

## **URUGUAY FACING CHALLENGES TO ACHIEVE UNIVERSAL COVERAGE OF SANITATION**

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### **Summary**

In Uruguay, a large proportion of the population, close to a million people, has no sewage systems, using static filtering systems with a range of associated problems, both technical as social, economic, and environmental, that need to address and improve comprehensive and interdisciplinary way.

In this context it is essential to study and propose alternative solutions for sanitation and incorporate the vision of local actors, directly involved in the management of static systems of sanitation, especially local governments, which have assumed a major role especially with regard to management services of trucking sewage sludge, control disposal, for actions to be developed in the framework of the elaboration of the National Plan of Water and Sanitation Plan, which has emerged as the universal tool to address in the sector, following the guidelines established in the constitutional reform of Article 47as well as other institutional actors necessarily linked to the sector.

Keywords: Coverage, Sewerage systems, sanitation, universal.

### **Extended Summary**

#### **Introduction**

Uruguay is a unitary country, organized into 19 departments, as a population of 3:241.003 habitants, 50% of the population is concentrated in the capital, Montevideo.

Much of the population, close to a million people living in the interior country, has no sewage systems, they must use static systems, filtering / inefficient, with a range of associated problems, both technical, social, economic, and environmental, it is necessary to address and improve comprehensive and interdisciplinary way.

In this context it is essential and a priority, to study and propose alternatives to conventional sanitation network and embody the vision of local actors, directly involved in the management of static systems of sanitation, especially local government - that play a fundamental role on particularly as regards to management services of trucking sewage sludge, control of disposal, and internal plumbing.

At the same time, the state company Obras Sanitarias del Estado (OSE), being responsible for the systems of internal sewerage network and sewage treatment plants, relevant stakeholders who should participate in the activities to be undertaken under the development of a National Plan of Water and Sanitation, which has been designed as universal tool to address the sector, following the guidelines established in the constitutional reform of Article 47 together with other institutional actors necessarily linked to the sector.

From an environmental perspective, the operational deficiencies of used static systems (ground surface discharges and losses) contributes to pollution and eutrophication of water bodies. Eutrophication is a progressive phenomenon of increased nutrients (mainly nitrogen and phosphorus) in water brings about the deterioration of aquatic ecosystems, reduced biodiversity and proliferation of microalgae, including potentially toxic blooms of cyanobacteria in the surface aquatic systems.

In Uruguay, eutrophication is the most common form of water pollution and is caused by the discharge of domestic sewage, industrial and agricultural. Also compromise the quality and availability of groundwater use, which are often contaminated groundwater by existing systems.

Sanitation systems (collection, conveyance and sewage treatment) require large financial investments due to the need for extensive transmission system. For this reason, in areas with low population density this service is not viable. Decentralized sanitation systems offer several alternatives to consider in particular terms of technical, economic, environmental and socio-cultural site. Their main characteristic that do not make a collection and conveyance of water from the housing to an end , but the comprehensive treatment or part of it is done in the place of origin , without major investments in water conduction .

### **Legal and Institutional framework**

Art 47 –Constitution of de Republic

"... The Environmental Protection is of general interest. People should not refrain from any act causing environmental depredation, destruction or contamination. The law shall regulate this provision and may provide penalties for violators.

Water is a natural resource essential to life.

Access to safe water and access to sanitation are fundamental human rights (...) Public sanitation service and public water service for human consumption will be provided exclusively and directly by state legal persons ..."

### **Stakeholders**

Ministry of Housing , Land Planning and the Environment-Law 17,930, "Art 327 - The Ministry of Housing Land Planning and the Environment will propose to the Executive, having regard to Article 47 of the Constitution of the Republic, the formulation of national policies on water and sanitation (...) services water and sanitation, especially its length and will address the goals for universal, the priority criteria (...) in their proposals will address the effective participation of users and civil society at all levels of planning, management and control ... " Article 328 "... would create the National Water and Sanitation Directorate ..."

**The National Water Directorate - DINAGUA (ex DINASA)** – It missions is to: Improve the quality of life for residents and ensure the sustainable use of water resources in the country through the formulation of national policies on water and sanitation, provide for participation of various stakeholders and coordination with other public policies.

Its Vision is: To institutionalize the integrated and sustainable management of water resources, addressing the different uses and demands for services to the population, in a planned and participatory manner.

