

# Insights of Decentralization Concept for Upscaling the Water Quality Remotely Rural Areas, Case Study: the Delta of the Danube River

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## Introduction

Water procurement in lesser-developed countries has been brought to the forefront during the 1980's which was declared as the International Drinking Water and Sanitation Decade [1]. According to the United Nations Development Program (UNDP) and the World Health Organization (WHO) officials, more than half of those living in the developing world continue to live without access to potable water [2]. Rural areas simply pose more challenging problems to the modern water development planner. The settlements in the rural sector are generally sparsely populated and widely distributed [2]. Water sources in rural areas are typically small-scale, serving a few hundred people and their livestock, needing only to meet immediate consumption needs [3]. The primary objectives of this survey on decentralized technologies for improving water quality in rural areas in developing countries or refugee camps are to investigate and present some ideas on the design of the "soft" technologies, which could be used for the production of safe drinking water, and to determine the most suitable decentralized system for improving water quality.

## Material and Methods

Characteristics of the Romanian water sector:

- poor quality drinking water,
- low connection rates to sewage treatment plants
- extensive underground water pollution,
- chronic under-investment in ongoing maintenance,
- utilities have inefficient equipment
- interrupted water supply,
- high levels of leakage
- high levels of infiltration into the waste water collection network [4].

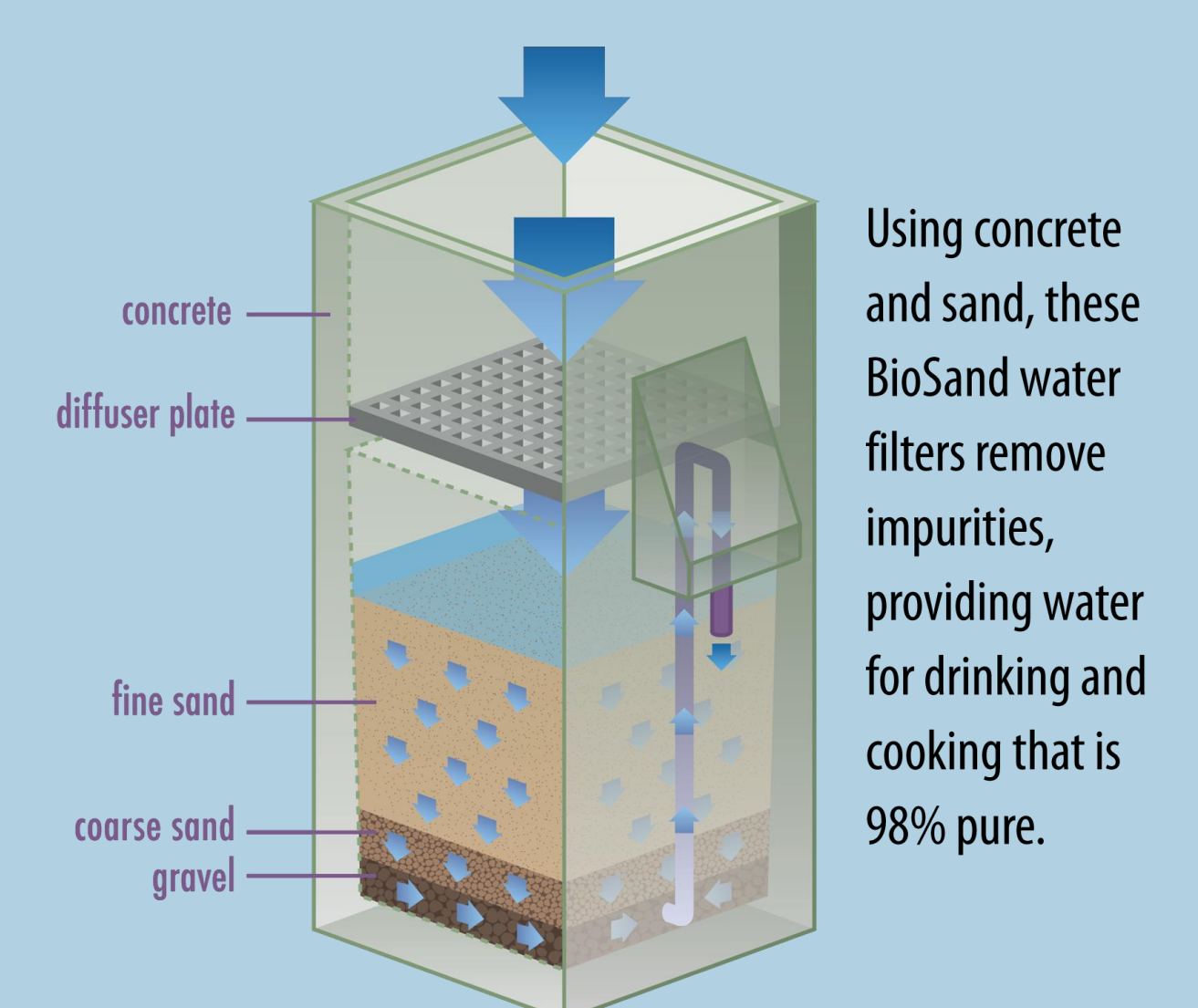
The Danube Delta:

