



Sewage Reuse System

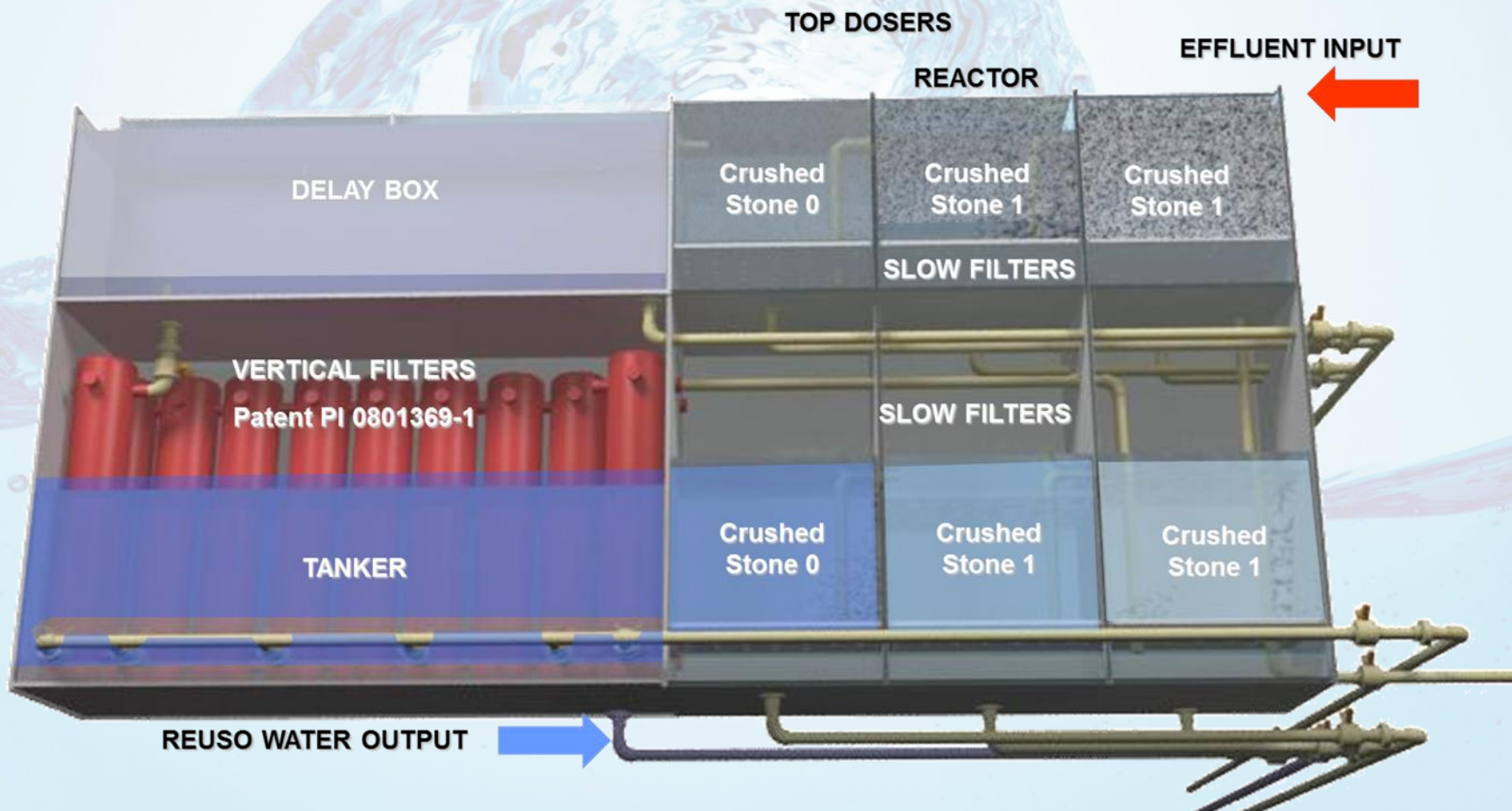
Protection of public health, maintenance of the integrity of ecosystems and sustainable use of water.

