GENDER WATER AND AGRICULTURE

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AGRICULTURAL RESEARCH COUNCIL

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GENDER IN SA AQUACUTURE

In South Africa Women's limited access to water also often coupled limited access to land; the two are often linked

Aquaculture farming of plants & animals controlled water environment

Aquaponic system flowchart

Schematic diagram of the aquaponics system

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OPERATION PHAKISA 'HURRY'

Industrial Policy Action Plan,
National Development Plan

- INTERVENTIONS SUCH AS **Operation Phakisa

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FEMALE EMPLOYMENT AQUACULTRE

snapshot of Employment breakdown (Figure) from 10 Operation Phakisa farms in 2015 , 78% of workforce aquaculture industry is male and 22% female or 2:1 ratio , similar one Agriseta reported in agriculture

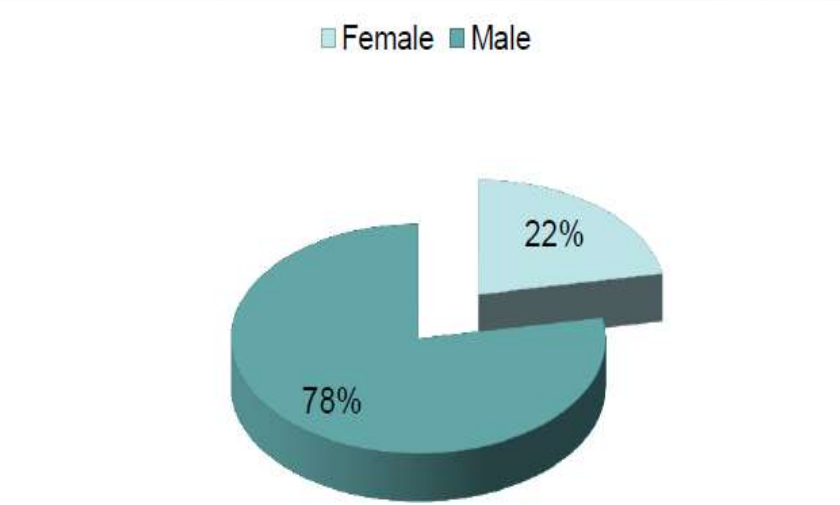

Figure 8: Aquaculture gender representation from: Snapshot of Employment breakdown of 10 Operation Phakisa farms in 2015, provided by DAFF

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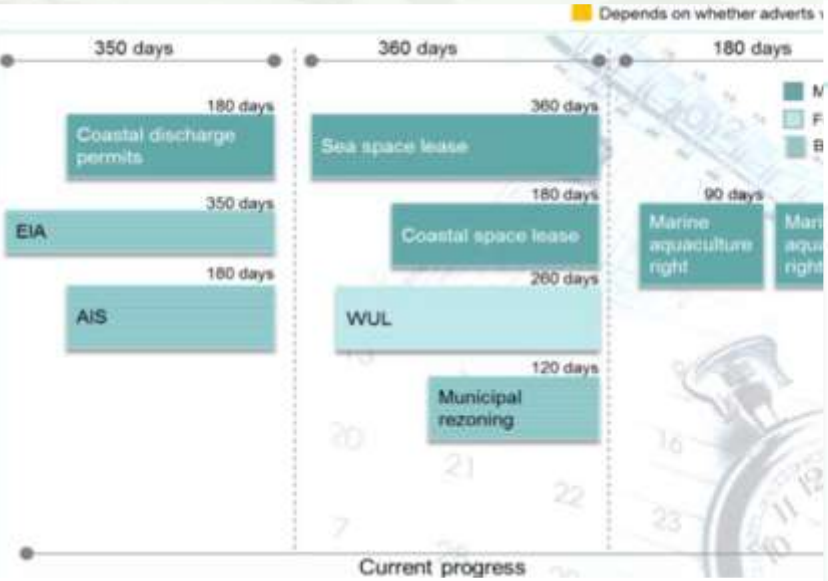
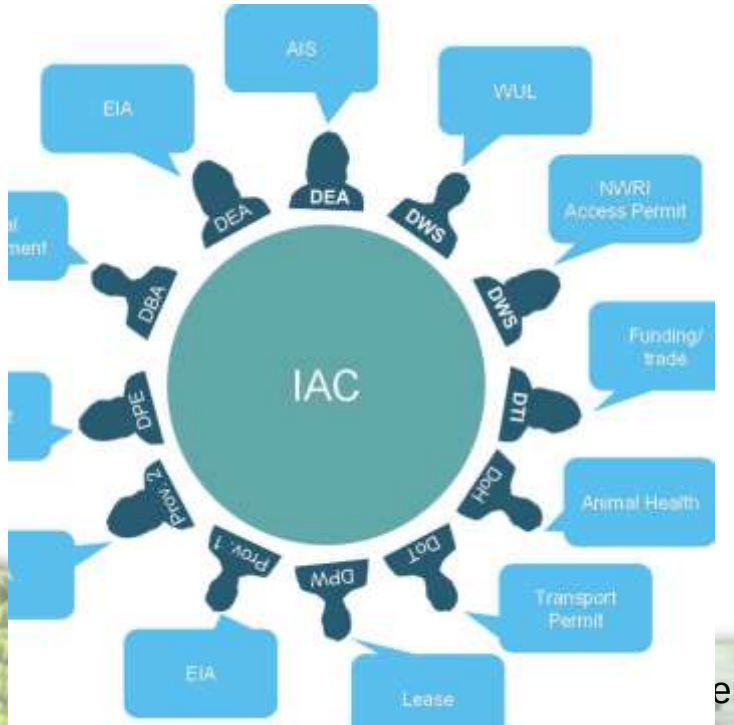
WATER LICENCE PERMITS





ematic diagram of the aquaponics system

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CLIMATE CHANGE CHALLENGES

- South Africa dry :drought; low rainfall; high evaporation rates,
- Farming in controlled water environment May seem like **a "really bad idea**"
- in this context , aquaponics may be more sustainable alternative challenges presented above while still satisfying the objectives of Operation Phakisa.

