

Reporter **Lali van Zuydam** accompanied South African Breweries to the rural areas of Venda in Limpopo where they support community projects. The communities nestled in the rolling hills of the province, where tourists seldom go, are proof that teaching a man to fish is giving him a livelihood.

Cycle of life: aquaponic farm to feed community

NESTLED deep in the mountains of Venda in Limpopo, accessible only by 4x4s, there is a community that provides fish and vegetables using a sophisticated aquaponics system.

In the village of Mubvumoni, there are no commercial retailers or supermarkets and communities are dependent on their own crops and livestock for sustenance.

The nearest town of Thohoyandou is 60km away and the roads are terrible and muddy. Apart from this, many people in the community do not own cars.

This required some innovative thinking on how communities can provide for themselves in a sustainable manner.

Seven disabled members of the community from Thabelo Disabled Persons South Africa Group, with the help of South African Breweries (SAB) and Inmed South Africa, recently started producing fish in large tanks along with vegetables such as spinach and green peppers which are grown in a soil-less environment without the use of fertiliser.

This form of food production is called aquaponics.

The system in Mubvumoni, which comprises four fish tanks and more than eight vegetable beds, can, at any given time, produce more than 2 000 fish and 4 000 vegetable plants.

Project manager Khumbudzo Manyaga is from the neighbouring village of Sibasa and is doing his masters in agriculture.

"This is a medium-sized system and is one of the biggest in the country," he said.

Manyaga said the system could produce up to 2 000kg of fish, 20 000kg of greens such as spinach and lettuce and 4 000kg of tomatoes



Project manager Khumbudzo Manyaga explains how the water from the fish tanks is used to water the plants in the aquaponics system.

PICTURE: LALI VAN ZUYDAM

per year.

The project was started about a month ago and will, within the next five months, see the first yield of fish and vegetables. It is estimated that once the project yields produce regularly, the seven beneficiaries can sustain up to 60 people.

As soon as the systems matures and produces a greater yield, the

project will be commercialised and the beneficiaries can receive an income.

The idea is to have vegetables and fish at different stages of growth so there will be continued harvests, Manyaga said.

The closed system, which works on the principle of a mutually beneficial relationship between the fish

and the vegetables, has several environmental benefits including saving water, money and space.

Each tank can contain up to 800 indigenous tilapia fish in approximately 2 200 litres of water. These fish were selected because they are locally sourced, they are hardy by nature, and they are not fussy eaters.

The water circulates through the system for 15 minutes every hour and the tanks are all connected underground so the water circulates through the entire system.

The waste the fish excrete into the water is high in ammonia, which is good for the plants. The water is distributed to the plants through pipes from the fish tanks.

WHAT IS AQUAPONICS?

Aquaponics is an intensive and inexpensive food production system which combines fish farming (aquaculture) and soil-less crop production (hydroponics) in a closed

system that conserves water and space and requires minimal input from people. When compared with traditional farming, aquaponics can produce up to tenfold more crop in the same amount of space.

BENEFITS OF THE SYSTEM:

- Because water circulates in the system, 80 to 95 percent of water is saved in comparison to traditional farming.
- The system saves 75 percent more energy compared to traditional farming.
- No soil or fertiliser is used and money is saved.
- The produce is organic.

- Over the past 10 years the system has been developed so that simple, inexpensive materials can be used to build it.
- Disabled people can easily maintain the system because it is less labour-intensive than traditional farming.
- Any vegetable can be grown in any season.

BUSINESS OPPORTUNITY

Local people run the project: Wilson Mphaphuli is 46 years old, has three children and has never worked before in his life. He has lived in Mubvumoni village his entire life and supports his children with the disability grant he receives from government. He was born with a deformed leg.

"This project will help a lot of local people. People rely on us for fresh vegetables because they cannot get it elsewhere," he said. Mphaphuli is confident they will grow enough vegetables and produce enough fish to expand the business. "We will be able to employ people are our business grows," he said.

The plants contain bacteria that can convert the ammonia to nitrates and the nitrates are absorbed by the plants.

The plants are not grown in soil but rather in gravel, which, when the water seeps through, aerates the water and makes it rich in oxygen for the fish.

The water is thereby filtered by the plants and the gravel and clean water is distributed back to the fish. Then the cycle starts again.

Water is collected in large tanks by rain catchment and from a river near the village.

"The community is already very excited about the fish and produce will be sold from the gate of the property," said Inmed South Africa's

operational manager Janet Ogilvie.

The system is well suited for the disabled because it is less labour-intensive than traditional farming.

The project beneficiaries were also trained in basic business management so they can later grow their project.

Ogilvie said the Pick n Pay in Thohoyandou are waiting to see the first samples of fish and vegetables.

"The system will ensure that this vulnerable group will have enough to sustain themselves as well as an income generation opportunity," said Ogilvie.

This project is the first of its kind in Venda and Inmed South Africa runs two others in the Free State and Joburg.