Among its main tasks is "Universal access to safe water and sanitation, reaching big and small towns and dispersed rural population."

**Obras Sanitarias del Estado - OSE**, created by the Organic Law N ° 11907 of December 19, 1952, provides potable water service to Montevideo and potable water and sewerage services in the departments of interior

**Municipality of Montevideo - IM**, is responsible for the service of Montevideo Sanitation Department, through the Sanitation Division of Environmental Development Department. Make planning and service management and storm sewer as well as studies and projects, construction, operation and maintenance of sewers.

**Departmental governments, ID** - departmental governments are involved in the sector in terms of regulating the internal facilities of housing and building solutions for sanitation (septic tanks or cesspools) and service provision as a "sewage trucks" for emptying. They also act as advocates for

the extension of water and sewerage services, contributing in some cases with agreements for the implementation of infrastructure (water and sewerage networks). Are responsible of the monitoring of sewage trucks services and places of final disposal of wastewater.

### Current Situation

The proposed objectives in terms of coverage, have not included the total population

#### Sanitation Coverage 2008

	<b>Population with sewerage</b>	<b>Population without sewerage</b>
<b>Montevideo</b>	1127073	198895
<b>Rest of the Country</b>	550094	1150686
<b>Rural Population</b>		214255
<b>Total</b>	<b>1677167</b>	<b>1563836</b>

In Montevideo the sewerage networks extension reach nearly 90% of the department, different approaches are made to the municipal level to get people (households) to connect to networks, establishing credit lines with low interest rates.

In the rest of the country the situation is very different, the sewerage coverage reaches 39.5%, are encouraged to connect those cities with idle networks through various lines of credit (awarded through agreements between OSE and local governments) and the actual experience that is jointly developing MVOTMA-OSE, through the National Plan of Sanitation Connection, an experience that is part of the Housing Plan and promotes, through the provision of funding and where appropriate subsidies, improved intra-household plumbing that ables the network connection.

According to the ongoing survey of households throughout the country (INE, 2007) contrasted with a survey conducted by the DINAGUA in 2008, the population not served by networks have some form of improved sanitation, defined by him disposal of sewage to some place, including septic tanks, wells impermeable filter wells and other systems, to a lesser extent, as dry latrines or toilets..

Of the households using septic tank and other systems, only 65% use sewage trucks service for empty systems. But there is no information on the frequency of the service contract

Given the proximity of many of these homes to the network systems, it is assumed that OSE may make reorganization plans for part of this population. These plans incorporate hard 100% of the population of these towns to the networks. The fact that the peri-urban areas have low population densities may render impractical conventional grid extension and the extension and consolidation of city networks should be referred to local schemes provided by the Law on Land Management.<sup>ii</sup>

The situation of small rural communities (less than 50 dwellings concentrated) and rural settlements, which use filtering systems, is estimated to be environmentally acceptable. Arise for this sector of the population carrying out environmental education campaigns to enable better management of domestic wastewater. Carrying out instructions or manuals, as well as the use of "Plan Ceibal"<sup>iii</sup> for disclosure of such information are issues to consider

Localities between 150 and 5000 people combined total roughly 200,000 in the majority of them there is not considered in the medium and long term on consolidation plans using conventional technology.

It is necessary to generate inclusive and alternative strategies with the goal of universal access to adequate sanitation because it is a fundamental human right in Article 47 of the Constitution of the Republic and the National Water Plan which is currently making and it considered one of its main tasks.

To facilitate access to adequate sanitation must increase institutional commitment of the actors currently involved (OSE, departmental governments). The alternative of using static systems with sewage trucks services or individual solutions are considered suitable alternatives.

In static sanitation situations is essential service management a good retirement of wastewaters which prevents the discharge on public roads or terrain, preventing various diseases and environmental hazards. In most of the country's departments responsible for the management of sanitation trucks are the local governments and are the same subsidies applied to low-income population. The great difficulty is that one does not have enough trucks for efficient, even in situations that have private trucking services. This creates health and environmental situation extremely worrying.

