



# TILAPIA FARMING IN SOUTH AFRICA

De-Risking a large scale project



# WHY TILAPIA IN SA?

Well, what the hell else is there?

Market.

Market?





# THE BOARD

Vultures!

Return return return.....





# PACIFICATION

All they see is RISK





# AND THEY'RE RIGHT!

All there is IS risk!

We're fish farmers, not God's gift to investing. Sometimes we forget that.





# THE START

What are we working with?

Tilapia

South Africa





# PAPERWORK

Grunt work,

Slog.

Research.

Some more research.

Money!





# HOW?

It's an elephant – a multi million rand per week turnover business.







NEW STUFF? EEEUW!

Banned words....





# THE PROCESS

Slowly

Certainty

Properly



# START AT THE BEGINNING

## Aquaculture Project Study/Estimate – High Level Scope and Content Guidelines

Classification Reference	Conceptual	Pre-feasibility	Bankable Feasibility	Execution & Control
Purpose of study/estimate	Idea generation. Strategic fit with business plan. Technical alternative or rejection.	Determine project viability by identifying, optimising and trading off options. Approval to proceed.	Increase accuracy of selected option. Further optimisation. Feasibility and/or funding. Approval to proceed.	Detailed engineering phase. Funding approval. Basis of control budget.
<b>Project Scope Definition</b>				
Scope statement/description	Yes	Yes	Yes	Yes
Business model & value chain definition	Conceptual	Preliminary	Detailed	Finalised
Multidisciplinary team & responsibilities	Partial	Yes	Yes	Yes
<b>Market</b>				
Species selection & justification	Yes	Yes	Yes	Yes
Market history and trends	Conceptual	Preliminary	Detailed	Finalised
<b>Site Information</b>				
Site location & conditions	Regional	Preliminary	Detailed, access secured	Finalised
Survey	No	Preliminary	Detailed	Finalised
Geotechnical Survey	No	Preliminary	Detailed	Finalised
Hydrogeological survey	No	Preliminary	Detailed	Finalised
Site visit	No	Yes	Yes	Yes

# STEPPING THROUGH

<b>Feed mill (if included in project scope)</b>				
Mill capacity	Stated	Preliminary	Detailed	Finalised
Feed characterisation	Conceptual	Preliminary	Detailed	Finalised
Process Flow Diagrams	Block-flow	Preliminary	Detailed	Finalised
Equipment list & specification	No	Preliminary	Detailed	Finalised
Benefit evaluation	Conceptual	Preliminary	Detailed	Finalised
<b>Hatchery (if included in project scope)</b>				
Hatchery capacity	Stated	Preliminary	Detailed	Finalised
Species characterisation	Conceptual	Preliminary	Detailed	Finalised
Process Flow Diagrams	Block-flow	Preliminary	Detailed	Finalised
Equipment list & specification	No	Preliminary	Detailed	Finalised
Benefit evaluation	Conceptual	Preliminary	Detailed	Finalised
<b>Aquaculture Farm</b>				
Farm capacity	Stated	Preliminary	Detailed	Finalised
Species characterisation	Conceptual	Preliminary	Detailed	Finalised
Process Design Criteria	Conceptual	Preliminary	Detailed	Finalised
Process Flow Diagrams	Block-flow	Preliminary	Detailed	Finalised
Control Philosophy & P&ID's	No	Preliminary	Detailed	Finalised
Equipment list & specification	No	Preliminary	Detailed	Finalised
Trade-off	No	Options	Options	Finalised
<b>Processing and cold storage (if included in project scope)</b>				
Processing capacity	Stated	Preliminary	Detailed	Finalised
Product characterisation	Conceptual	Preliminary	Detailed	Finalised
Processing methodology	Conceptual	Preliminary	Detailed	Finalised



# IT'S EXPENSIVE

This stuff doesn't come for free.





# ITS CALLED REJECTION

But it's a whole lot cheaper than acceptance.





# CONSULTANTS

Man, do we hate consultants!



# SPECIALISTS

<b>Infrastructure</b>				
Infrastructure requirements	Yes	Preliminary	Detailed	Finalised
Utilities	Yes	Preliminary	Detailed	Finalised
General arrangements	No	Preliminary	Detailed	Finalised
Mechanical	No	Preliminary	Detailed	Finalised
Structural	No	Preliminary	Detailed	Finalised
Civil	No	Preliminary	Detailed	Finalised
Electrical	No	Preliminary	Detailed	Finalised
Instrumentation	No	Preliminary	Detailed	Finalised
Piping layouts	No	No	Preliminary	Detailed
Overall engineering design completion	0%	10%	25%	+95%
<b>Legal and environmental</b>				
Legislative requirements	Conceptual	Preliminary	Detailed	Finalised
Health and Safety	No	Preliminary	Detailed	Detailed
EIA (environmental impact assessment)	Review	Preliminary	Detailed and completed	Detailed and completed
Permitting	No	No	Permitted	Permitted
<b>Project schedule</b>				
Project implementation plan	Outline	Preliminary	Detailed	Detailed
Project schedule	Level 1 – Milestone	Level 1,2 – Master	Level 2, 3 – Master	Level 3,4 – Detail
Owners and indirect costs	Factored	Unit cost/ factored	Quantitative/ factored	Contract bid
Project quality assurance	No	Preliminary	Defined	Detailed





# HIGHEST RISK PHASE

BFS – very, very hard!



# MARKET

Avoided thus far



JOB DONE

Retire rich





# INVESTING IN AQUACULTURE IN SA

Big boys only need apply

Government is not interested, not even slightly, unless it creates government jobs

