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Department of Agriculture, Forestry & Fisheries AQUACULTURE YEAR ONE REVIEW **OCT 2014 – OCT 2015**





Department: Agriculture, Forestry and Fisheries REPUBLIC OF SOUTH AFRICA





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1. Annual Review: Operation Phakisa Ocean's Economy: Aquaculture

1.1 Highlights

It has been one year since the launch of the Operation Phakisa: Ocean's Economy. Substantial developments have been made to grow the aquaculture sector. Below is a short overview of the targets reached up to now:



Highlights: Priority initiatives identified by the aquaculture lab to support the implementation of the 24 catalytic projects

Quick wins



Selection and Implementation of 24 Projects

Ten (10) out of the 24 prioritised fish farms were supported and are on schedule or ahead of schedule in terms of production, job creation and the impact on transformation.





Legislative reform

First draft of the aquaculture bill and the socio-economic impact assessment were completed. The EIA regulations for Aquaculture were changed to a basic assessment. Draft revised Alien Invasive Species (AIS) regulations were published for oysters and mussels.



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Inter-departmental authorisations committee Eight new leases were approved by the Department of Public Works and 85 hectares of total water lease space was approved by the Transnet National Ports Authority.

Globally recognised monitoring and certification system



Regulations



5

Aquaculture development fund

Nine (9) out of the 24 prioritised fish farms received support through ADEP (Aquaculture Development and Enhancement Programme), CASP (Comprehensive Agricultural Support Programme), and the WFFP (Working for Fisheries Programme), resulting in their scale-up plans being fully in progress.



Capacity building and skills development for support services The Skills Working Group was established and is currently assessing the skills requirements of the sector.

Skills



6

Coordinated industry-wide marketing efforts

The AquaSA model was drafted and workshopped on 16 July 2015. Marketing Working Group established. South Africa received various requests from Iran and Taiwan for aquaculture production exports during the year.







*Based on best available stats at the time

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1.2 Background

In his State of the Nation Address in February 2014, President Zuma announced the launch of Operation Phakisa with the purpose of accelerating the delivery of South Africa's national priorities by using the Delivery Labs problemsolving and performance management methodology. The first focus area of Operation Phakisa is an ambitious programme to unlock the economic potential of South Africa's oceans.

As the first step in this programme, the Oceans Economy Labs took place in Durban in July and August 2014. More than 200 full and part-time participants came together to develop detailed implementation plans to unlock the economic potential of three economic sectors, i.e. marine transport and manufacturing, oil and gas exploration and aquaculture to secure integrated protection and governance of South Africa's oceans.

Context and purpose of the Ocean's Economy Labs

An economic analysis undertaken in 2013 found that South Africa's oceans could generate an estimated GDP contribution of up to R177 billion by 2033, multiplying their contribution by 2,5 to 3,5 times in 20 years. Accordingly, the number of jobs linked to the ocean's economy could potentially employ 1 million people by 2033 compared to 316 000 in 2010. The analysis also considered the geopolitical, environmental and security issues associated with South Africa's oceans and also the institutional and logistical requirements to advance the ocean's economy.

The analysis found that the future potential of the ocean economy is highly concentrated within four New Growth Areas, which could deliver approximately 76% of the total ocean-based GDP by 2033 among them, along with 95% of the job creation contribution. These sectors are:

- Marine transport and manufacturing activities (coastal shipping, transshipment, boat building, repair and refurbishment, etc.)
- Offshore oil and gas exploration
- Aquaculture
- Marine protection services and ocean governance.

1.3 Aquaculture Lab Outputs

The Department of Agriculture, Forestry and Fisheries is the lead department for the Ocean's Economy Aquaculture Lab and its deliverables. The lab concluded that South Africa's aquaculture sector has a high growth potential due to an increasing demand for fish in the face of declining fish stocks. Currently, the sector is at a very small scale and production is focused on a few high-value species such as abalone, oysters, mussels and finfish. Challenges include regulatory barriers, high cost of production, difficulty in accessing funding, poor access to markets and limited pool of skills; poor access to quality inputs, fragmented research and development and limited infrastructure in rural areas and inclusivity in the sector.

