

Wastewater treatment plant

Norte



Lo bueno
del agua
llega.

An aerial photograph of a water treatment plant. The image shows several large, circular aeration tanks with white concrete walls and metal walkways with yellow railings. The water in the tanks is dark and appears to be in motion. In the background, there are trees and a clear blue sky. The overall scene is well-lit, suggesting a bright day.

The company

AySA provides essential drinking water and sewerage collection services to our users in the City of Buenos Aires and its metropolitan area.

Drinking water production and sewerage sanitation require a huge infrastructure **to be able to ensure quality during production, distribution and treatment.** To deliver these services, AySA owns waste treatment and water treatment plants at different locations within the concession area.



Wastewater treatment plant

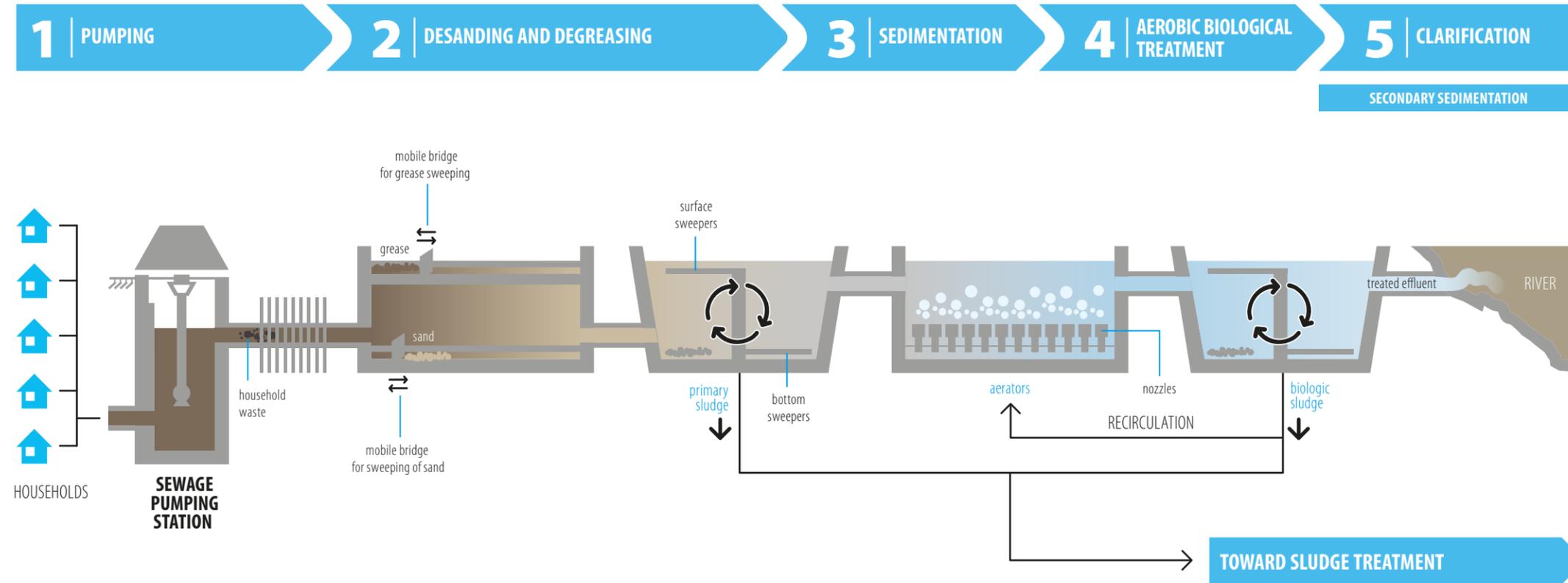
Norte

The Norte wastewater treatment plant is situated in the district of San Fernando, in the north of the province of Buenos Aires.

