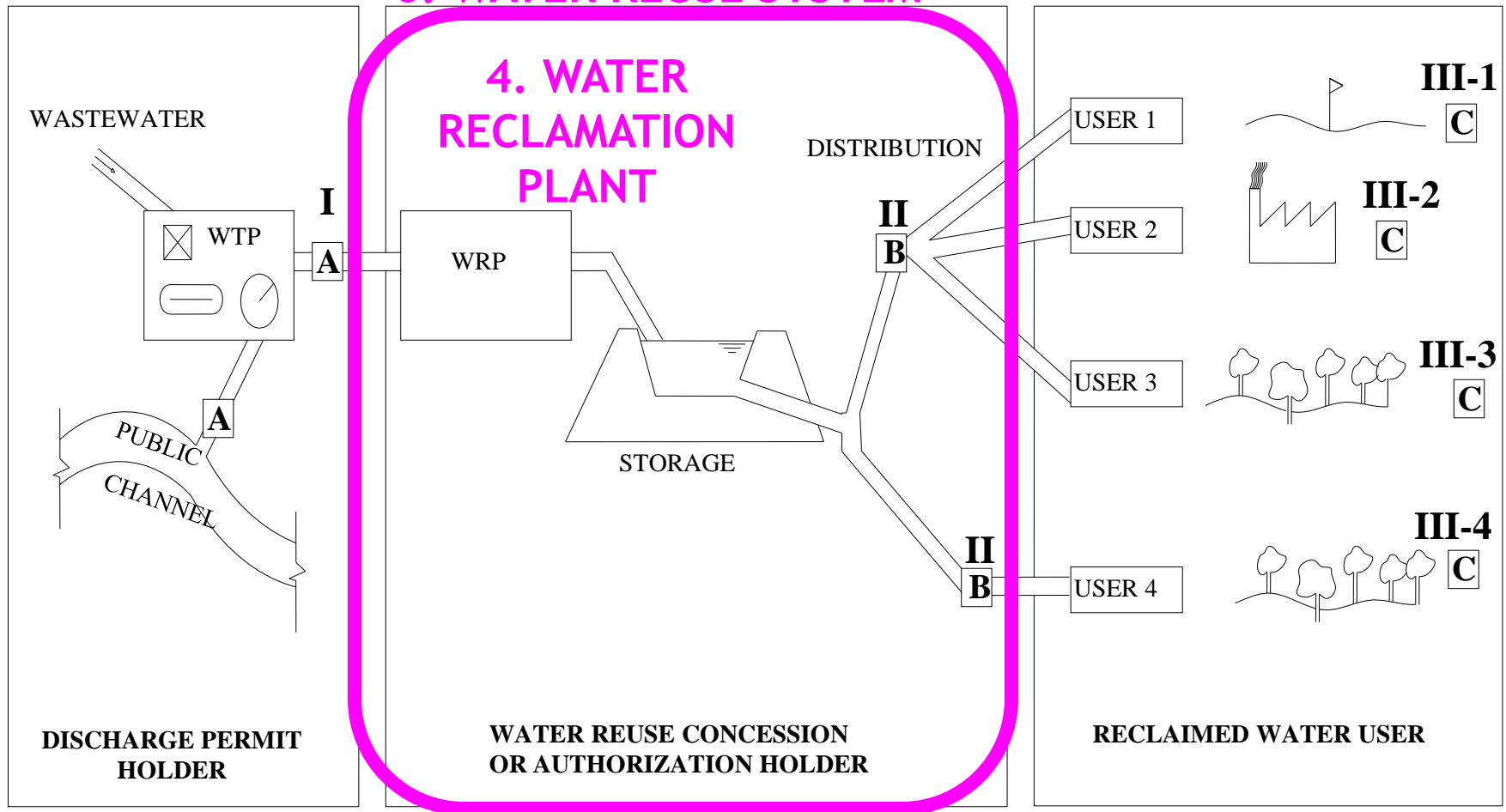
### 1. WASTEWATER REUSE



# ROYAL DECREE 1620/2007

## Definitions Diagram (2)

### 6. WATER REUSE SYSTEM

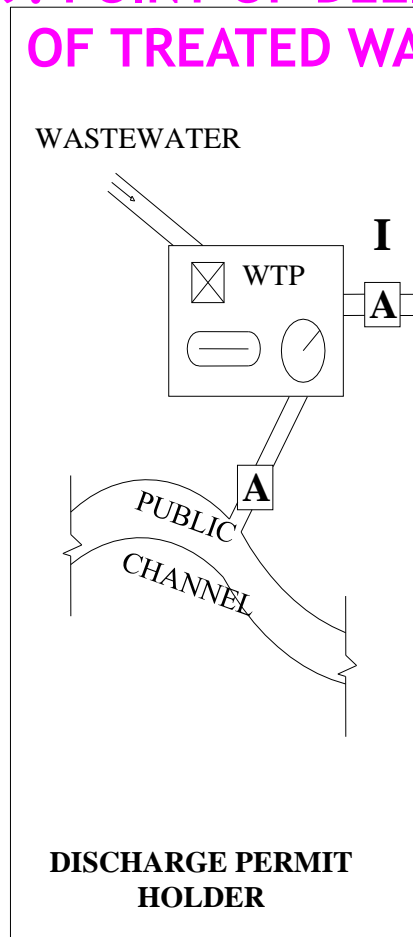