The goal is to grow the aquaculture sector in South Africa to play a major role in supplying fish products and an enhanced role in job creation and contribution to national income. The targets over the next five years seek to grow sector revenue from R0,67 billion to R3 billion; production by 20 000 tons; jobs from 2 227 to 15 000 and to ensure increased participation to support transformation in the sector.



Group discussions during the lab process

⁶⁶Operation Phakisa is an initiative of the South African government which aims to implement priority economic and social programmes better, faster and more effectively and was launched by the South African President in October 2014.⁹⁹ The Aquaculture lab comprised of stakeholders from industry, government and academia who identified eight key initiatives, which are expected to spur the growth of the sector. One initiative will address the selection and implementation of 24 projects, improving both the number and productivity of the new farms. Three initiatives relate to the creation of an enabling regulatory environment and



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The lab process underway in October 2014

others focus on funding support, increasing skills pool and awareness and improving access to markets. To deliver these initiatives, the aquaculture lab created detailed implementation plans and accompanying budgets, a proposed governance system to take responsibility for initiatives and key performance indicators to help monitor delivery. The highlights outlined are consequences of the good progress achieved on the plans across the three aspirations (increased production, jobs and GDP) defined by the lab participants in 2014. The progress made on the eight initiatives to date are summarised below.

The first Initiative (1) covers the "Selection and Α. Implementation of 24 Projects." This initiative is divided into three phases in order to increase the scale of the aquaculture sector. The projects comprise of both new farms and the expansion of existing farms. The sector is at present is not reaching full potential due to limited participation by youth, women and previously disadvantage individuals (PDI) in the sector. Currently, the sector averages less than 10% PDI participation at management levels. The lack of access to quality inputs, high-quality seed, fingerlings and feed are crucial to product quality. There are a limited number of local input suppliers to the sector. Research and development is fragmented and insufficient primary infrastructure in rural areas contributes to the small scale nature of the sector.

Phase I deliverables

Phase one focuses on quick wins that could be implemented in the initial six to 12 months. Nine projects were targeted for implementation at phase one.

Progress: Initiative 1

There are ten projects selected for support that are on schedule or ahead of schedule in terms of production, job creation and the impact on transformation. In addition, eight new land leases were approved by the Department of Public Works and three more water space leases were advertised or approved by the Transnet National Ports Authority (TNPA).



Phase II deliverables

Phase two comprises of actions to be implemented in a timeframe of 12 to 24 months. Despite this not being the core of the work during last year, progress has been made in different areas.

In order to select additional Phakisa projects, an advertisement was placed in the City Press (30/08/15) and Farmer's Weekly (18/09/15) requesting new Aquaculture Operation Phakisa proposals to be submitted. Twelve projects are in the process of submitting applications and seven of these have been formally incorporated. This includes an additional 2 337 tons of mussels (potentially replacing 443 tons of imported mussels), 500 tons of salmon and 4143 tons of oysters. These additional tonnages require access to export markets and strengthens the importance of food safety.



Progress: Initiative 2

Currently, the legislative framework governing aquaculture activities is fragmented and regulated by various departments as aquaculture occurs across sea, land and fresh water. Initiative 2 looks at 'Legislative Reform' which aims to amend legislation to streamline the assortment of existing regulations and creates an enabling environment to promote aquaculture sector growth.

Several steps have been taken towards the legislative reform to promote Aquaculture development:

- The Environmental Impact Assessment (EIA) process has been reduced from two years to eight months. The full scoping EIA is no longer required as all the listed activities related to aquaculture now fall within the scope of a basic assessment.
- The draft Alien Invasive Species (AIS) regulations were published to identify areas for the farming of oysters and mussels.
- The Strategic Environmental Assessments Terms of Reference (TOR) for identifying areas for aquaculture were finalised.
- The Department of Environmental Affairs (DEA) requirements for the discharge of effluent water were refined.
- The first draft of the Aquaculture Bill and socioeconomic impact assessment for the draft bill were completed.

Progress: Initiative 3

C. Currently authorisations can take up to three (3) years to be issued because of sequential administrative processes as the sector is regulated by various departments with several types of authorisations required. Initiative 3

covers the establishment of an 'Inter-Departmental Authorisations Committee' (IAC) which will streamline and coordinate applications and approvals in the aquaculture sector.