It receives and treats the sewage effluents of approximately **600,000 inhabitants** in the districts of Tigre, San Martín, Vicente López, San Fernando, and San Isidro, and dumps them in the Reconquista River, already treated.

The quality controls, the control of the processes, and the technology applied, are key to the operation of this model plant.

The treatment process



The purpose of this stage is to remove from the sewage liquid the residue that might hinder the rest of the treatment process, thus avoiding damage to the plant facilities and equipment.

The raw liquid enters the coarse waste pit where the heavy and voluminous solids are retained, and then goes through the thick grills section; from that point, the lifting pumps lead the liquid to the thin grills which retain the smaller solids. The residue retained by the thick grills is sent directly to containers, and the residue retained by the thin grills, first go through a compactor. Then, the liquid goes through the desanding-degreasing modules.

This process is carried out in units provided with bottom sweepers, surface and air insufflation turbines in order to optimize the separation of floaters and sand. The proper operation of these units is important in order to avoid the arrival of easily sedimentable, inert solids to the sludge treatment stage.

The heavy solids decanted are sent to a hydrocyclone by pumping, and then to a vane sand sorter. The sand free from excess water is sent to containers for further disposal.

The floaters are collected through a surface sweeper, and sent to a grease concentrator. The concentrated floaters are mixed with hydrated lime, and then put in containers. The liquid continues its treatment entering the sedimentation tank.

Once the sewage effluent goes through the desanders/degreasers, it only contains dissolved organic matter and suspended matter; the latter is eliminated in the primary sedimentation tanks resulting in the primary mud, and the remaining liquid enters the biological treatment.

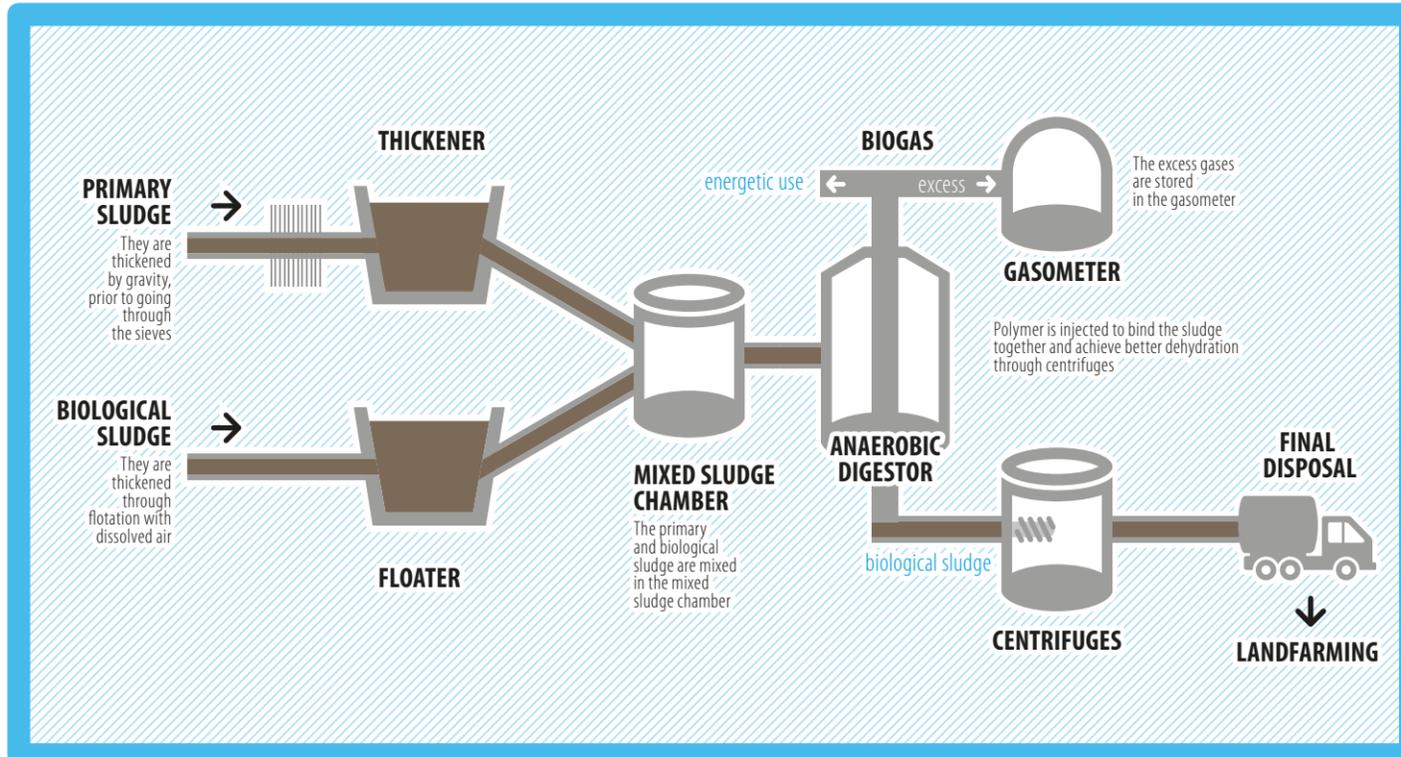
This stage transforms organic matter into sludge, or sedimentable biologic mud, or biomass through a biological treatment of "Activated Mud". Air is distributed from the bottom in order to ensure the conditions for the provision of oxygen necessary for bacteria to degrade the dissolved organic matter.