### 3. STORAGE AND DISTRIBUTION INFRASTRUCTURES

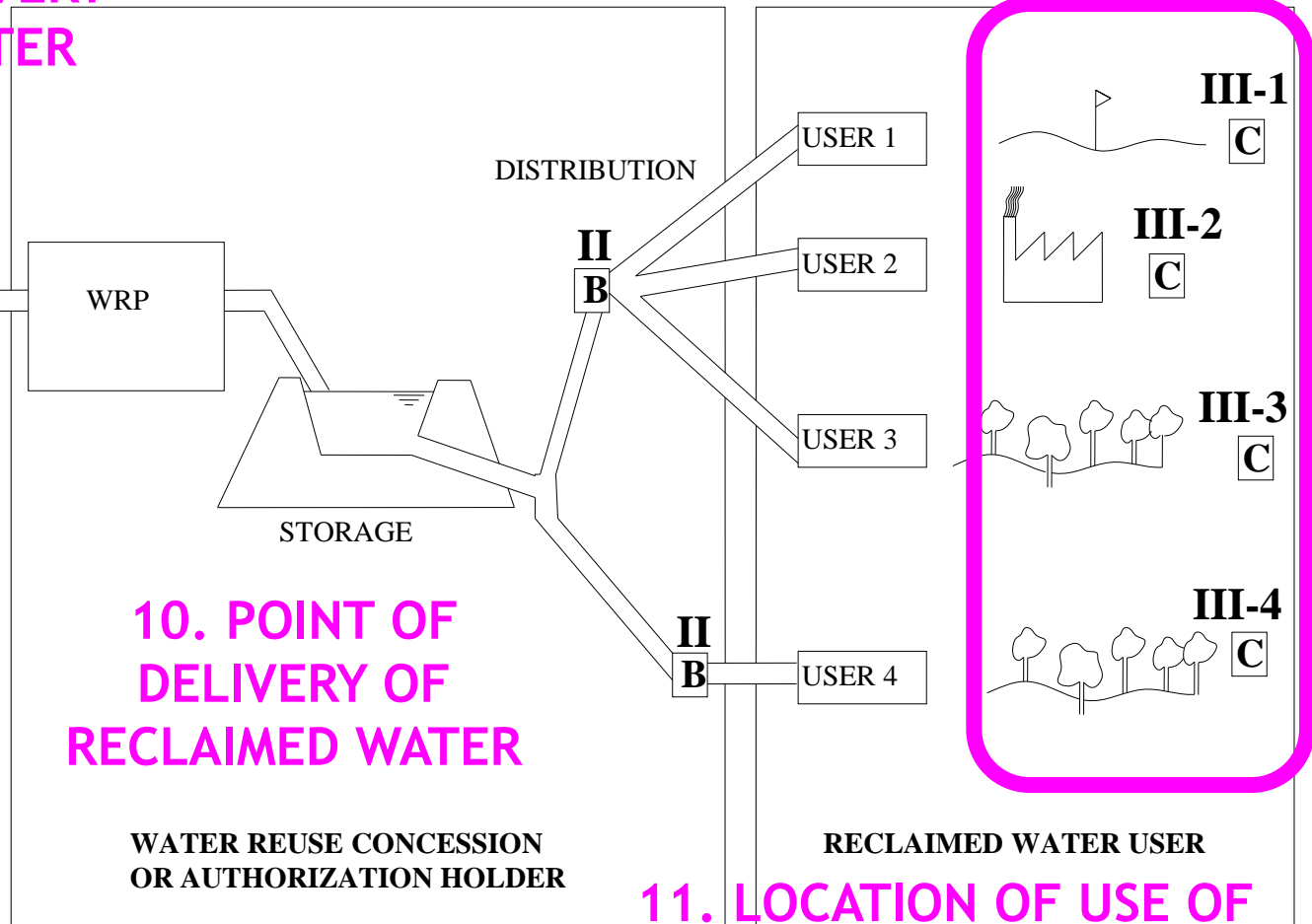
# ROYAL DECREE 1620/2007

## Definitions Diagram (3)

### 9. POINT OF DELIVERY OF TREATED WATER



### 8. RECLAIMED WATER USER

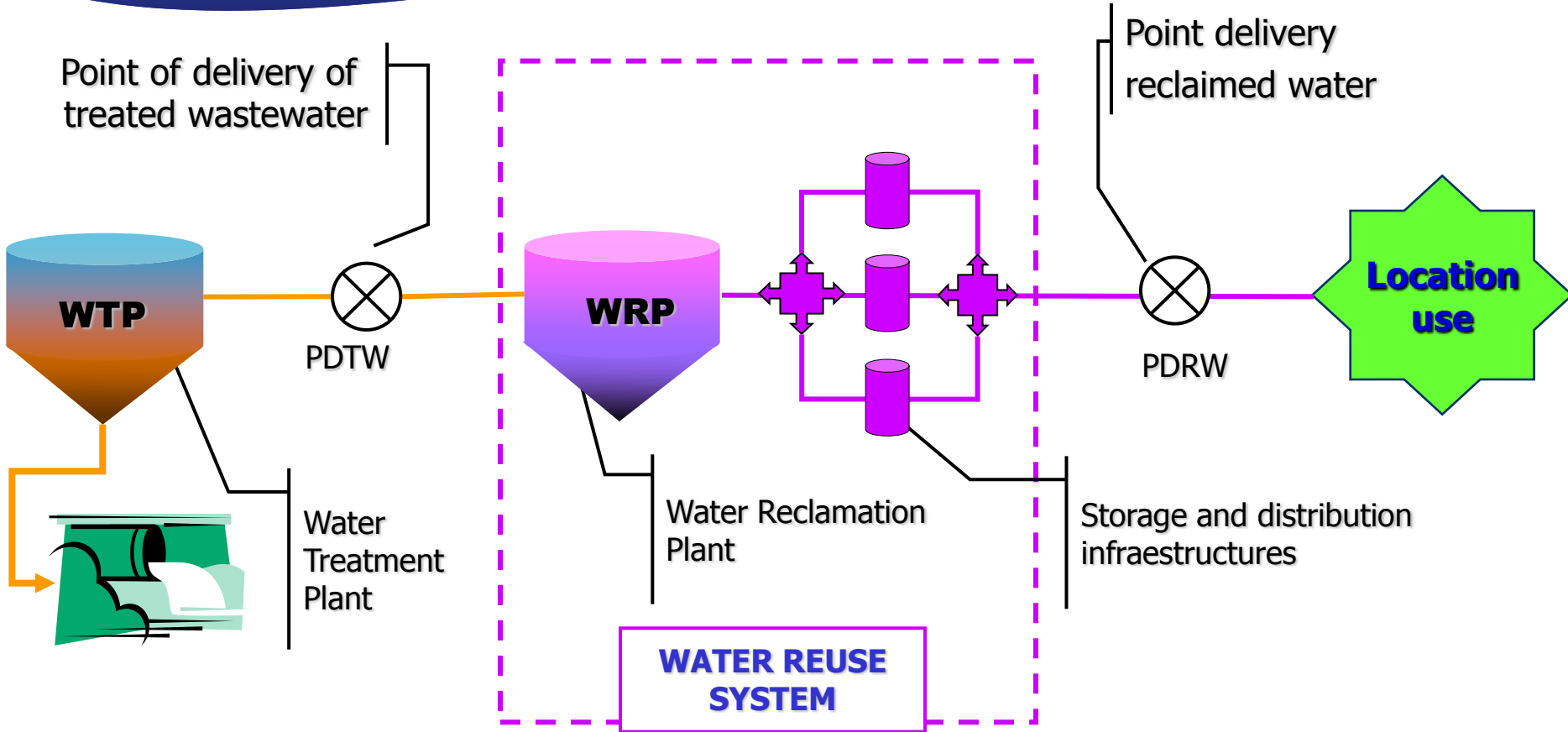


