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### **Fisheries and Environmental Effects**

**<sup>1\*</sup>Deepika Shah and <sup>2</sup>Yash Shah**

<sup>1</sup>Department of Mathematics, Science & Humanities, Shroff S. R. Rotary Institute of Chemical Technology, Valia, India

Email: [deepikavijayshah@gmail.com](mailto:deepikavijayshah@gmail.com) <sup>1</sup>Mob.: 9427130309

<sup>2</sup>Vistula university, Poland <sup>2</sup>Email: [man.yash511@gmail.com](mailto:man.yash511@gmail.com) <sup>2</sup>Mob.:9033998355

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#### **ABSTRACT:**

The Motto of this paper to represent the idea of development of Fisheries alongwith protection of Environment with the help of local people involving the Festivals, Folks, Rituals etc. and with participation of people, the overall health of soil, river, forest can be taken care.

The Idea of Paper to convert the “Waste Land” into “Wealth Land” through the various traditional practices may replaced by scientifically methods to improve the economical and social condition of the people. The use of waste water will be beneficial to society at large.

**KEYWORDS:** Fisheries, Festivals, Policies, Waste Water etc...

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#### **\*Corresponding author:**

**Dr. Deepika Shah**

Assistant Professor

Department of Mathematics, Science & Humanities,

*Shroff S. R. Rotary Institute of Chemical Technology, Valia, India*

Email: [deepikavijayshah@gmail.com](mailto:deepikavijayshah@gmail.com) <sup>1</sup>Mob.: 9427130309

## INTRODUCTION

During past few years, there has been resurgence of interest in regional authorities, reflecting increased recognition that it is impossible to effectively manage water resources without considering management strategies. With the increase in urban population and expansion of industries, the volume of wastewater produced is increasing rapidly and its composition is also becoming more and more complex. Their outlet streams contain heavy metals, acids, in addition to the organic wastes of human origin. Through erosion and contamination of surface water aquifers with residues of agricultural chemicals and microorganisms, water quality is also degraded which is of concern in the agricultural community. Hence for improvement of public health and environment the safe discharge of wastes is very important. The role of aquatic biodiversity should be very useful here since it makes use of the potential benefits from the discharges.

At the global level, China and India makes significant reuse of wastewater. In 1991 Cooper reported that 80% of wastewater in developing countries could be used for irrigation. In Latin America untreated wastewater is used to irrigate at least 500 thousand Ha. (Moscoso, 19%). By 2040 in Israel, 70% of the total agricultural demand for water will be met by effluent. Recycled wastewater will also be the primary water source in Palestine.<sup>1</sup>

The predominant objective of most wastewater reuse systems lies in nutrient recycling. In India night soil and wastewater reuse in agriculture is a traditional practice followed in irrigation for centuries. With industrial expansion in China the heavy metal contained in its discharges has increased posing a threat. Several researches have described the aqua cultural benefits of wastewater ponds.

In India, Gujarat is the state where there are 359 wastewater fed farms<sup>2</sup> covering an area of approximately 7500 ha. and which supply more than 4000 tons of fish per year to the city customers. The use of municipal wastewater to fertilize ponds began in Maharashtra, Bengal and Gujarat, and it will become largest wastewater fed aquaculture system in the world.

***The aim of this paper is to convert the “WASTE LAND “in to “WEALTH LAND” for which we need to-***

1. Promote sustainable economic and social development of this area. Enhance the income of the local fisher to utilize the total ecological niches of the wetland area by promoting proper integrated wastewater fed aquaculture system.
2. Promote the sustainable use of natural resource of this area.

3. Conserve and enhance the natural and cultural heritage of Gujarat – Encourage the cultural heritage of the local fisherman to celebrate the Reva Puja, Mahisagar Puja, Tapti Puja, Parvat Puja etc. and their traditional folk songs and dances.
4. To promote understanding and enjoyment of this area by developing eco-tourist spot in and around this zone.

### **WASTE WATER – REUSE STRATEGIES:**

The reuse of wastewater in fishers is a common and traditional practice in certain countries particularly in China, India, Indonesia etc. Most wastewater reuse involves the culture of fish for human food. Wastewater is rarely used to culture aquatic organisms, either plants or animals, for animal feeding. This is hardly surprising as most societies practicing wastewater reuse are densely populated developing communities. Their main agricultural aim is to produce human food as directly and efficiently as possible, without the introduction of extra links in the food chain required in the indirect reuse of sewage to produce animal feed.<sup>3</sup>

Wastewater reuse system to produce high quality animal feed comprising two sequential processes. These are resource-recovery system and resource utilization. Resources recovery involves the reuse of nutrients contained in the wastewater as fertilizer to produce aquatic biomass, the actual product of wastewater resource recovery, is subsequently used, either directly or as an ingredient in animal feed. To start the second process in the sequence, resource utilization involves the production of fish as human food. The collection and reuse of wastewater is defined and well managed system would simultaneously reduce insanitary diseases, reduce eutrophication of the aquatic environment, and provide a supply of badly needed fertilizer to stimulate the production of aquatic biomass for animal feed.