This part of the treatment separates the treated liquid from the biomass generated by the use of organic matter.

The sanitized liquid is dumped in the Reconquista River, complying with the established standards. The biomass produced returns to the aerobic biological treatment, and the excess is purged towards the sludge unit

SLUDGE TREATMENT LINE

The process is made up of three stages: concentration of sludges separated in the effluent treatment, digestion and dehydration.



SLUDGE CONCENTRATION: the purpose of the concentration is to reduce the water brought by the sludge. In the case of sludge coming from the primary sedimentation, the concentration is carried out by means of thickening by gravity. On the other hand, the excess of biological sludge is concentrated in another unit by means of an injection of compressed air so as to take advantage of their flotation properties.

DIGESTION: Once concentrated, the biological sludge separated during the clarification process, and those obtained from primary sedimentation, are led towards the sludge digester. In this stage, the sludge destabilization is produced by microorganisms that perform anaerobic digestion. Thus, the volatile matter is degraded producing biogas, which is reused for the internal agitation of the biodigester, the thermal conditioning by feeding the boilers, and the excess is accumulated in a gasometer and burnt by torch.

DEHYDRATION: the purpose is to reduce the volume of the sludge to be disposed of, this way obtaining important economic savings in its transportation and disposal. This is achieved by the use of centrifuges, resulting in a dehydrated solid mud with less water content. The sludge conditioning is done by injecting a cationic polyelectrolyte. The sludge is pumped towards the centrifuges by volumetric pumps of varied frequencies, which allows for the regulation of the volume of water sent to each unit. The dehydrated sludge is stored in a storage tower or a predetermined area for that, and is disposed of by closed roll-off trucks. The biosolid obtained goes through a LANDFARMING treatment, which is allowed by the applicable legislation in effect.



A GREAT CONTRIBUTION TO THE ENVIRONMENT

Aside from reducing the environmental impact with sewage treatment, the **Norte wastewater treatment plant** produces an important amount of BIOGAS and BIOSOLIDS that result from that process.

Use of renewable energy

The BIOGAS produced is used to agitate the sludge internally, and to fuel a boiler system, the purpose of which is to stabilize the sludge produced.

Benefit for environmental processes

The BIOSOLIDS, currently producing 1.5 tons/month, can be used for forestation and composting, among others.

www.aysa.com.ar

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Norte**

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San Fernando - Provincia de Buenos Aires - Argentina



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Argentina unida



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