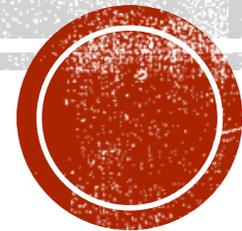


WATER PURIFICATION

By Carlota de Novales, Saray Ortega, Marta Fuentes,
José Damián Cardeñas & Nour Zeyddan.



INTRODUCTION

Because of the demand of potable water, you can find many hydraulic resources. That means that when you want to get it we find ourselves in a world of possibilities.

We are going to talk about the most common process.



SCIENTIFIC METHOD

- Observation: humanity needs potable water to survive, and not everybody can have it easily, so we need to transform non-potable water into potable water.



SCIENTIFIC METHOD

- Hypothesis: we can get potable water by using some treatments on non-potable water by following a process.

NON-POTABLE WATER

POTABLE WATER



The process follows these steps...



PROCESS

-Water catchment:

we take water from natural resources, usually rivers.



PROCESS

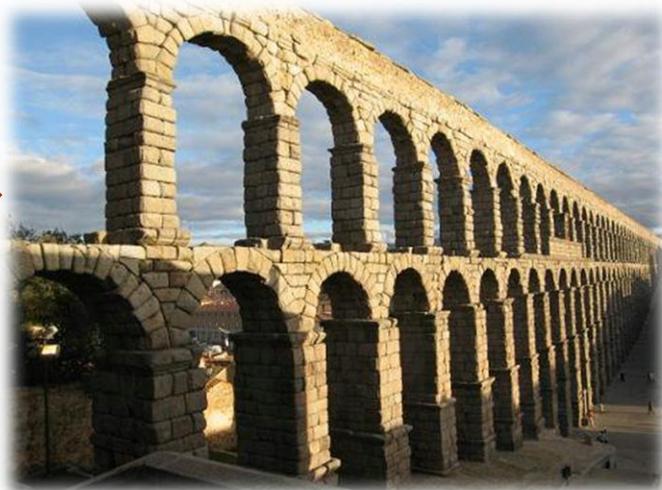
-Diversion of water:

We take water from the natural resources to a water treatment plant by using two different methods:

-Water conveyance: we use the gravity to transport water, because the natural resource is higher than the water treatment plant.

-Water impulsion: if the natural resource is lower than the water treatment plant, we use bombs.

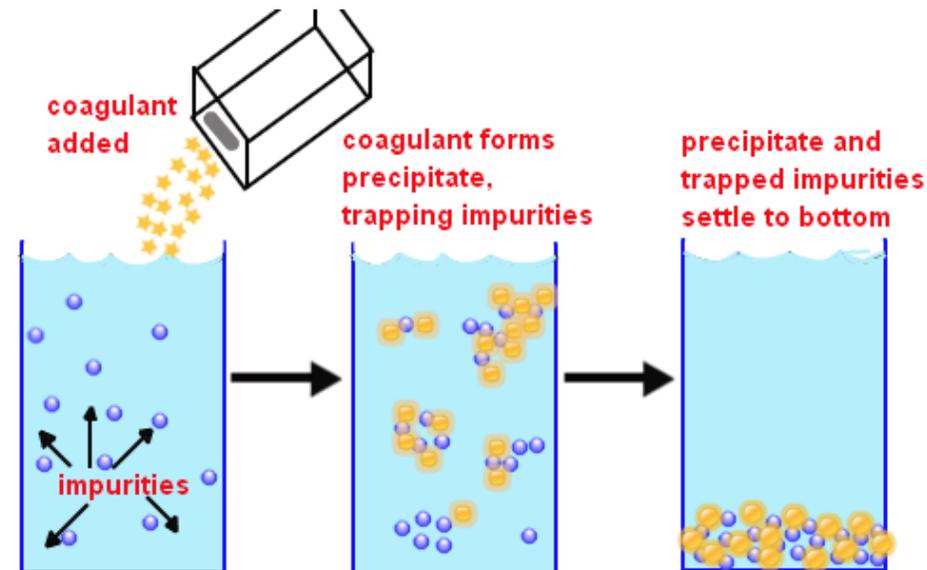
This is how the romans did it →
(*Water conveyance*)



PROCESS

-Flocculation:

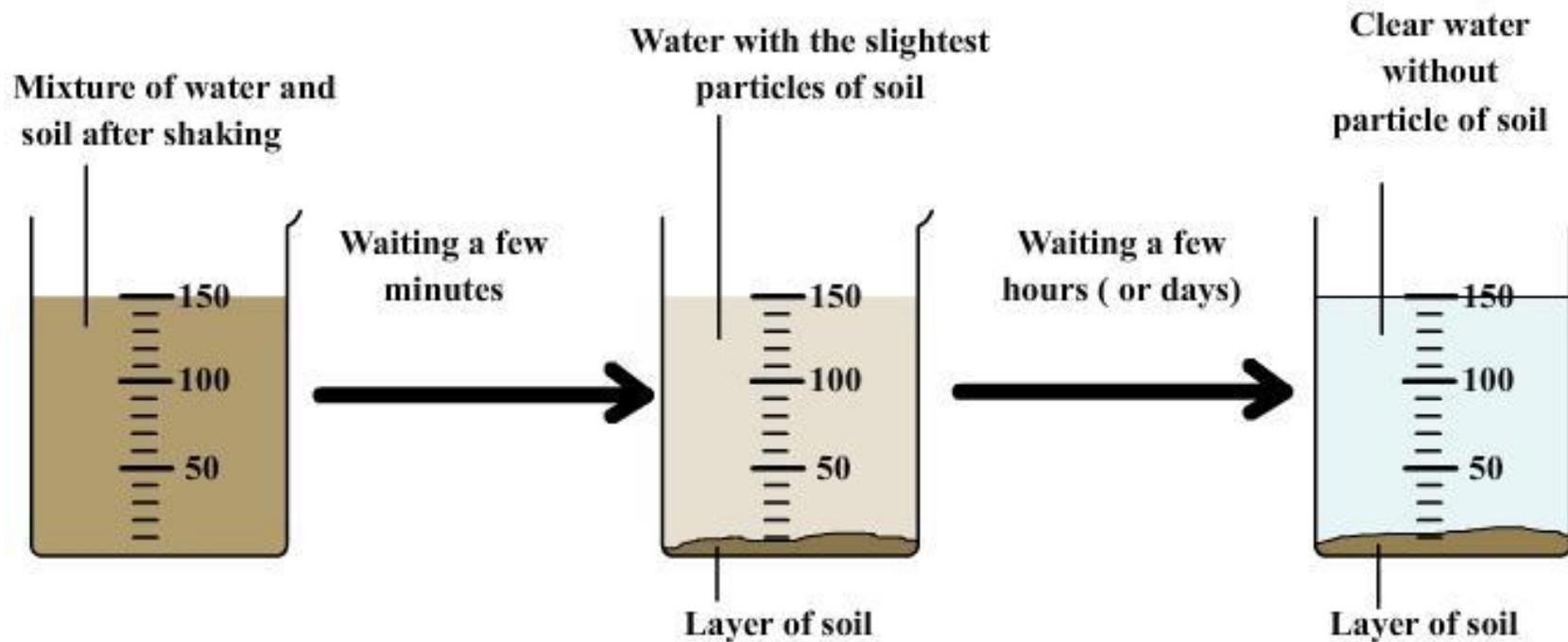
we eliminate the particles in suspension with some chemical agents.
Particles join together and become heavier, allowing the water to clear.



PROCESS

-Decantation:

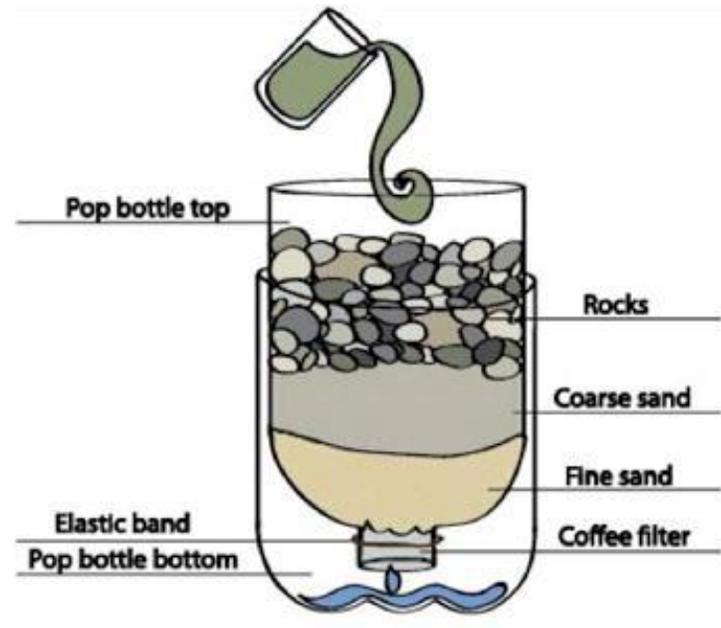
water is placed on a sink and liquids separate because of its weight.