Aquaponic system flowchart Schematic diagram of the aquaponics system

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AQUAPONICS ROLE CIRCULAR ECONOMY

Ecosystem water re-use efficiency of 95–99%.

Reduces waste to Envir
(one unit is

input to second)

Reduces CO_2 footprint : year round local quality fresh veggies and high protein city consumers

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AQUAPONICS LEAPFROG TECHNOLOGY

- Aquaculture in SA depends on government funding for large procurement plans (slow growth)
- Can aquaponics considered form of leap frog technology
- ARC -University of Kwa -Zulu Natal(UKZN) promoting viable, sustainable unconventional food production system: food security and local economic development in South Africa

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MODULAR AQUAPONICS ENTRY LEVEL

This community entry level modular aquaponics system it is a backyard system:

impractical places in urban peri-urban areas :

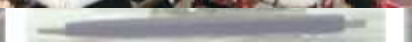
- flat roof tops,
- developmental sites,
- abandoned factories, schools, housing estates and underutilized areas.

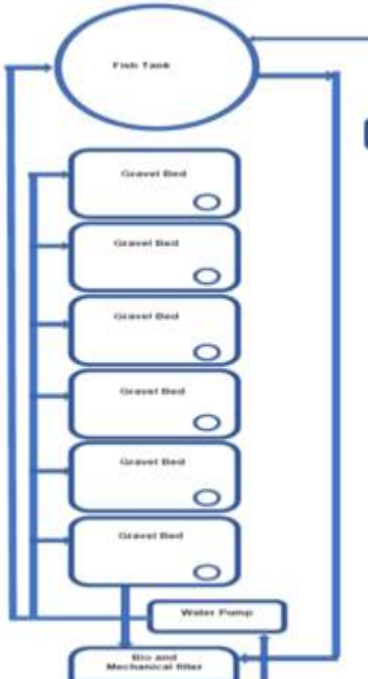
MODULAR AQUAPONIC ENTRY LEVEL

- The system consists of a 10 000l fish tank and growing media containers made from a barrel/Jojo/IBC tank (or equivalent tank) affordable from hardware stores

MODULAR AQUAPONICS ENTRY LEVEL

- The fish tanks connected to a plant culture system comprising of six halved 10 000L flowbins (IBC) tanks where (lettuce, spinach, chilli, pepper, tomatoes basil and other herbs) seedlings are grown in each container using gravel or media bed design system

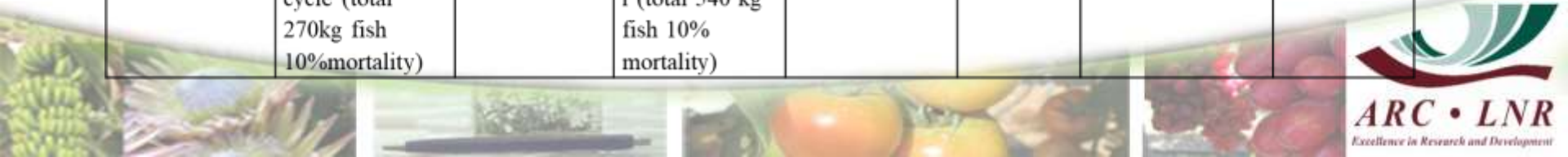




MODULAR AQUAPONICS REVENUE

This aquaponics system production capacity of about 300 kg food fish and 15 kg vegetables per production cycle. both ornamental (Koi & Gold fish) and food fish (Tilapia, catfish & carp) integrated with common vegetable crops (spinach, basil, lettuce and peppers). PhD study economically viable

		INPUTS			INCOME		PROFIT
ITEM	throughput/Cycle	Cost/cycle	throughput/year	Cost/System/ year	system/ year	Profit per cycle	system/ year
3 Vegetable cycles sales per year	Lettuce Spinach Basil Pepper Tomatoes Other herb (total 15kg vegetables)	1st cycle is R40 000 2nd and 3rd R8 000	Lettuce Spinach Basil Pepper Tomatoes Other herbs (total 30kg vegetables)	R120 000	R57 000	1st cycle (R57 000- R40 000 = R17000) 2nd &3rd cycles (57 000 -8000) = R49 000 each	(R17 000 +R49 000 +R49 000) R115 000
2 Fish cycle Sale per year	1 000 fingerlings/ cycle (total 270kg fish 10%mortality)	R10 000	2000 fingerlings/year (total 540 kg fish 10% mortality)	R20 000	R29 700	R9 700 (29 700 – 20 0000)	R9 700



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POTENTIAL FEMALE FARMER KZN

- After the looting incident in South Africa (Kwa-Zulu Natal) I received Female
- She watched our living land show: wanted aquaponics model for own food production

THANK YOU

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