



## Chapter 13

# Business and financial planning



### Business planning

You may have read many magazine or newspaper articles that promise a bright future for aquaculture. The technology, growth processes, challenges and potential rewards are exciting. At the same time you must remember that aquaculture is a risky business, so inadequate preparation of a business plan will hurt in two fundamental ways. First, starting in aquaculture without a good business plan will result in mistakes that could have been solved on paper. Second, those providing the financial resources for building up the project demand a business plan, unless you yourself are the sole source of funding. A demonstration that the project is viable will be essential if you are asking for funding.

Farmers have to possess more skills than most other occupations, and this is also true for aquaculturalists. You must have a practical bent and be good at building, repairing equipment, working with pumps and nets, and handling fish. You have to understand fish biology, run an office, keep books, hire and fire, and do the marketing of the final product.



Fish being sold along the roadside in Limpopo Province. Farmers can establish a considerable number of customers by selling fish informally.

All these responsibilities are overshadowed by three fundamental concerns:

- Who will buy the product?
- How will you produce the product?
- Will the income you make exceed the costs?

There are many different types of fish-farm business, from the micro level, where one person grows fish in one or more ponds and sells or barter these to people in his community, to the complex high-investment company-run business that moves large volumes of fish competitively into the formal market at regular intervals. The business plan for these extremes

### Examples of businesses and their requirements for a business plan:

Ownership of business	Typical investment	Facility used	Typical monthly income	Typical business plan and accounting type
One person	R500-R1000	Single pond, no buildings	R20-R200	Simple one-page plan. No accounts or records kept.
Group or partnership	R250 000-R750 000	6 ponds, feed and net store, office	R1000-R5000	5-page plan with start-up, running costs and expected income; bank account required.
Company	R1–10 M	10-50 ponds, hatchery outbuildings and office, lab and stores.	R10 000-R250 000	Complex professional plan indicating strengths and weaknesses, market opportunities and cash-flows; uses professional accounting and auditing.

would look very different, but each needs a plan to show that the activity is worth doing.

For each type of business an examination of the following aspects needs to be done:

- Expectations (see Annexure A)
- Market potential (see Annexure B)
- Production feasibility (see Annexure C)
- Financial feasibility (see Annexure D).

### Basics of business planning: key questions

Aquaculture is no different from agriculture when considering whether or not a proposed venture is worth doing. Just as a farmer is not going to buy cattle if grazing is unavailable, nor plant crops if suitable arable land is not available, nor should he/she consider aquaculture if sufficient water is unavailable. The basis of aquaculture is water: water is fundamental in its importance to aquaculture, just as good land is for classic crop-agriculture, and water quality and quantity are the most essential starting points in any business plan.

Before considering an aquaculture project the people undertaking the proposed venture need to ask themselves certain key questions. These questions vary in importance: from those that may be answered “No”, making the project unviable from the outset (e.g. “No” to the question “Is there sufficient water?”, making aquaculture impossible), to those that require some form of compromise to make the project viable (e.g.: “Is there a market for the product?” Answer: “No, there is no local market, therefore transport to a market further away is required, incurring additional transport costs”). A list of key questions is given in Annexure A, and the types of question are summarized in the table below. Some negative answers to these questions are considered to be ‘fatal flaws’, and if these fail to give satisfactory responses,

no further investigation into the viability of the project should be considered, as these are fundamental faults that rule out the project (see page 73).

Some reasons why some aquaculture ventures and projects have failed:

- Pond-type aquaculture ventures started in rural areas where input and running costs were too high in comparison to the financial yields of the project.
- Community-run ventures where too many people expected to be supported by the venture.
- Projects using waste water from purification schemes but that resulted in marketing difficulties due to perceived ‘pollution’ of the edible product.
- Climatic problems, either too hot or too cold, that made the culture of certain species unviable.
- Disputes over the use of either water or land.
- Excessively heavy investments in technically complex facilities and unsecured markets for the end product.