While the initial setup of the IAC was slow, individual engagements and progress was made with the TNPA and DPW to unblock issues related to access to land and water. An initial IAC meeting was held on 8 September 2015. In addition, a decision to perform a detailed analysis of business processes was taken. This analysis will identify recommendations to streamline business processes.

Progress: Initiative 4

D. Importing nations require health assurances that the products they receive are safe for consumption, however, currently in South Africa there are only a few trained technicians and specialists; minimal personnel capacity and resources; and limited funding allocated to aquaculture along with testing facilities found too far and few between. To address this, initiative four is an enabler to establish a 'Globally Recognised Monitoring and Control System' to boost exports of South African aquaculture products.

The NRCS (National Regulator for Compulsory Specifications) and the DAFF signed a memorandum of understanding (MOU) for the NRCS to undertake independent sampling. The draft standard for bivalves was developed by the South African Bureau of Standards (SABS) in collaboration with DAFF and industry. The food safety office furthermore worked closely with Swiss Import Promotion Programme (SIPPO) who is assisting with the development of food safety programmes to meet European Union (EU) import requirements.

Progress: Initiative 5

E. Initiative 5 looks at the "Aquaculture Development Fund," which aims to establish an integrated pool of existing funds in order to finance all phases of aquaculture projects (including pre-production) and encourage new entrants to participate in the aquaculture sector. A working group was set up for the establishment of the Aquaculture Development Fund (ADF). Despite this process not being finalised yet, several initiatives were taken to improve access to funding. The Delivery Unit attended investment seminars in the UK and China. The team also achieved the prioritisation of new funds to aquaculture (e.g. jobs funds). A total of R105 207 460 was appropriated to the sector by the government during the last 12 months.

Progress: Initiative 6

There is currently a lack of certified vocational F. training for basic aquaculture farming skills. In addition, aquaculture as an emerging sector has almost no dedicated and specialised extension officers, state vets specialised in aquaculture and research officers at a provincial level and at the national level within the DAFF. Initiative 6 covers "Capacity Building and Skills Development for Support Services". In order to develop capacity building for support services, the Delivery Unit was appointed to oversee and monitor the deliverables and coordination of stakeholders to reach the targets set out within the aquaculture lab. The Skills Working Group was established through the Department of Higher Education and Training and SAIMI (South African International Maritime Institute) and is currently assessing the skills requirements of the sector.

Progress: Initiative 7

G. Initiative 7 seeks to launch "Coordinated Industry-Wide Marketing Efforts" to increase local consumption of aquaculture products and encourage the growth of smallscale farmers and new entrants. The coordination of industry wide marketing efforts is underway in order to reduce duplicative efforts and resources. Various industry bodies were engaged regarding the establishment of AquaSA, a statutory body under the Marketing of Agricultural Products Act.

- The AquaSA model was drafted and workshopped on 16 July 2015.
- Operation Phakisa farmers and the industry were invited to participate in an outward investment mission to Chile in November 2015.
- South Africa received various requests from Iran and Taiwan for aquaculture production exports during the year.

Progress: Initiative 8

H. Fish protein provides the best value for money however, per capita fish product consumption in South Africa is low. Preferential procurement can create local markets while contributing towards transformation and food security in South Africa. Initiative 8 is "Preferential Procurement" which seeks to partner with government institutions to procure aquaculture products, thereby increasing local consumption and improving nutritional levels in South Africa. Desktop research on preferential procurement was conducted in respect of aquaculture projects and products, but due to capacity constraints, progress on this initiative has been limited



Jacobsbaai Sea Products Abalone Farm

New projects on board

Following the conclusion of the Aquaculture Lab in July/August 2014, 12 projects were in the process of submitting applications and seven of these have formally been incorporated. In order to further grow the sector, an advertisement was sent out for further projects to get on board.



Request for new Aquaculture Projects-Operation Phakisa

Aquaculture is one of the sectors which form part of Operation Phakisa under the Ocean's Economy in South Africa. Operation Phakisa is an initiative of the South African government which aims to implement priority economic and social programmes better, faster and more effectively and was launched by the President of the Republic in October 2014.