### 10. POINT OF DELIVERY OF RECLAIMED WATER

### 11. LOCATION OF USE OF RECLAIMED WATER

# ROYAL DECREE 1620/2007

## Definitions Diagram

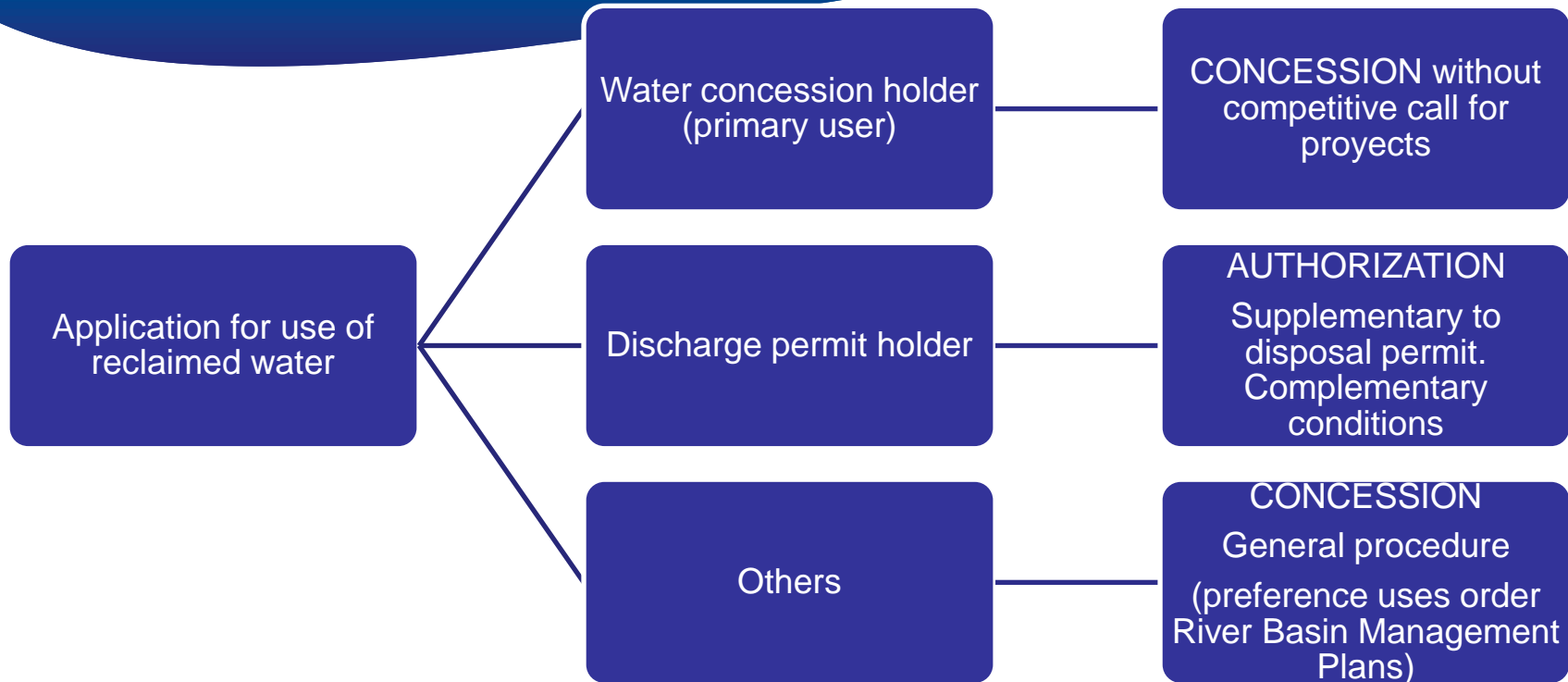


Treated water