“SET OF SEQUENTIAL FILTERS FOR TREATMENT OF BLACK WATERS AND GREY WATERS” - Patent No. 0801369-1 / INPI – Instituto Nacional de Propriedade Industrial (Brazil) and Registration in the European Patent Office / European Community - Application / Patent No. 2113485.



- Result of a brazilian technology;
- The distinguishing feature of this system is the non-use of electrical energy, electromechanical systems and high cost materials, because the filters do not require backwashing.
- Patentes:
 - Germany - No. 60 2008 020 755.2;
 - France - No. FR 2 113 485;
 - Italy - No. 67805 BE / 2013;
 - United Kingdom (England / Wales / Ireland / Scotland) - No. GB 2 113 485.

“S I T A R – SISTEMA INTEGRADO DE TRATAMENTO DE ÁGUA PARA REUSO / INTEGRATED WATER TREATMENT SYSTEM FOR REUSING” – Patent N° BR 10 2012 014892-7 / INPI – Instituto Nacional de Propriedade Industrial (Brazil).



Patent – SITAR / System Operation

1) SYSTEM CONTRIBUTORS:

Shower, sink, tank, washing machine;
According to the use of the building
may be others;

2) RETAINING AND DISINFECTING BOX:

It retains the maximum possible effluent
in order to guarantee volume and
pressure to the following stages;

3) VERTICAL FILTERS:

It promotes the maximum flocculation of
dissolved solids to decant at the end;

4) SLOW FILTERS:

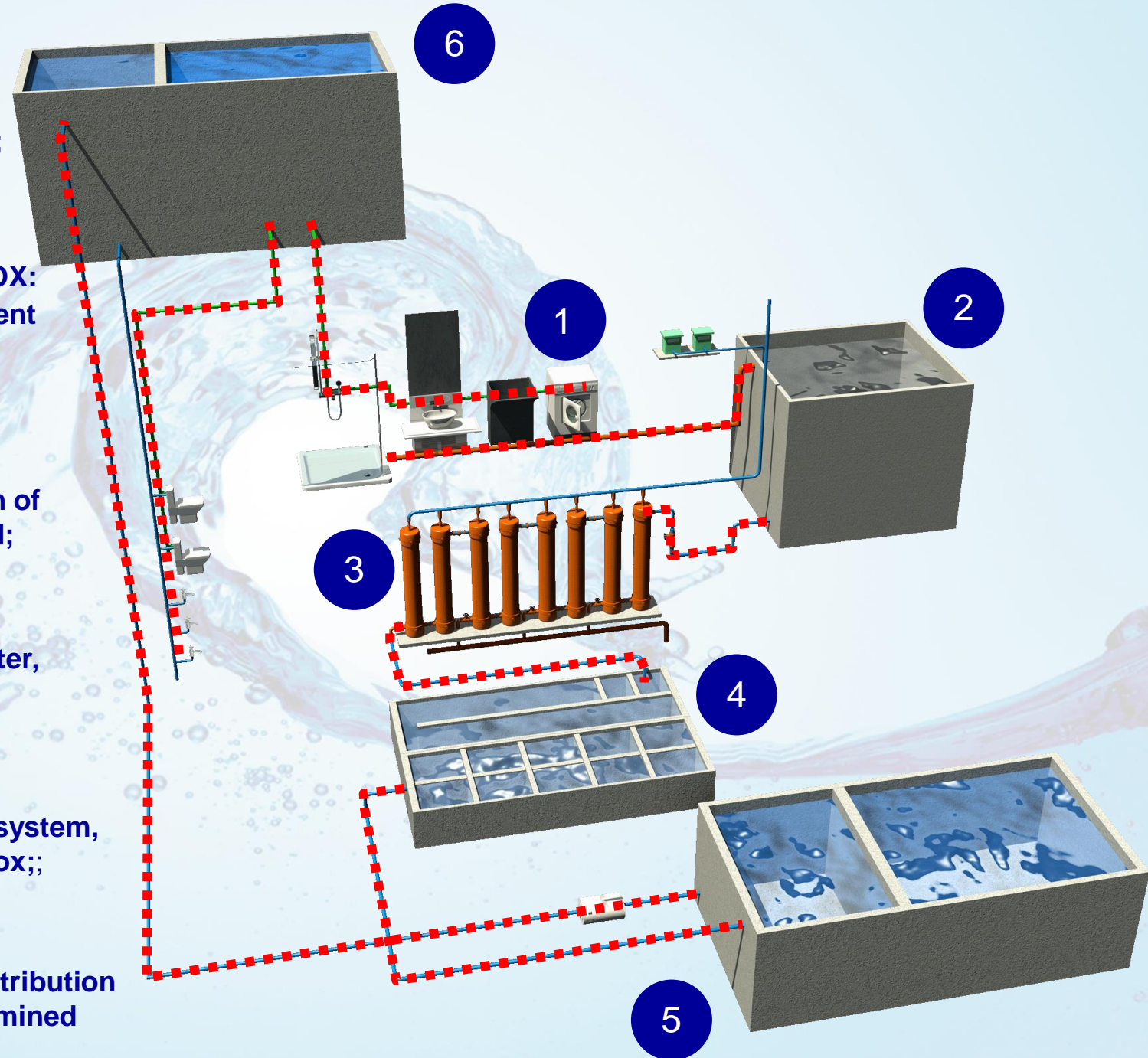
It promotes polishing to the reuse water,
guaranteeing aspects and standards
inherent to reuse water;