This list is by no means exhaustive but serves to illustrate the degree of planning that must be considered before undertaking a venture.

### Components of a business plan

In compiling a business plan and anticipating the costs of starting-up a business, a simple business plan must cover the following aspects:

1. A project overview that concisely describes the project concept.
2. The reason for initiating the project: what advantages the project has, describing its overall design and method of operation.
3. A costing exercise for the project, divided into

**Key questions can be divided into groups, each with their own reason for asking them.**

#### Type of question

Socio-economic questions, e.g.  
*Why do you want to start an aquaculture venture?*

Site-related questions, e.g.  
*Is the site suitable for ponds?*

Biological questions, e.g.  
*Are the water temperatures suitable for tilapia growth?*

Market-related questions, e.g.  
*Is there a market at a realistic price for the species you have chosen?*

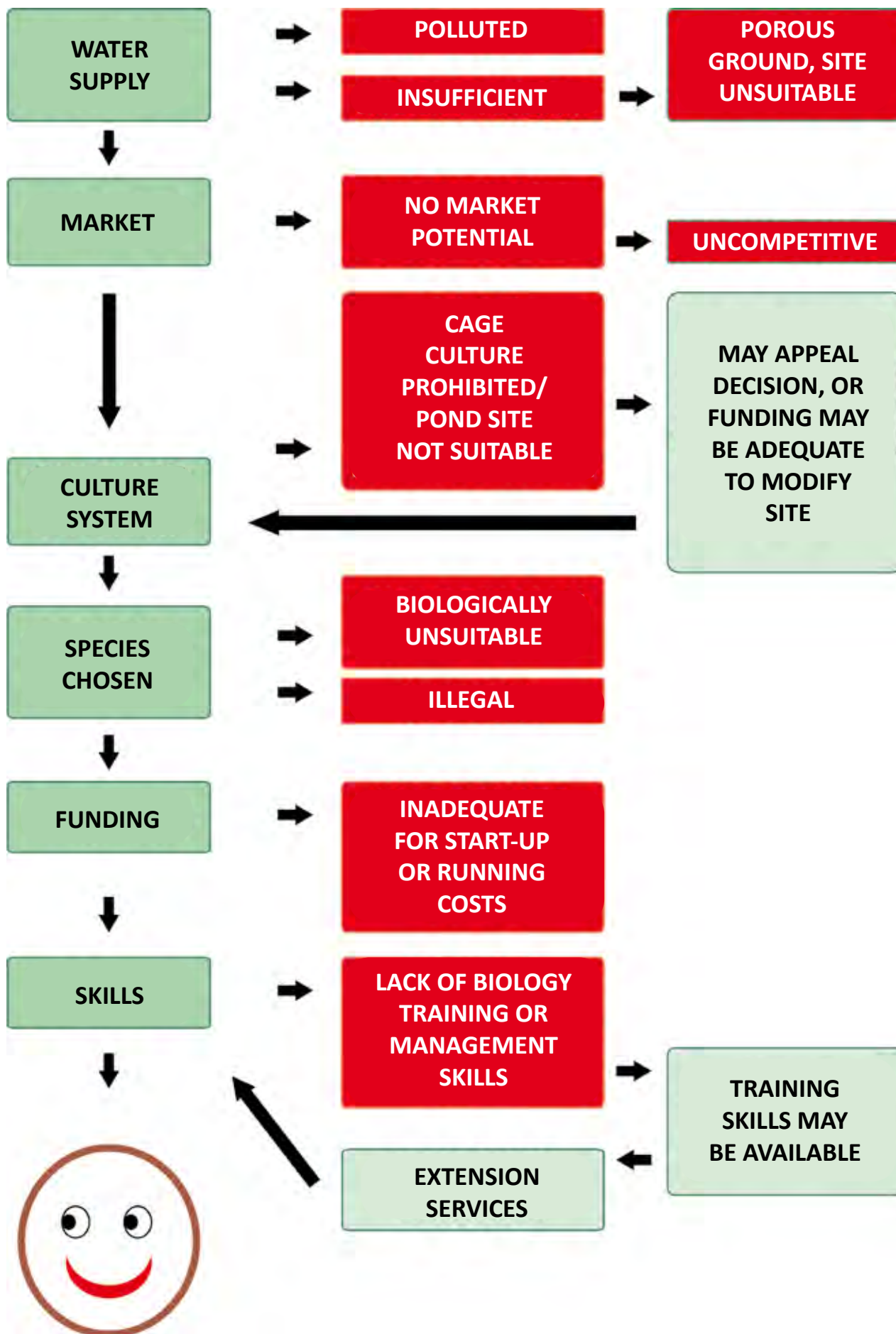
#### Reason for asking this question

To assess whether or not you: see a financially viable prospect, have skills working with fish, or have a facility that may have potential for aquaculture.

To assess the financial cost and technical suitability of developing that site.

To assess correct species choice.

To assess whether or not you can sell the fish profitably (even if you can grow the species successfully).



Examples of 'fatal flaws' that make projects unviable.  
Green = go/continue; Red = stop/no go

the following aspects:

- Initiation costs: the costs of obtaining permits, surveys, water rights, business partnerships and other legal aspects in setting up a business.
- Construction costs: all the anticipated material and labour costs, including capital items such as land, vehicles and machinery.
- Start-up costs: these include obtaining broodstock, stationary and office equipment, feeds and medications, electrical and telephone connections, etc.
- Running costs: these include all expenses incurred before the project provides a return that equals or exceeds the running costs (profit). Examples are electricity, telephone, staff salaries, feed, fuel, transport, etc.

4. A description of how the venture would be run, including staff hierarchy and duties, stocking plan, anticipated growth, and harvest schedules.

