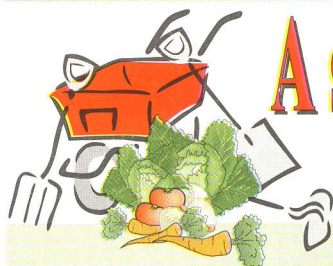


# SPOTLIGHT on AGRICULTURE

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## A sustainable, integrated Farming System:

*Generator of tangible Profits & Provider of essential Nutrients*

### INTRODUCTION

To achieve and maintain sustainability, asks for a delicate balance of all available resources. The utilisation of each resource should be optimised and integrated into a close-end system. An integrated system has smaller individual production systems as building blocks from which the end product should provide the resource input for the next phase of this integrated system.

### A SUSTAINABLE, INTEGRATED SYSTEM

An example of such a system can be seen in Figure 1. In this example fish are bred in a reservoir (use as protein supplement for humans) and the nutrient enriched water is utilised in the production of vegetables. The vegetable garden provides food to the community and some vegetables are also sold to create cash flow. Animals are fed with the by-products and the residue is made into compost. The animal manure, in return, is fed to the fish and is also used as a cheap, biological fertiliser.

It is important to note that each of the smaller systems generates three main outputs: Food for the community, a cash flow and the resource input for another system. Each of these outputs strengthens the overall sustainability of the whole system. Food as an output is an essential necessity, especially

in the resource restricted rural areas where malnutrition is a real and serious problem. Table 1 shows the quantities of essential nutrients that a grown-up needs for a balanced diet and also which components of the integrated system provide these nutrients. Cash flow, on the other hand, is a tangible profit that motivates participants. Success needs to be 'seen to believe' and there is no better way to show the success of a project, than through a cash income. The third output, the resource input for another system, optimises the utilisation of available resources and contributes directly towards sustainability. For example, if the water was only used to produce vegetables, the inset cost (diesel, fertiliser, etc.) could easily exceed the profits of the project which will undermine sustainability. Through the integration of the fish, rabbits and goats into the system, the water usage is optimised and the inset cost is reduced.

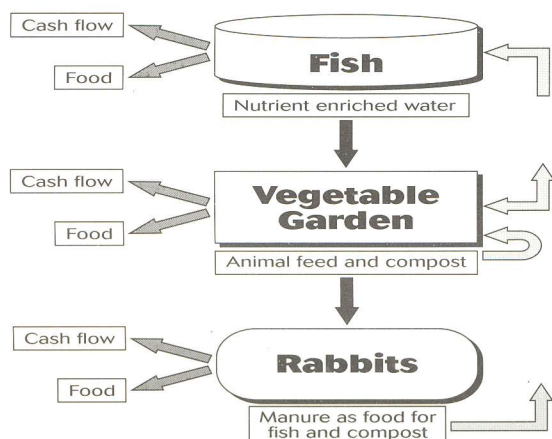


Figure 1.  
An example of a sustainable integrated system



The fish dam and vegetable garden at Gabis





The vegetable garden at Gabis



Rabbit breeding enclosure

Table 1. Quantities and providers of essential nutrients

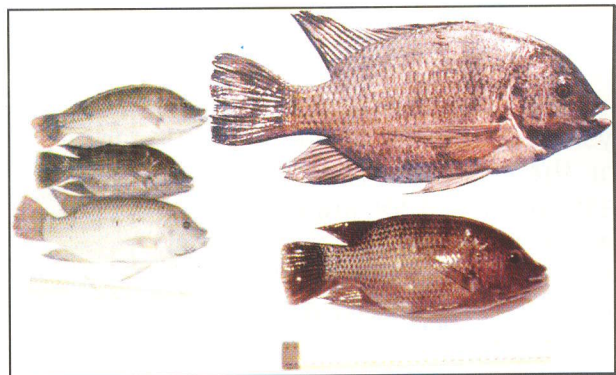
Essential Nutrients	Protein	Carbohydrates	Vitamins & Minerals
Grown-up needs	45g-55g/day	50g/day	30 different types
Provide by	Fish/Rabbit/Veg	Vegetables	Fish/Rabbit/Vegetables

### THE GABIS COMMUNITY: A TRUE STORY

Gabis is situated 15km from Karasburg in the Bondelswart communal area. The total community consists of about 150 families and form part of a Roman Catholic mission and school. Within this community, a small group of people is running a combined gardening, fish and rabbit project close to the mission. Two years ago, in 1997, the project started out as a small vegetable garden to provide essential dietary vitamins and minerals to the local people. After the initial success of establishing a garden, fish were introduced to cut down on the cost of fertilisers, to optimise the water usage and to provide additional protein. Earlier this year the community felt that by-products from the garden were not only enough for maintaining their compost heap but could also sustain a few rabbits. Five rabbits were bought with funds obtained through providing feed to another rabbit project in Karasburg. The community is planning to utilise the rabbits as a source of protein and also to sell some to neighbouring communities. The initial number of 300 fish escalated to a few thousand. The larger ones will be ready for consumption by the end of this year.

Vegetables from the garden (tomatoes, onions, cabbage, carrots, etc.) are sold to the mission school hostel, to neighbouring communities and also in Karasburg. Every person involved in this project is also allowed to take his or her daily household needs in terms of vegetables from the garden. The income generated by these sales is used to buy seed, fertilisers, pesticides, diesel for both the water engine and a small tractor and also to maintain the water pump. Savings are kept for unexpected expenditures like the breakdown of the water pump.

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The fish bred in dams

#### Why does the Gabis project work?

- It is sustainable.
- It optimises the utilisation of available resources.
- The involved people are committed.
- People experience a sense of ownership.
- The systems have short cycles to generate tangible profits.
- Markets are available and accessible.
- It is demand driven.

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