- a prosperous ecosystem and a center of human daily life
- surface of almost 1,000,000 hectares
- 174,037 inhabitants in 65 rural communities and four towns,
- attracts raw sewage from cities, chemicals from agricultural runoff, waste from factories and bilge oil from ships [5].

The aim of the present study is to approach a decentralized water treatment project-plan through which its implementation will satisfy the Danube Delta's population potable water needs. In the case of Danube Delta potable water quality problem, the technical solution, which was adopted is based on taking water from either the Danube River or local groundwater resources and treating it with The BioSand Water Filter (BWF).

<https://www.gfa.org/water/biosand/>

## HOW DOES A BIOSAND WATER FILTER WORK ?



## Results and Discussion

Three major market targets

Market Segment	International NGOs	International Businesses	National Groups
<b>Characteristics</b>	Primarily North American. Focused on the poorest of the poor. Have access to funds. Can be reached through web and internet.	Headquartered in G8 Countries. Focused on communities most affected by company business operations. Will pay market prices for professionally delivered solutions. Best targeted by individual corporation.	Located in the developing countries. Focused on locally based, sustainable solutions for country development. Limited funds. Best targeted on a country by country basis
<b>Challenges</b>	Do not always appreciate the need for technical training/support. Competitive.	Services provided need to be of high professional quality.	Difficult to reach geographically, language, culture etc. Need to connect local groups with external funding agencies.
<b>Benefits</b>	High degree of leverage in terms of number of poor people impacted per training class provided, because of the downstream and lateral technology transfer.	Effective means of educating and collaborating with an influential community segment. Provides the avenue for "Centre for Small for Water Systems Projects" to achieve financial sustainability.	This is the ultimate objective - the only truly sustainable means of providing water services More inclusive of local populations in development and delivery of "Centre for Small Water Systems Projects" 's programs and services.

- for the start-up costs - a minimum of 86.5 million lei in donations are directed to infrastructure purchases
- acquisition of approx. 200 m of donated office/training/workshop space and donated office furniture are purchased.
- three skilled persons are required
- a working capital reserve of 50 million lei will be maintained throughout the year for contingency.

## Conclusions

- ❖ Regarding the improvement of water quality in rural areas in developing countries, it has been argued that rural water development does not need to be so costly and that the per capita water supply costs could be reduced to a much more locally manageable level.
- ❖ The strategy that shows the most promise is the development and promotion of simple and appropriate water well making technologies.
- ❖ These history-proven techniques are inexpensive, easily distributed, locally manufactured, and do not restrict the community's ability to conduct the all-too-necessary social and political rituals that enhance a water source's success.
- ❖ This is where it is suggested that countries and development agencies alike should be focusing their energies in the next "decade".

## References

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