

EXPERIENCES & LESSONS LEARNT TO DEVELOP WASTEWATER TREATMENT IN LAC

Ignacio del Río Marrero
Jefe del Área de Tecnología del Agua
Centro de Estudios Hidrográficos del CEDEX

Experience gained FCAS-CEDEX

- Collaborating with 8 countries in Latin America: Guatemala, Honduras, El Salvador, Nicaragua Cuba, Dominican Republic, Bolivia & Paraguay
 - Collaboration with responsible institutions
 - Visits to numerous facilities in all the countries
 - Supervision of water & sanitation projects
 - Assistance in hydrological planning & sectorial planning
- Support to wastewater treatment development in Spain



Lessons learnt to focus on the challenges effectively

- LAC: the same target but very different starting points
- From the particular view to the comprehensive approach
 - Existing infrastructures
 - New infrastructures
 - The maturity of the sector
 - Generating demand



GOBIERNO DE ESPAÑA

MINISTERIO DE FOMENTO

MINISTERIO DE AGRICULTURA, ALIMENTACIÓN Y MEDIO AMBIENTE

CEDEX
CENTRO DE ESTUDIOS Y EXPERIMENTACIÓN DE OBRAS PÚBLICAS



de Estudios Hidrográficos

The maintenance of infrastructures

- There are success in all countries but also bad experiences
 - Reasons:
 - Poor maintenance (limited resources, non appropriate technology, lack of demand from population, etc.)
 - Design and/or construction mistakes
 - The smaller the size of the population, the more failures

There is no worst investment than the one not used

**The goal is to create the service,
not the infrastructure**



The maintenance of infrastructures

- There are also success stories
 - Example of San Bartolo WWTP, Sololá, Guatemala

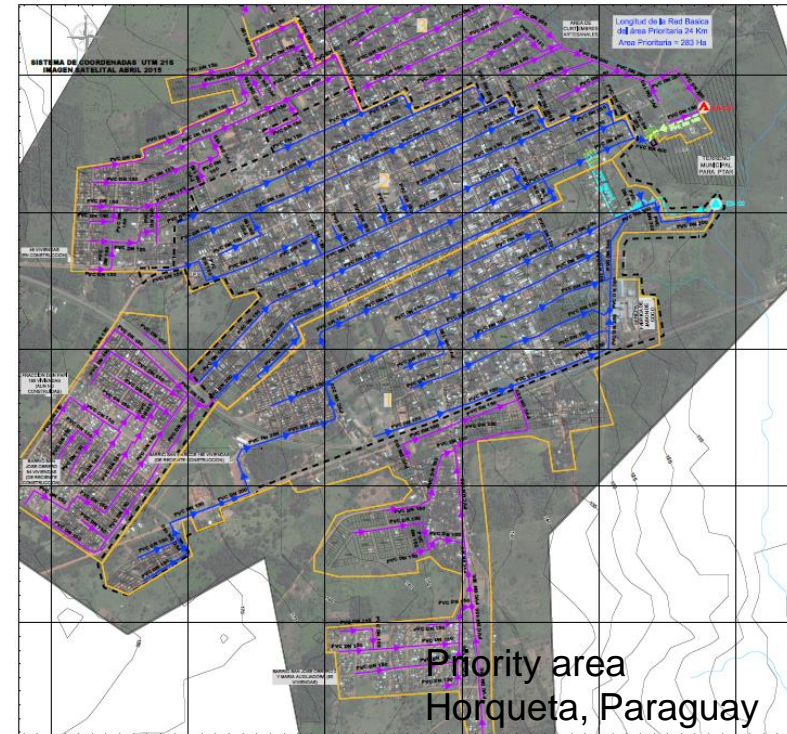


Knowledge is needed



The construction of infrastructures

- Budgetary constraints



The construction of infrastructures

- Budgetary constraints
- Preliminary studies
 - Characterization of the population
 - **Characterization of wastewater**
 - Site selection for the WWTP
 - Selection of wastewater treatment options