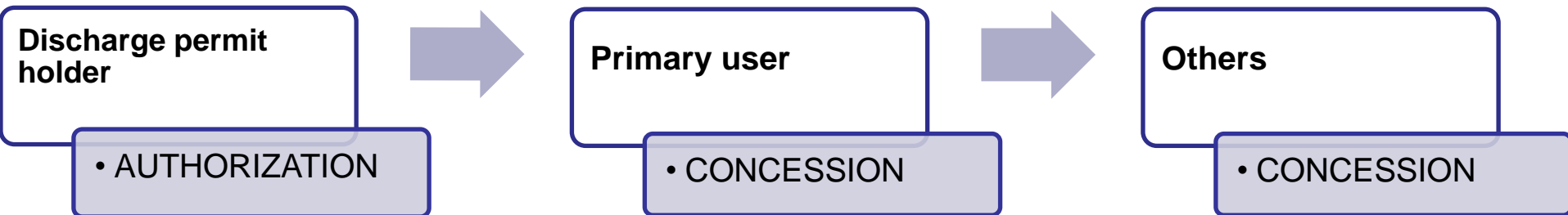
Reclaimed water

# ROYAL DECREE 1620/2007

## Article 3: Legal framework



### PRIORITY





# ORDER OF PREFERENCE IN WATER MANAGEMENT PLAN






Priority for the concession allocation:

1. Drinking water
2. Agriculture
3. Industry (no energy production)
4. Industry for energy production
5. Aquiculture
6. Recreational uses
7. Other uses

# ROYAL DECREE 1620/2007

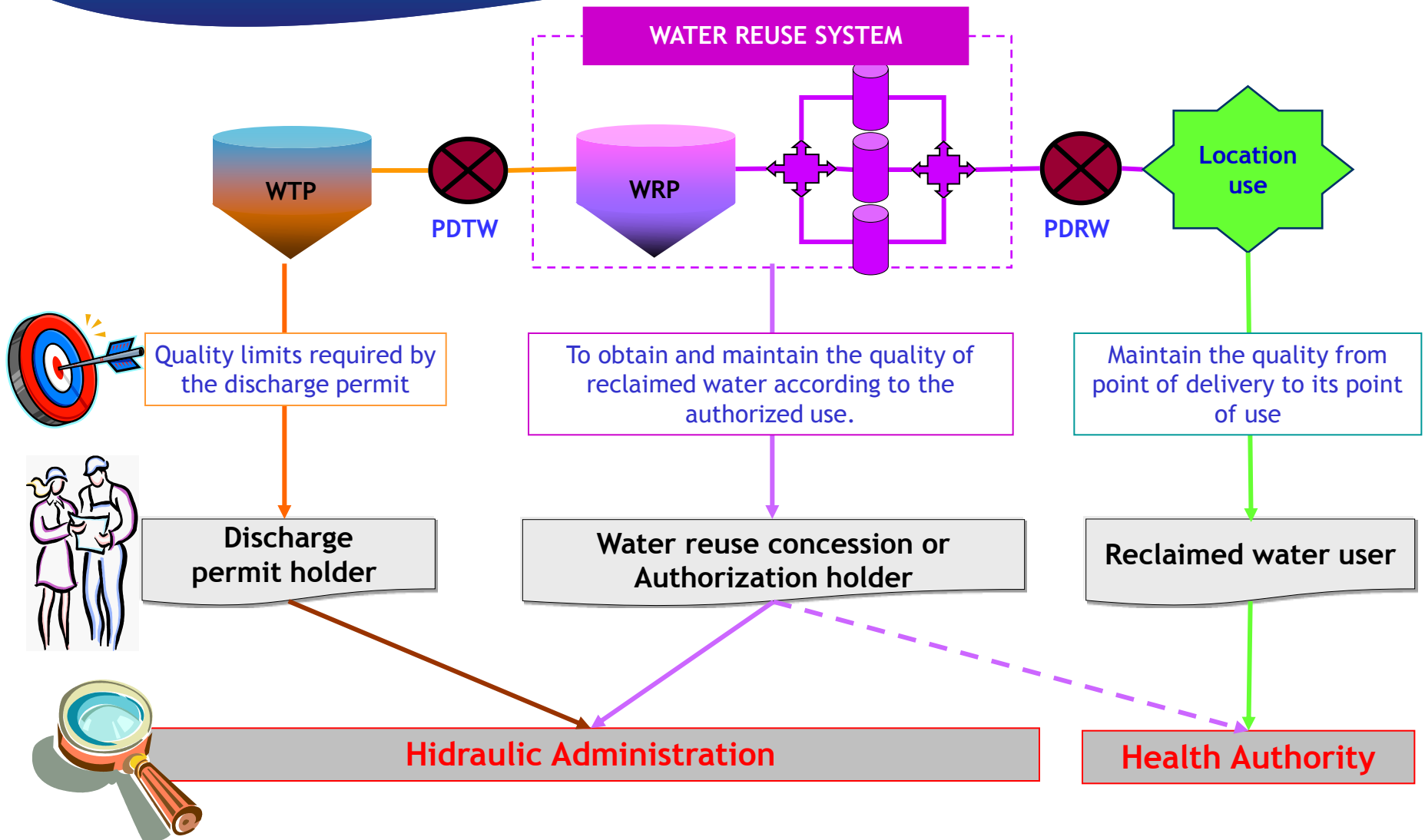
## Permitted uses

Health authority  
report

URBAN USES (2)	AGRICULTURAL (3)	INDUSTRIAL (3)	RECREATIONAL (2)	ENVIRONMENTAL (4)
				