5. A description of marketing potential and techniques to penetrate local or other markets, including any potential prospects for value-adding to the product offered for sale.

6. Strengths and weaknesses of the project: these can be grouped under headings such as site, facilities, species, anticipated production volume, local markets, distant markets, and potential for expansion or diversification.

7. Future potential prospects for the project.

### Checklist in preparing a business plan

Are you prepared for an aquaculture business? The checklist of key questions on page 79 will help provide the farmer with what needs to be considered before starting. The three most important decisions are site selection, species choice and market potential. However, ignoring socio-economic factors has led to the failure of many otherwise potentially good projects.

### INFO BOX: THE THREE MOST IMPORTANT CONSIDERATIONS IN BUSINESS PLANNING

- Site selection
- Species choice
- Market potential

### Site selection

The suitability of the site is extremely important and the following checklist will help determine whether it has good aquaculture potential.

1. Is the proposed site in a region zoned suitable for aquaculture?
2. Is the site well drained and above flood-prone areas?
3. Who owns the land where the fish farm will be built?
4. If you are considering ponds, is the land a good shape for a fish pond?
5. Is the soil suitable for pond construction and will it hold water?
6. If you are considering putting cages in dams, is there sufficient water turn-over to dilute pollution from feed and waste?
7. Is there a sufficient and acceptable water supply?
8. Would you be able to use this water?
9. Is the water polluted by any chemicals, fertilizers, pesticides, toilets or other pollutants?
10. Is the pond or cage site close to your home?
11. Are there enough people to help build and harvest the pond, cage, or other system that you build?
12. Is there enough food available for the fish?
13. Are there fertilizers available for ponds?
14. Can the equipment for building a pond be borrowed, hired or bought?
15. Is it possible to get made-up cage components to the site, or will they have to be assembled on-site?
16. Does the site have acceptable potential for the disposal of waste water?
17. Is there easy access to services and technical assistance?
18. Is there adequate room for the proposed ponds or cages, plus possible future expansion?



It is important to decide where your market realistically lies.





