

# **WATER RECYCLING SAVES FUTURE DRINKING WATER RESOURCES**

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Water is one of the most precious resources, yet little effort is made to conserve and preserve the limited available supply. Fresh water resources available for consumption vary considerable around the world with some areas having more than 26.4 million gallons (100,000 m<sup>3</sup>) per capita. Unfortunately, this abundance tends to create a perception that there is an infinite supply and that conservation is of minimal concern. Yet, in other regions the fresh water available is less than 79,000 gallons (300 m<sup>3</sup>) per capita. Much of these fresh water resources are being depleted every year primarily because withdrawal exceeds the rate of recharge. With the need to provide the population with adequate food, approximately 80% of this fresh water is consumed by related production systems. Despite this limited supply, most current conservation measures still include only one-time use of water followed by disposal, which is the cause of yet another level of problems--the quality of our fresh water resources. With our population continuously growing, causing ever-increasing demands upon our natural resources, the future of our water resources appears questionable. Now is the time for everyone to work together to produce a multitude of valuable products while reducing the demands on our fresh-water resources by recycling the water that has been used. For every gallon of water recycled for beneficial purposes, a gallon of fresh water is reserved for human consumption.

Recycling water that has been used for one purpose into various aquatic products is one example of the multiple-use concept. To allow this water to be used multiple times, it is necessary to treat the recycled water to a level suitable to sustain the growth of the various plants and fish. The level of treatment necessary varies depending on the level of use of the water and the species of both the fish and the plants being produced. In any case, each level of treatment of the water can be used to produce another valuable product. Based upon the resources available in a region and the potential products the market can support, specific processes can be enlisted to recycle output water from one process as the input water for another process. modular production system concept will be presented to explain how water recycling can be used to integrate businesses in such a way to provide sustainable development in terms of both economic development, especially rural development, as well as providing a sustainable environment. This modular production system is based on over 17 years of personal research in the area of water reuse systems. The technology used is easily transferable world-wide, thus making the modular production systems usable even in the less developed regions of the world.