

# SURVEY ON REUSE OF SEWAGE IN AGRICULTURE

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*Abstract— Agriculture, the backbone of Indian economy, contributes to the overall economic growth of the country and determines the standard of life for more than 50% of the Indian population but now the situation is changing. For money the farmers are selling the lands to the real estate brokers, in this situation we cannot blame farmers because for their survival it has been done. No water for doing agriculture, so to avoid such situations alter for rain water should be found. Sewage water can be recycled and it is rich in nitrogen it can be alter for rain water in the field of agriculture. First sewage water can be collected and then recycling process can done and with proper pipelining it can be linked either with the dam or other ways.*

*Keywords— Agricultural irrigation, Wastewater reuse, Irrigation.*

## I. INTRODUCTION

Water, like weather, is a subject many people are talking about. A transition from being primarily a producer of raw materials to a major manufacturing and industrial State, Water is a base. This change has been accompanied by a rapid increase in population. These growth patterns cannot be sustained without adequate sources of water. The reclaiming of municipal waste water for re-use affords one of the great opportunities for water conservation. It has been estimated that only 5 percent [1] of the total water used nationally by municipalities is consumed and thus not available for re-use. The re-use [2] of water could have a significant effect on increasing the life of the water sources of a community as well as contribute to the economy of the area [3].

In order for these arid states to continue to grow without being limited by water resources, a wise water management plan must be put to use [4]. The addition of new policies or strategies may improve the management of existing supplies and delay the need for new water development projects. Prudent management of water resources begins with accurate information of the location and quantity of water as well as the type of use [5]. Both land and water rights can be bought and sold, but the right to use the water is not required to remain with the land.

## II. BACKGROUND

Water (along with life) is what sets our planet apart from our neighbors and it is the topic of this chapter. The hydrosphere is the watery part of the Earth, but this is a little misleading since it gives the impression that there is one place where water occurs. Instead, water is everywhere, or nearly so. Water is present in the atmosphere, in the form of vapor, liquid, and solid [6]. It is tied up in rocks, locked away in the crystal lattices of minerals that make up rocks; it occurs in the innumerable small pore spaces of rocks, from the surface to depths greater than 5 km [7]. Water is also tied up in living organisms; humans, for example, contain about 70% water. Water is stored in ice sheets large and small, it occurs in various surface water bodies, and, of course the oceans, the reservoir of the great majority of Earth's water [8]. The hydrosphere, then, is intimately tied up with all of the other spheres that make up our whole Earth system.

### 2.1 Inventory of Water

Here is a partial breakdown of where water occurs and how much is there. Total amount of water:  $1,385,990.5 \times 10^{15}$  kg

Table 1: Inventory of Water

Reservoirs	Mass of Water in 10 <sup>15</sup> kg	Approximate %
Oceans	1,350,000	97.4
Marine atmosphere	11	0.0008
Land atmosphere	4.5	0.0003
Surface Water	275	0.02
Ground Water	8,200	0.59
Snow & Ice	27,500	1.98

Irrigation tends to occur, historically, where Water is most needed, in times of water shortage the sewage water can be reused.

### III. METHODS

There has been worldwide expansion in recent years in the use of reclaimed water for irrigation of crops, urban “green spaces” and for industrial and domestic applications. Out of this, agricultural irrigation is the biggest user of recycled wastewaters. 41% of recycled water [9] in Japan and 60% of Californian recycled wastewaters are used for this purpose. 15% of Tunisia’s reclaimed wastewater is used for the irrigation of crops.

Issues relating to the use of treated wastewater effluent for agricultural irrigation can vary between countries. Such variations depend on regulations controlling wastewater reuse, the percentage of wastewater recycled the level of treatment prior to reuse, and, to some extent, the types of crops irrigated. The differences often depend on the dependence of the particular country for water, the political and social structure of the country, and the general availability of water [10]. For example, the use of wastewater for irrigation is considered a traditional practice in France, rich yield has been attained and the proof is shown below.



*Fig 1 : Agricultural Irrigation*

### IV. RESULTS & DISCUSSION

In addition to providing a dependable, locally-controlled water supply, water recycling provides tremendous environmental benefits. By providing an additional source of water, water recycling can help us find ways to decrease the diversion of water from sensitive ecosystems. Other benefits include decreasing wastewater discharges and reducing and preventing pollution. Recycled water can also be used to create or enhance wetlands and riparian habitats. Wetlands provide many benefits, which include wildlife and wildfowl habitat, water quality improvement, flood diminishment, and fisheries

breeding grounds. For streams that have been impaired or dried from water diversion, water flow can be augmented with recycled water to sustain and improve the aquatic and wildlife habitat. As the demand for water grows, more water is extracted, treated, and transported sometimes over great distances which can require a lot of energy. If the local source of water is ground water, the level of ground water becomes lower as more water is removed and this increases the energy required to pump the water to the surface.

Recycling water on site or nearby reduces the energy needed to move water longer distances or pump water from deep within an aquifer. Tailoring water quality to a specific water use also reduces the energy needed to treat water. The water quality required to flush a toilet is less stringent than the water quality needed for drinking water and requires less energy to achieve. Using recycled water that is of lower quality for uses that don’t require high quality water saves energy and money by reducing treatment requirements. This report highlights the large amount of energy required to treat and distribute water. Energy is required first in collecting, extracting, conveying, and distributing water to end users and second in treating and disposing of the wastewater once the end users have finished with it. Although it requires additional energy to treat wastewater for recycling, the amount of energy required to treat and/or transport other sources of water is generally much greater.

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