### Species selection

1. Do the people in the area like to eat the fish species that is to be cultured?
2. Do you and your family eat the farmed freshwater fish?
3. Can the people in the area afford to buy the fish produced in the pond, cage or tanks?
4. Is the cultured fish suited to the local climate, and is it native to the area?
5. If the species is not indigenous, is it an acceptable species for aquaculture in that catchment in terms of conservation legislation?
6. Are established and reliable rearing techniques known and readily available for the intended species?
7. Can the basic biological needs of the culture species be met?
8. Have you chosen a species for culture, and are you familiar with its biology?
9. Have you investigated the production strategies available and chosen the best for you?
10. If you do not have the necessary technical experience, are you prepared to employ someone who does?
11. What food would you feed the pond fish and where would you get it from?
12. Are dependable sources of juvenile fish available locally?

### Socio-economic factors

1. Is the development acceptable to neighbours and others who may use the area?
2. What competition is there for the use of water?
3. If people drink the water downstream of your proposed fish farm, will they still be happy with the fact that you may add fertilizers to the water or are feeding the fish?
4. Have the plans been discussed with the appropriate state agencies and extension officers?
5. Have you identified what permits are required for the construction and operation of the facility?
6. Can the required permits be obtained without excessive investment in time, money and effort?
7. Can you obtain permits for an extended period of time, or do they have to be renewed frequently?
8. If it is a community project, is the local chief involved or aware of this project?
9. Is your project large enough to be economically viable?
10. If you are proposing a cage-culture project, has the owner of the dam given approval?
11. Does the owner of the dam (or waterbody) want a share of your income or profits, and have you

### Important aspects in planning an aquaculture business

- Skills: Aquaculture, like agriculture, requires knowledge of the biology of the species cultured. A project started by unskilled or untrained staff is unlikely to have any chance of success.
- Formal organization: Any business needs formal organization and division of labour. Some people have technical skills, others know office or business management, and others are labourers. These skills should be recognized in the planning of the business. No business can be operated by managers only; there has to be a hierarchy of jobs and rewards accordingly. Community-run projects run the risk of no clear demarcation of people's roles, resulting in either stagnation of the project or conflict between the parties.

### Market potential

Marketing the product is very important and often overlooked. Not only is it important to identify your market, but also to make sure that you can supply it at the right time, in the right form, and at the right price. Ask yourself:

1. Is there a market for your fish (can you sell your fish at a profit)?
2. Are there any competitors selling the same fish as you in your area?
3. If people are going to buy fish from you, what protein were they eating before the fish became available, and thus will be 'displaced' by your product?
4. Is the market big enough for you and your competitors?
5. Is there a good (and easy) way to get the fish to the market?
6. Is the market accessible year round from the site?
7. How will you get the perishable harvest to the market without spoiling it?
8. Are the roads passable even in the rainy season?
9. If there is no market nearby, or if it is hard to get to the market, can the fish be kept by drying, smoking, or salting them?
10. Is there a vehicle available for transportation if necessary?
11. Can you produce what the market demands, at the right time and in the right amount?
12. What form will you market your product in (i.e. fresh, filleted, salted)?
13. Are you able to harvest, handle, hold and transport the product to market or will you require additional help?
14. Are there already established marketing outlets that you can tap into?