Water is an elixir of life. It is precious natural resource and important component for human & animal survival. It's found abundant amount on the earth. Out of the total water reserves of the world, about 97% is salty water (marine) and only 3% is fresh water. Even this small fraction of fresh water is not available to people or animals as most of it is locked up in polar ice caps and just 0.003% is readily available to us as surface water. Water shapes the earth's surface and regulates our climate. In such a situation, the mentioned Waste Water Reuse Strategies to be work out and implemented.<sup>4</sup>

### **EXISTING CULTURE PRACTICES:**

The culture practice of fish is basically a composite system using different species of fish which utilize different ecological niches of pond ecosystem. The polyculture practices followed in wastewater fed fish farms are IMC and Exotic Carps and Tilapia polyculture system.

## **ADVANTAGES OF PANGUS POLYCULTURE:**

1. This species has a faster growth rate.
2. This species can withstand wide range of variation of dissolved oxygen and can tolerate a low DO level and therefore, be reared in such aquatic environment that prevails in sewage feed water bodies.
3. The seeds of fish are well available in the near vicinity of the sewage fed wetlands.
4. This species can be employed for controlling molluscan population.

## **PLANTATION PROGRAMME HAS TO BE TAKEN:**

Dense plantation on the canal side maintains the environmental stability through preservation and restoration of ecological balance. It may control the soil erosion as plants can absorb sum amount of pollutants from wastewater and produce nutrient rich water for aquaculture. Different types of trees like, Neem, Banyan, Peepal etc. are to be planted on the both sides of the River Bank and Canal as a part of social forestry programme, with the greater participation of the local people and College-School Students as a part of Environmental Studies. These plants decreases the pollution level of wastewater and produce fruits, which have an extra source of income for the local people.

They get a significant economic benefit from this fodder crop. So, this para grass or some other types of fodder crops may be introduced on the basin of wastewater canals, where other economic plantation is not possible. In cultivation of these fodder crops farming may create new market opportunities for the local people. This new dimensional farming system may encourage the livestock farming (dairy got farming etc.) of this region. These fodder crops also absorb some amount of pollutants from the wastewater. So the cultivation of fodder crops has both economic and ecological importance. <sup>2</sup>

## **DYKE PLANTATION:**

The farmers should be encouraged for Dyke cultivation. It may enhance the socio-economic status of the farmers. Not only that the Dyke farming may control the soil erosion, maximum utilization of the farm space and to maintain the ecological balance of the wetland ecosystem. During desolation program the excavated mud are gathered on the pond dyke. The cultured plants or vegetables absorb nutrient from the mud, which are nutrient rich. As a result the farmers get economic benefit as well as the solid waste (mud) is reuse by the plants. So, the dyke farming also maintains the environmental stability for the waste-fed zone.

## **LOTUS FARMING:**

Every fish production group (FPG) (primary cooperative society) and government controlled cooperative societies should start lotus farming inside of the main fish culture pond. The lotus farming has some importance. These are –

- a. To attract the aquatic insects, birds etc. This helps in pollination to maintain the proper wetland ecosystem.
- b. Some aquatic insects take shelter on the aquatic plants.
- c. The lotus flower also has economic importance; the lotus farming can fetch a very good market for the local people.
- d. Lotus is our national flower, so the encouragement for the propagation of national flower would be essentially an appreciable step for young generation.<sup>1</sup>

## **PRODUCTION OF HIGH COST FISH BYPRODUCT FROM LOW COST FISH:**

In waste water fed zone the fish byproduct from the low cost fish can be started by the fisherwomen. The probably fish byproducts are fish prickle, fish noodles, fish sandwich etc. This type of program may enhance the economic and social status of the local fisherwomen folk.

## ***PREAMBLE CONVERSION OF WASTEWATER TO WEALTH WATER AND ITS SIGNIFICANCE:***

This holistic approach will only be possible if proper land use planning is carried out from point of view of social planners who have an invaluable role to play. This zero discharge technology for the multidimensional Wetland shall be designed to involve people's participation, aiming at marking the whole process remunerative and eco-friendly.

## **CONCLUSION:**

Fishery is the most important livelihood enterprise in rural sector next to Agriculture. Although it is said to contribute 1.4% GDP in national economics as has a growth of around 7% per annum no dew importance is accorded to the sector in terms of planning and fund allotment. As there is no central ministry on Fishery this sector is being neglected and is always under the umbrage of agriculture. A central ministry will iron out the differences of interstate in congruency on fishery policy and can attach more important to this department as fishery is an important sector for rural employment generation and nutritional support for the poor as well. A central ministry in fishery is extremely essential for all out development in this sector. Under the current situation of global

warming, climate change and water scarcity, conservation of water is of utmost importance. Gujarat is the state to formulate and implement policies of water body conservation has provisions for protection of water bodies' destructive uses.<sup>5</sup>

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