<p><b>1.1 Residential:</b> a) Private garden watering. b) Discharge of bathroom appliances</p> <p><b>1.2 Urban services:</b> a) Watering of urban green areas (parks, sports grounds, etc.) b) Hosing down streets c) Fire-fighting systems d) Industrial car wash</p>	<p><b>2.1.</b> a) Irrigation of fresh food crops direct contact of regenerated water with edible parts</p> <p><b>2.2a)</b> systems not avoiding direct contact of regenerated water with edible parts. b) Irrigation of pastureland for milk or meat-producing animals c) Aquaculture</p> <p><b>2.3 a)</b> Localized irrigation of ligneous crops b) ornamental flowers</p>	<p><b>3.1 a)</b> Process and cleaning water except in food industry</p> <p><b>b)</b> Other industrial uses</p> <p><b>3.2 a)</b> Refrigeration towers and evaporation condensers</p>	<p><b>4.1. a)</b> Irrigation of golf courses</p> <p><b>4.2. a)</b> Ponds, bodies of water and running water with no public access</p>	<p><b>5.1. a)</b> Recharge of aquifers by localized seepage through the soil <b>5.2. a)</b> Recharge of aquifers by direct injection <b>5.3. a)</b> Irrigation of forests, green zones and similar areas with no public access <b>b)</b> Forestry <b>5.4. a)</b> Other environmental uses (maintenance of wetlands, minimum flows and similar uses)</p>
<p><b>Forbidden uses</b></p> <ul style="list-style-type: none"> <li>❖ drinking water, except catastrophe</li> <li>❖ hospitals</li> <li>❖ molluscs in aquaculture</li> <li>❖ bath water</li> <li>❖ Ponds, bodies of water and running water with public access</li> </ul>				

# ROYAL DECREE 1620/2007

## Responsibilities



# ROYAL DECREE 1620/2007

## Controls and responsibilities

Responsible	Obligations	Contents	Adm. responsible	Type of control
Discharge permit holder	<u>General:</u> authorization conditions  <u>Particular:</u> emissions quality limits	Self-monitoring  Maintenance of infrastructures  Emergency protocols  Discharge tax  Point of delivery of treated wastewater  <b>Emission limit</b>	River Basin authority (support collaborating entities)	Inspections  Analytical control of the effluent

# ROYAL DECREE 1620/2007

## Controls and responsibilities (2)

Responsible	Obligations	Contents	Adm. responsible	Type of control
Water reuse concession or authorization holder	<u>General</u>	Authorization/ concession conditions	River Basin authority and Health Authority	Inspections
	<u>Particular</u>	Quality reclaimed water	River Basin authority and ¿Health Authority?	Self- monitoring control Additional control
	<u>Economic</u>	Cost incurred	Not contemplated	Not contemplated

# ROYAL DECREE 1620/2007

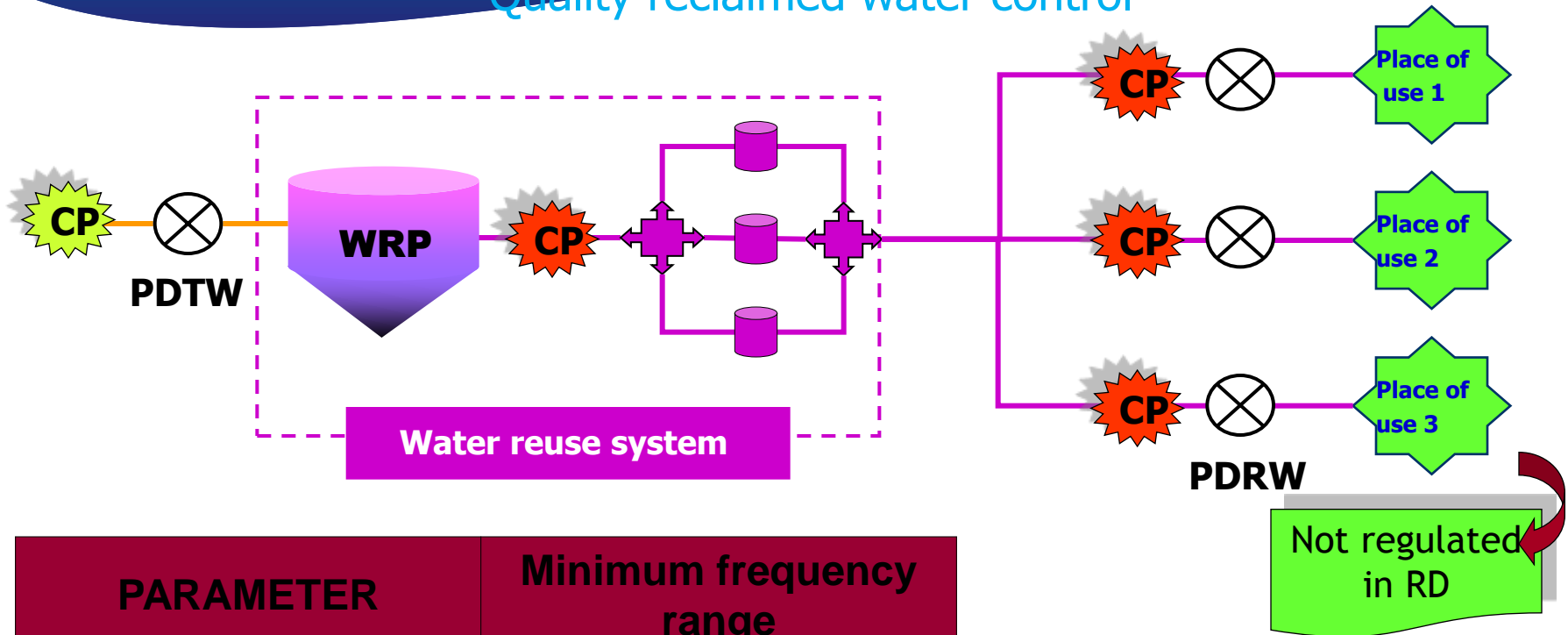
## Controls and responsibilities (3)