- **Water use:** Just because water appears to be available or on site does not mean that it is free for use in an aquaculture venture. Water is often jealously guarded by its users, be they a community, private individuals or government controlled. Many projects have foundered through inadequate planning for the use of water, or over its consumption, diversion or pollution by fish farms.
- **Disease:** While in theory there are cures to many of the diseases that affect fish, the reality is that a major disease in the fish-farm environment usually means very high mortalities and major loss of stock as there is very little that one can do about it in practical terms. Thus, the risk factor is always high, more so in intensive systems.
- **Partnerships and joint ventures:** Partnerships and joint ventures need to be covered by legal agreements that detail the 'exit plan arrangements' under certain circumstances, such as if one or more party wishes to leave the project. Many projects have failed due to the departure of either skilled personnel or the end of running capital, leaving the rest with either a burden of debt or lack of skills to run the venture.
- **Lack of motivation:** Motivation comes from knowing that the rewards for your achievement are directly related to how hard you work at the project. If the project is funded such that all beneficiary parties reap the same reward irrespective of how hard they work, it will probably fail and conflicts will arise. Also, if a project guarantees basic income to those working on it, irrespective of the output success of the project, there is little incentive to work harder at making it a productive success.
- **Costing:** It is easy to underestimate costing for construction and running costs of a project. There are always unforeseen expenses (for example: the high costs of security fencing the fish farm after stock was stolen). Unforeseen costs can be as much as 25% of the total budget.

### Financial planning

Starting an aquaculture business can be an expensive exercise. It is important that you first acknowledge that starting an aquaculture business is a big decision and requires serious commitment. Like any other business venture, some research needs to be done before money is invested. Depending on what you intend to use the fish for (i.e. only to feed you and your family, or to sell and eat a few) will also influence the size, scale and expense of the fish-farming operation.

It is important that the prospective fish farmer is aware of the following –

- Aquaculture is a farming/business enterprise that requires money, time and labour.
- It is easy to under-capitalise, which may mean that there is not enough money to get the business running.
- A good understanding of the cultured animal is necessary, particularly regarding water-quality requirements.

Starting a fish farm has the potential for good returns on your money. However, it also has an element of risk: fish can die in large numbers very easily, and once they are killed-off, they have no sale value. It is most important to realistically evaluate the prospects of good financial return and the feasibility of the operation. Depending on the nature of the fish farm, there are some opportunities for financial support and it a good idea to investigate these options.





### **Economic considerations**

1. Do you own or have access to an appropriate site?
2. Have you determined what your financial responsibilities will be to start your fish farm?
3. How much money would you need?
4. When would you need the money?
5. What would the money be used for?
6. Would you require financial assistance and if so, how would you repay it?
7. If you need a loan, can you secure sufficient money at a reasonable interest rate?
8. Have you made a realistic assessment of the timing and scale of expected returns on your investment?
9. Are there adequate cash reserves for unanticipated costs, such as equipment and/or unexpected loss of the fish?

Once all of the above questions can be answered, the money required to build and operate a fish farm needs to be worked out. Costs need to be determined for these aspects as well as for what the running costs will be to maintain the ponds or cages and to feed and harvest the fish.

What expenses are there in operating your fish farm? These things need to be carefully costed-out so that you do not end up under-budgeting. Possible expenses are:

1. Pond or cage construction
  - Labour
  - Equipment and machinery (pumps, paddlewheels, aerators, etc.)
  - Materials (concrete, bricks, wood, etc.)
  - Security (fences, alarm systems).
2. Water
3. Electricity
4. Telephone
5. Fish
  - Cost per fish from the hatchery
  - Transport from hatchery and to market.
6. Pond, cage or tank maintenance
  - Fish food
  - General hardware (nets, buckets, etc.)
  - Chemicals (lime, fertilisers, disease treatments, etc.)
  - Harvesting equipment (sorting tables, scales, freezers, smokers)
  - Labour.

After the above costs have been determined, it is necessary to determine what the fish in the farm will cost you to produce. You cannot afford to sell the fish cheaper than this amount otherwise you will be losing money. Bear in mind that you will probably lose some fish and therefore the price per fish should take this potential loss into account.

When the fish are eaten by the farmer or his family, the value of the fish should be determined according to market prices and not cost prices (e.g. the farmer would have to pay the retail price for the goods at the market if he were to choose to buy them himself, so their value to him must be determined in terms of this price and not in terms of costs of production).