Local governments capacities vary both in terms of human resources (professionals and technicians) from the economic standpoint and also from the political will of its makers on environmental policies

The existence of idle networks is common; there are sectors of the population who do not have the economic capacity to transform the domestic sanitation systems of their homes so they can not connect to the sewer. Faced with this situation is that success takes on great importance of the National Connections (MVOTMA-OSE)

The lack of final disposal sites and treatment of domestic wastewater is given in most departments; most of the times are used OSE treatment plants, which charge a fee for disposal, sometimes to avoid fee payment the private sewage trucking companies, evading the inspectors, discharge into waterways or land which is not environmentally sustainable.

To cover the shortfall in coverage in small towns and reach a level of equity in services as well as with larger urban centers, they require high levels of investment, operation and maintenance. It is therefore a need to consider alternative technologies that are of lower investment cost and can be operated on the basis of greater local engagement.

Pose the use of alternative technologies to provide adequate sanitation requires the study of them in terms of characteristics: physical (geographical location, population density), social (social organizations, neighborhood associations) and economic conditions of different localities.

The experience of housing MEVIR (Movement for Rural Unhealthy Housing Eradication) as an integrated solution in the field of alternative sanitation through settled effluent system, make the difficulty of achieving proper use of septic tanks where the management is performed by the users of the system, generating networks obstructions due to solid income which are not designed.

The future installation of the pilot plant of CENTA in Canelones city, is an essential element , opportunity for research and development of such technologies in the country and the region.

According to Decree MVOTMA-78B010, February 2010 -

".. Sanitation includes the sanitary sewer and other systems for disposal, treatment or disposal of sewage ... Art1. The Ministry of Housing, Land Planning and the Environment, through the National Water and Sanitation Directorate will be responsible, under the provisions of paragraph a) of Law No. 18,610, approval, evaluation and review of plans sanitation coverage, according to the established national policies.

Art2. (...) means sanitation, access to appropriate technical processes to support the management and / or disposal of wastewaters, either on site or externally (in the latter include components suitable for storage or collection and transport of liquids to the appropriate site for treatment and final disposal or reuse.

Art 3. Sanitation systems include the following:

- A) Transport of wastewater and excreta, through a network of sewers and disposal at treatment plants and / or emissary.
- B) Storage of wastewater and excreta in sealed wells, sanitation trucks transport and final disposal treatment plant.
- C) Transport of wastewaters from a lagoon sewage treatment, solid retention in situ, which are then transported for disposal at a treatment plant.
- D) Storage and disposal "in situ" with filter wells and / or infiltration into the soil.
- E) Mixed systems resulting from the combination of components from earlier systems

Art 4. The implementation of those sanitation systems must ensure adequate conditions of safety, environmental and territorial, and economically viable. If sanitary sewer exists, consideration should be universal connection

Art7. The Ministry of Housing, Land Planning and the Environment on a proposal from the the National Water and Sanitation Directorate , regulate the criteria for application of the types of sanitation B), C) and D) according to the characteristics of locations, including: housing, topography, soil type, etc .- ... "

## **Towards universal access to sanitation**

To address the issues raised in Article 7 of Decree of February 2010 MVOTMA is that there is the development of case studies in four locations inside the country.

The aim of the case studies is to assess current sanitation systems and propose unconventional solutions that meet criteria sanitation social, health, environmental, economic and technological.

There will be survey:

- Characteristics of existing systems
- Local perceptions of the current state and local perceptions of different sanitation systems.
- Development of proposals for improvements of existing systems and implementation of new alternatives.

As input for the diagnosis of the environmental performance of the present situation in the selected localities will take water samples from water bodies adjacent to these towns, both outside their catchment area and within it. Also, take samples of water wells to evaluate the quality of the groundwater's surface and susceptible to contamination by seepage from filter septic tanks. It seeks to know the role that users assigned to the sanitation systems in contributing to improving the quality of life and care of the environment, and identify the challenges and demands for improvements that they consider most relevant related these systems.

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<sup>i</sup> 17.930 Law from 2005 to 2009 - (19/12/2005) is what creates the DINASA

Art 327 - The Ministry of Housing Planning and Environment will propose to the Executive, having regard to Article 47 of the Constitution of the Republic, the formulation of national policies on water and sanitation (...) services water and sanitation, especially its length and will address the goals for universal, the criteria for priority ... "

Article 328 "... would create the National Water and Sanitation"

ii Law 18308. Territorial Planning and Sustainable Development

iii One Laptop for one child, School Program.