PROCESS

-Filtration:

water and materia in suspension separate by pouring the water through a porous element, usually sand. The result is clearer water, because 95% of the organisms have been eliminated.



PROCESS

-Chlorination:

microbial agents are destroyed with different chemical products (usually chlorine).



PROCESS

-Alkalizing:

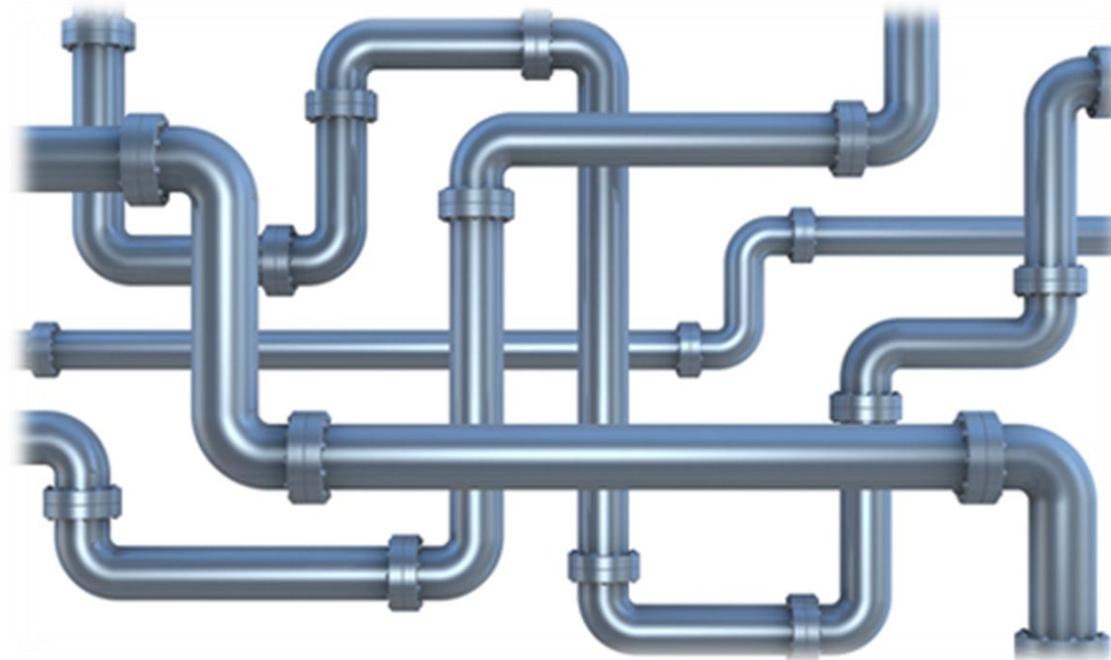
because of water's coagulant, it becomes acid, so we must add lime for it to be potable.



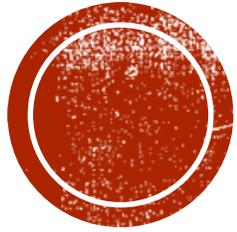
PROCESS

-Distribution:

once the water is potable, it's carried to pump stations where it is distributed thanks to the pipe network.