Responsible	Obligations	Contents	Adm. Responsible	Type of control
Reclaimed water user	<u>General</u>	Planned use Water management	Health Authority	Inspections
	<u>Particular</u>	Prevent deterioration reclaimed water quality	Health Authority	Additional control
	<u>Economic</u>	Taxes regime	Not contemplated	Economic control

# ROYAL DECREE 1620/2007

## Annex I.B. Minimum sampling and testing frequencies

### Quality reclaimed water control



PARAMETER	Minimum frequency range
Intestinal nematodes	once a week – every two weeks
<i>Escherichia coli</i>	3 x week – once a week
Suspended solids	once a day – once a week
Turbidity	once a day – once a week
Otros contaminants	once a week – once a month

**PDRW:** Point of delivery reclaimed water  
**CP:** Control point

# ROYAL DECREE 1620/2007

## Annex I.B. Minimum sampling and testing frequencies

### Reduce by up to a half

- ✓ 1 year testing and justified application
- ✓ Only for parameters unlikely to be present in the water

### DOUBLED

- ✓ 3 months testing
- ✓ Number of samples with VALUE < MAV is LESS than 90% of the samples
- ✓ 1 test: VALUE > MAV + MDL

MAV: Maximum Acceptable Value

MAL: Maximum Deviation Limit



# ROYAL DECREE 1620/2007

## Annex I.C. Quality assessment

### COMPLIANCE CRITERIA

90% of samples  
Value < MAV

+

10% of samples  
Valor < [MAV + MAL]

+

Hazardous substances  
Meet Environmental Quality  
Standards

Analysis Period:  
3 months

### MANAGEMENT MEASURES AGAINST NON-COMPLIANCE

- **Reclaimed water supply suspended:**  
Compliance criteria not met:  
If any of the control results for one parameter Value > MAV + MAL persist (second control test 24 hours later)
- **Reclaimed water supply resume:**  
Appropriate measures have been taken to ensure incident is not repeated