If the fish are to be used to feed a family and provide a small additional household income, it is important that the fish farmer uses the cheapest (but good quality) dietary ingredients for his fish. Commercially formulated feed pellets may be too expensive for a small-scale farmer. The farmer may have access to cheaper ingredients (i.e. maize, grass, brewery waste or waste vegetables from the vegetable garden) that can be fed to his fish. The number of fish stocked in the pond or cage is determined by the size of the containment and how much food you are able to provide.

To help explain what the costs and potential returns of a small-scale pond system are likely to be in a rural setting, the results of a survey of smallholdings in the southern region of Malawi are presented. The survey estimated the input rate, yields, input costs and income associated with a variety of plant materials that were being used as inputs in small-scale farms (around 200 m<sup>2</sup> ponds). Yearly farm income was estimated to range from approximately SA R76.30 to R578.90. Although these figures may appear low, they must be seen in perspective and compared to the overall low annual incomes earned by smallholder farmers in Malawi (approximately R1050-1400 in 1991). In some cases, the presence of a fish pond also leads to an increase in the production and cash earnings from vegetable farming using integrated farming systems.

**Fish yields, costs and incomes associated with the use of various smallholder resources in integrated agriculture-aquaculture in southern Malawi (adapted from Noble & Chimatiro, 1991)**

Input	Input rate	Mean fish yield (kg/ha/yr)	Range (kg/ha/yr)	Cost of input (SA Rand)	Income (SA Rand)
Napier grass	100kg/ha/day	1 405	647–2 195	102.06	238.00
Maize bran	3% MBWD	1 726	406–2 368	18.55	292.39
Napier grass/maize bran	as above	3 013	2 726–3 299	120.61	578.90
Waste pumpkin leaves <sup>a</sup>	50 kg/ha/day	1 444	1 372–1 616	88.20	245.42
Maize stover compost/FWA + AL <sup>b</sup>	3% MBWD; 2.5 t/ha	750	710–790	51.66	127.40
Smallholder farmers using maize bran	When available	951	241–3 336	18.55	161.07

*a Cost of waste pumpkin leaves based on labour input to harvest waste leaf*

*b FWA + AL: Fuel-wood ash and agricultural limestone combination*

*MBWD: Mean body weight per day*

**Notes:**

1. Cost of fresh fish, 1991 retail prices @ R8.47/kg.
2. Cost of maize bran @ R0.28/kg dry matter @10% moisture.
3. FWA - no cost; a waste resource from household cooking fires.
4. AL - Agricultural limestone @ R0.28/kg.
5. Cost of maize compost based on labour input @ R5.67/day.
6. Napier grass cost based on labour input to cut grass @ R5.67/day.
7. Costs of inputs are: kg/yr/200 m<sup>2</sup> pond (2 fish crops/year; 1-ha pond).
8. Income is per 200 m<sup>2</sup> pond (2 fish crops/year; 1-ha pond).





### Checklist for compiling a simple business plan

- ☐ Compose a 'concept description' of your project.
- ☐ Suggest a legal business framework or organization that you intend to run the project under, such as a partnership, company, or CC.
- ☐ Describe what legal processes you need to complete to initiate and then run the project.
- ☐ Describe the site and situation of the proposed project.
- ☐ Describe the technical processes to be used to grow the product.
- ☐ Describe the harvesting and processing procedures to be used.
- ☐ Detail the marketing approach you will use, and say why your product should be competitive with other products already available.
- ☐ List the range of prices you expect to receive for the product in various forms from raw to value-added, if applicable.
- ☐ Strengths and weaknesses: Why is this project likely to succeed, and what are its weaknesses? Look at all aspects, from financial to technical, including marketing.
- ☐ Financial planning: What will the project cost (a) to set-up, (b) to run until profitable? Draw cash-flow diagrams of best- and worst-case scenarios.
- ☐ Sequence of events: Detail in terms of days/months or years how you see the anticipated progress of events from initiation of the project until it is running profitably.
- ☐ Detail your expected source of funding, and how these amounts will be made available to you for your use, including any interest payments.
- ☐ Describe any conditions-of-funding required by the funding organization.