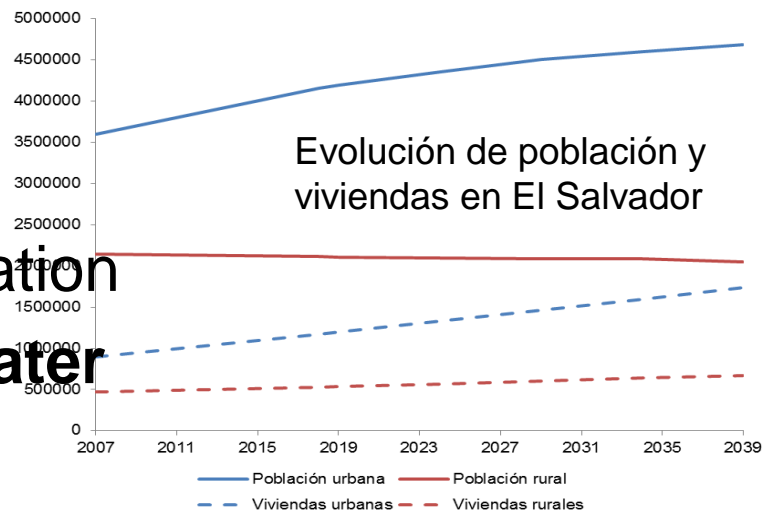


Tabla 2.2. Dotación media diaria (l/hab-d)

Zona	Población (habitantes)					
	Hasta 500	De 501 a 2 000	De 2 001 a 5 000	De 5 001 a 20 000	De 20 001 a 100 000	Más de 100 000
Del Altiplano	30 - 50	30 - 70	50 - 80	80 - 100	100 - 150	150 - 200
De los Valles	50 - 70	50 - 90	70 - 100	100 - 140	150 - 200	200 - 250
De los Llanos	70 - 90	70 - 110	90 - 120	120 - 180	200 - 250	250 - 350

The construction of infrastructures

- Budgetary constraints
- Preliminary studies
 - Characterization of the population
 - **Characterization of wastewater**
 - Site selection for the WWTP
 - Selection of wastewater treatment options
- Knowledge and design of processes
- Implementation of works

Studies, experimentation & training

Knowledge is needed

The development of the sector

- Different institutional framework
 - Regulation-Planning-Construction-Management
 - Funding
 - Coordination is a challenge

Institutional strengthening

- Regulatory framework
 - Simple but strict
 - Coordination between the one that sets the standards and the one that has to meet them

It should allow the better development

The development of the sector

- Management and funding instruments
 - Sanitation and treatment can be very expensive. Sometimes more complex and more expensive than water supply
 - Operators with resources and capacity

It requires as much attention as water supply

Economies of scale

The development of the sector

- Lack of connection between service and infrastructures

Optimizing interventions – Optimizing service

- Other services must also be considered together with sanitation, like:
 - Water supply
 - sludge, rainwater, reuse, waste
- Professional capacity from Authorities and private sector



Social dimension

- Awareness and acceptability from citizens
 - Why do I have to treat my wastewater?
 - What benefit does this have for me?