MAV: Maximum Acceptable Value

MAL: Maximum Deviation Limit

# ROYAL DECREE 1620/2007

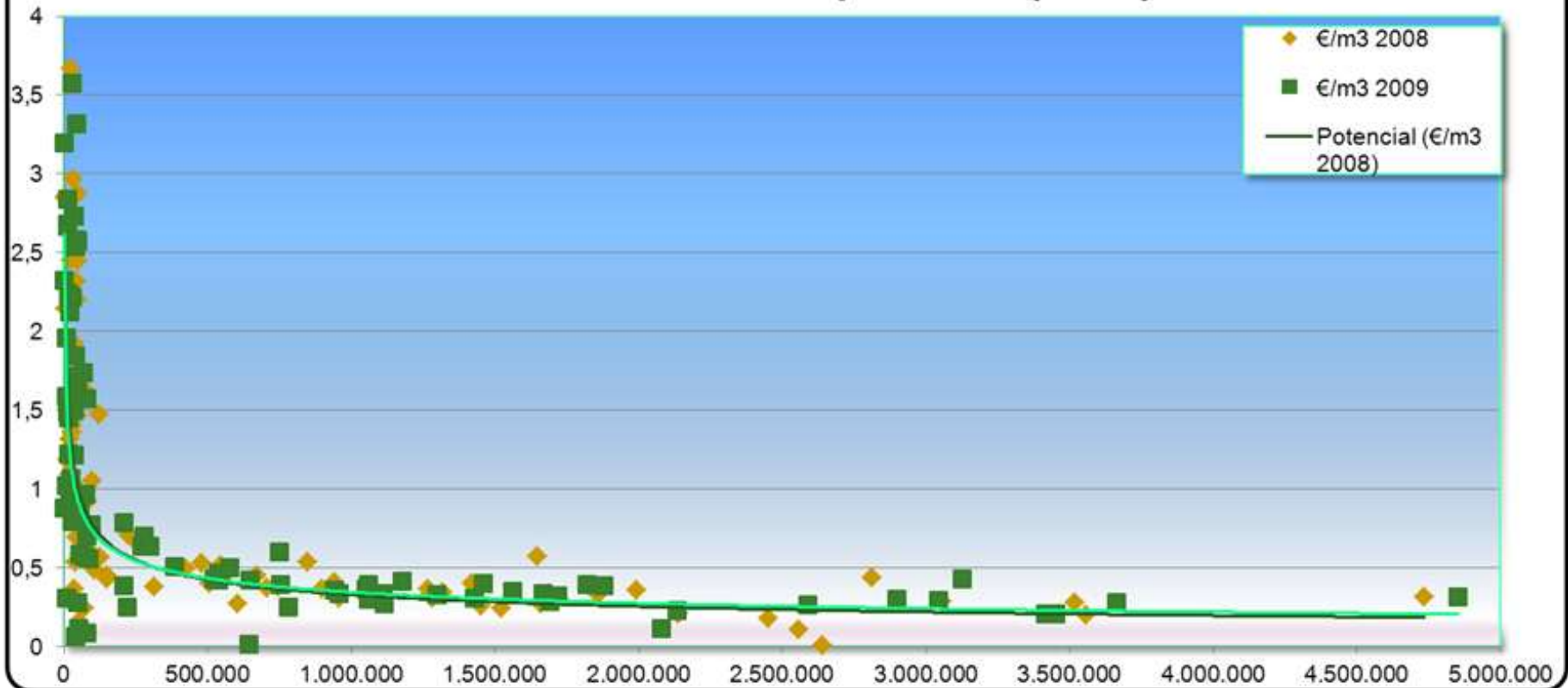
## Quality groups according to the bacteriological limits

APPLICATIONS		Quality	Escherichia CFU/100 ml	Nematodes eggs/10 L	Legionella spp. 100 CFU/L
•Industrial 3.2 a)	• Refrigeration towers and evaporation condensers.	A	Absence	Absence	Absence
•Residential 1.1 a) y b)	• Private garden watering. Discharge of bathroom appliances.		Absence	1	100
•Direct Recharge 5.2 a)	• Recharge of aquifers by direct injection.		Absence	1	No limit set
- Urban 1.2 a), b), c), d) - Agricultural 2.1 a) - Recreational 4.1 a)	.Watering of urban green areas .Hosing down streets. Fire-fighting systems. .Industrial car wash. Irrigation with contact .Irrigation of golf courses.	B	< 100 -200	< 1	< 100
- Agricultural 2.2 a), b) y c) - Industrial 3.1 c)	.Irrigation of crops for human consumption not avoiding direct contact of regenerated water with edible parts. .Irrigation of pastureland for milk or meat-producing animals. Aquaculture .Process and cleaning water for use in food industry.	C	< 1.000	< 1	No limit set
- Environmental 5.1 a)	.Recharge of aquifers by localized seepage through the soil		< 1.000	No limit set	No limit set
- Agricultural 2.3 a), b) y c) - Industrial 3.1 a) y b)	.Localized irrigation of ligneous crops impeding contact of regenerated water with food for human consumption. .Irrigation of ornamental flowers, greenhouses and nurseries with no direct contact of regenerated water with crops. .Process and cleaning water except in food industry	D	< 10.000	< 1	< 100
- Recreational 4.2 a)	.Ponds, bodies of water and running water with no public access				
- Environmental 5.3 a) y b)	.Irrigation of forests, green zones and similar areas with no public access	E	No limit set	No limit set	No limit set
- Environmental 5.4 a)	.Maintenance of wetlands, minimum flows and similar uses	F	The minimum quality required is studied on a case by case basis		

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## Cost recovery: it's possible?

### Coste Unitario de Depuración (€/m<sup>3</sup>)



• مع خالص شكري  
وامتتاني

• Thank you  
• for your attention

• Merci pour  
• votre attention



• For additional information please contact:

• Sustainable Water Integrated Management - Support Mechanism: [info@swim-sm.eu](mailto:info@swim-sm.eu)

• Website: [www.swim-sm.eu](http://www.swim-sm.eu)