5) REUSE WATER TANK:

Accumulates all water treated by the system,
so that it returns to the reuse water box;;

6) REUSE WATER BOX:

Upper reservoir of reuse water for distribution
through specific network to the determined
points of supply.



- Result of a Brazilian technology;
- The system does not use electrical energy in the entire compact process of water treatment, using only the action of gravity. The system does not use electromechanical equipment (booster pump) in the treatment of effluents;
- The system does not use expensive materials because the filters do not require backwashing.
- The chemicals are placed on the system by gravity;
- The operational cost of vertical filters is low, irrelevant compared to other costs involved, not requiring full-time staff for their operation;
- Vertical filters have the purpose of replacing the conventional suspended solids flocculation system, which is electromechanical, by a new system operating by gravity. The various materials used as filter media promote the flocculation of the particulates leading to their decanting. Periodically the filters are cleaned through drains (purge);

- In this process of the reuse filters most of the suspended solids are eliminated by drainage;
- After filtration the water is treated inside a reservoir with related chemicals, mainly "chlorine of organic origin" (product that does not form carcinogenic products) that guarantees the disinfection and conservation, leaving the water safe for reuse in several segments;
- It is characterized by the physical / chemical / biological treatment, because the system is totally polluted effluents whose BOD - Biological Oxygen Demand for and COD - Chemical Demand for Oxygen are totally outside the law standards;
- The present invention relates generally to the field of treatment of sewage generated in buildings (buildings), in industries, agribusiness, decontamination of rivers (with sewage) and commercial establishments, to reuse water recovered by the system;

The system has a wide use in the treatment of effluents (residential / industrial sewage) and rainwater, focused on environmental and economic aspects, namely:

1. Energy System:

- Substations that convert electricity, as well as large industrial complexes, use a large amount of water;
- In industrial refrigeration systems, composed of heat exchangers and cooling towers, whose thermal exchange process also requires large volumes of water.

2. Construction sites (small / medium / large):

- Preparation of mortars, concrete, control of soil dispersion (dust), compaction of soil, discharging in sanitary basins, washing of vehicles, laundry, refrigeration and air conditioning system, garden watering and floor washing.

3. Plataforms and Vessels:

- Reduction in the process of desalination of sea water for use within maritime units;

4. Pollution control:

- Environmental recovery of degraded hydric bodies in urban and rural areas;
- Treatment of effluents from the slopes (hills and communities);
- Refinement of other processes in Sewage Treatment Plants, converting effluents into reuse waters.

5. Other Applications:

- Environmentally sustainable public and private buildings;
- Industrial districts like refrigeration of equipment and diverse industrial processes;
- Providing drinking water for emergencies;
- Sewage network, storm water and car wash;
- Washing of streets and squares, irrigation and watering of green areas;
- Slurry treatment;
- Recharge of aquifers.