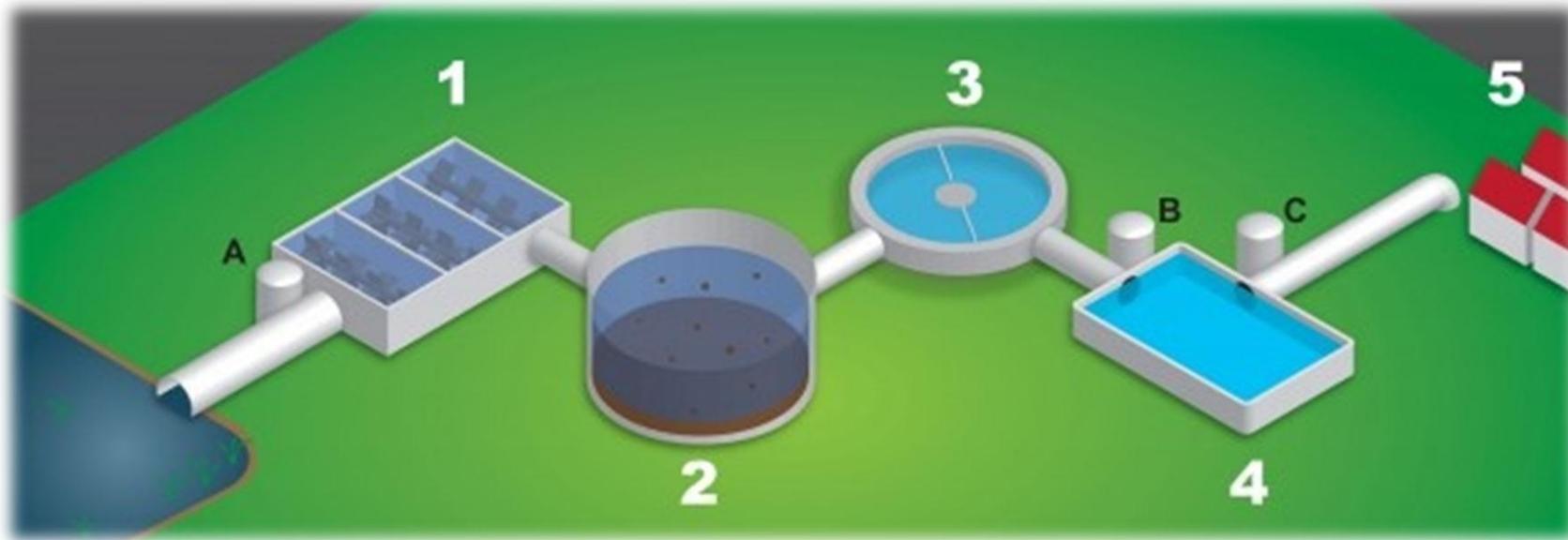


CONCLUSION



Water can be purified by using some treatments

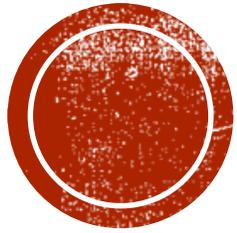
WATER TREATMENT PLANT



1. Flocculation.
2. Decantation.
3. Filtration.
4. Chlorination.
5. Alkalizing.



LET'S GO TO SPAIN



Now we are going to talk about water purification in Andalusia.

WATER TREATMENT PLANT: EL CARAMBOLO

- It provides water to:
 - Alcalá de Guadaira.
 - Camas.
 - Dos Hermanas.
 - La Rinconada.
 - San Juan de Aznalfarache.
 - Alcalá del Río.
 - Coria del Río.
 - La Puebla del Río.
 - Mairena del Alcor.
 - Sevilla.

TREATMENT CAPACITY: 10 m³/second.

STORE CAPACITY: 266,000 m³.





DATA

In Andalusia 547,493 thousands of cubic meters of potable water were registered in 2013.



WHY DO WE NEED WATER PURIFICATION?

IT IS VERY IMPORTANT
BECAUSE THANKS TO
POTABLE WATER WE
AVOID MANY DISEASES,
HOWEVER, IN SOME
COUNTRIES IT'S NOT
THAT EASY AND THAT'S
A PROBLEM WE NEED TO
RESOLVE.



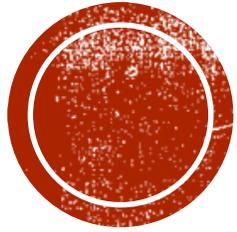


AND IF WE TALK ABOUT MONEY...

Many companies gain and use a lot of money by producing and selling potable water.



NOW WE KNOW THAT...



-It's a very big process to produce potable water and a lot of money is invested to do it.

-We are very lucky for having potable water easily, but we must remember that not everybody is as lucky as we are.

THE END