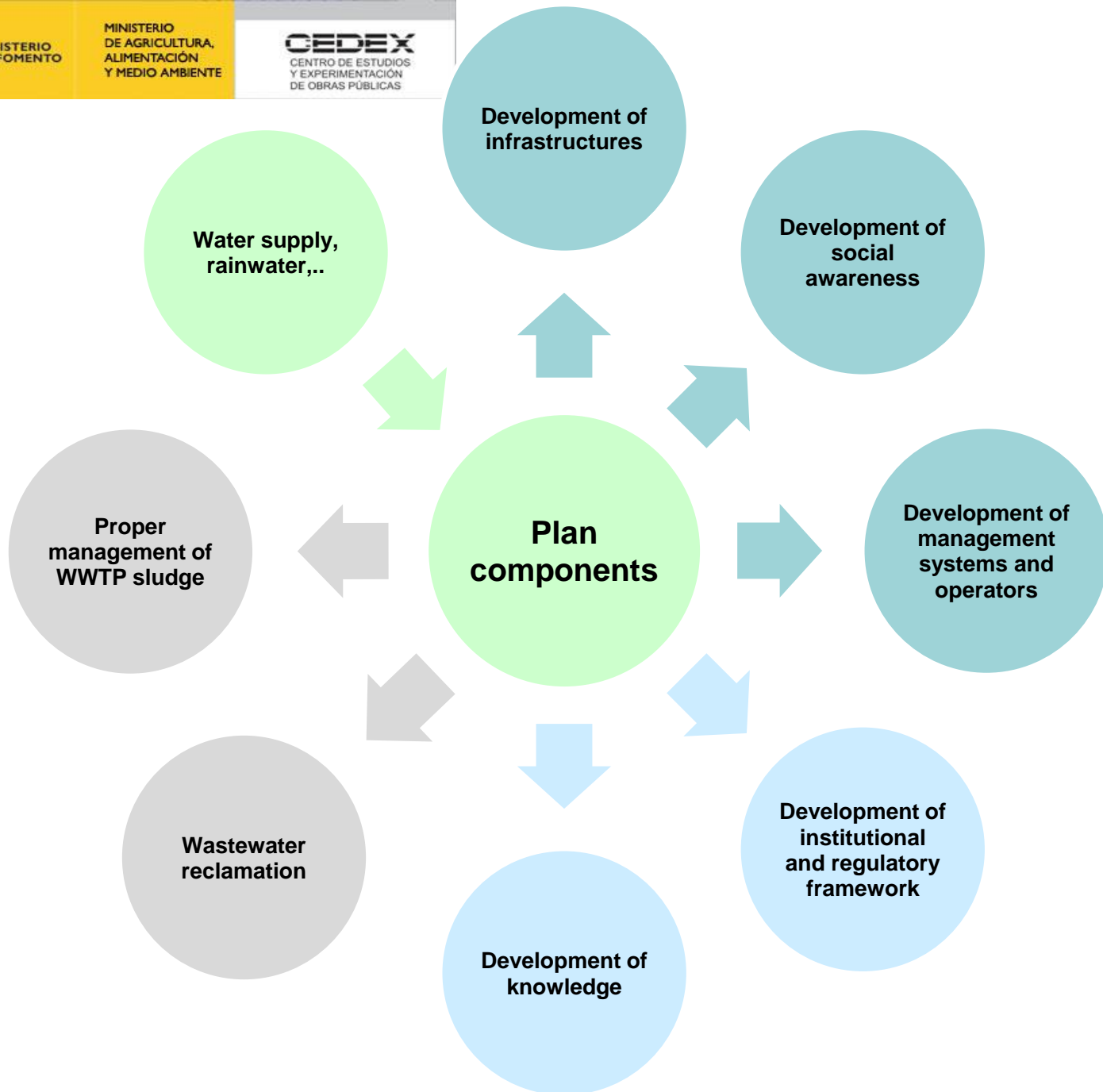
There must be a demand to ensure the service

- Connections and willingness to pay
- Develop it at micro and macro level

Planning the development

- Absence/uncomplete plans and strategies
 - Many times facilities are planned but not the service
 - To achieve a scenario where all the cities have a sustainable service, a mature sector is required in all of its components: Institutional and regulatory framework; service management; infrastructures; associated services; professional training; social awareness

Planning is not just a consultancy, it is the path that each country decides to follow



Uniform development of all components

Forward-looking approaches

- Strengthening of the sector:
 - Sectoral planning (a uniform development of all components is needed)
 - Institutional coordination (domestic and foreign institutions)
 - Technical, operational and management training (public and private sector)
- Legislation review
 - Progressive (taking into account the receiving water body, population size, by steps of treatment)
- Address issues at a regional level
 - Regulations, Water characterization studies, technologies evaluation, training