The Department of Agriculture, Forestry and Fisheries hereby invite potential and new aquaculture project owners to register their projects to become part of Operation Phakisa: Unlocking the Economic Potential of South Africa's Oceans. Projects may be

submitted any time however evaluations for inclusion will be conducted on a quarterly basis. For evaluation criteria please refer to the Aquaculture Lab report and the link below.

For more information on the criteria and application requirements, interested parties must refer to the New Projects folder available on the Operation Phakisa website: www. operationphakisa.gov.za/operations/oel/ aquaculture/

All applications and enquiries can be forwarded to: Aquaculturephakisa@daff.gov.za



forestry & fisheries Agriculture, Forestry and Fisheries REPUBLIC OF SOUTH AFRICA

Below is a table detailing the seven new projects that have been fully incorporated into the Aquaculture Operation Phakisa. With the inclusion of the seven new projects, it is estimated that an additional 4 050 tons of mussels (potentially replacing 443 tons of imported mussels), 500 tons of salmon and 1 205 tons of oysters need access to export markets.

| PROJECT NAME | SPECIES NAME | POTENTIAL PRODUCTION by 2019 | POTENTIAL JOBS |
|--|---|---|-----------------------------------|
| Oystercatcher Aquaculture Saldanha Bivalve Farm - new | Pacific oysters/ Mussels | 1 075 tons oysters/ 2 000 tons mussels | 78 jobs on farm (228 in total) |
| Hermanus Salmon - new | Salmon | 500 tons | 30 jobs on farm (150 in total) |
| Blue Sapphire Pearls - expansion | Pacific oyster, Mussels and Abalone | 50 tons oysters/ 90 tons mussels additional | 30 jobs on farm |
| Southern Atlantic (Revised) - new | Mussels | 1 000 tons | 12 jobs on farm |
| West Coast Oyster Growers - expansion | Pacific oysters/ Mussels | 160 tons mussels/ 80 tons of oysters additional | 30 jobs on farm |
| Imbaza mussels - expansion | Mussels | 200 tons additional | 22 jobs on farm |
| African Olive - expansion | Mussels | 600 tons | 15 jobs on farm |

(13)

2. Year One Snapshot

Operation Phakisa Aquaculture Project harvests kob through industry partnership

A local aquaculture farm in Hamburg, Eastern Cape, recently underwent its first harvest of approximately 260 dusky kob fish or kabeljou as it is commonly referred to. The Hamburg Kob Pilot Project is driven by the Department of Agriculture, Forestry and Fisheries (DAFF) and employs 21 people from the Hamburg community. The farm, one of 24 aquaculture projects, forms part of Operation Phakisa: Oceans Economy, an initiative of the South African government which aims to implement priority economic and social programmes better, faster and more effectively and was launched by the President of the Republic in October 2014.

The total average weight of the batch was 277 kg, with an average individual weight of 1, 1 kg per fish. The first batch of fish was introduced into the system in February this year and has reached market size, ready for sales. The farm, located approximately 60 km from East London, is a two-hectare sized site with the capacity to produce 20 tons of dusky kob per annum.

The department has identified a number of aquaculture projects that aim to empower coastal communities through the transfer of technology, skills development and job creation. The harvesting was done in collaboration with Oceanwise (Pty) Ltd, a leader in the farming of dusky kob in South Africa, based in the East London Industrial Development Zone.

The department decided to take the lead with industry on kob farming in order to share the risks associated with developing this fairly new type of farming in South Africa.

The harvesting process started with workers collecting the dusky kob into nets, which were then transferred into a container filled with a slurry solution made up of ice and water. The produce was freshly packed on ice into polystyrene boxes with around a total of 14 fish per box and transported to the Oceanwise fish processing facility. At the facility, the fish were weighed, gilled and gutted then repackaged for retailers. The produce was sold to the Cape Town Fish Market's V&A Waterfront branch, Southern Cross Seafood Deli and Wild Peacock Food Emporium in Stellenbosch.



Siyazama Aquaculture Cooperative

Liam Ryan, Managing Director of Oceanwise, commented that the enthusiasm from the community was encouraging and that the fish were of great quality as it experienced good growth and food conversion. He mentioned that the fish were growing at an average of 3,4 g per day and were farmed over 201 days.

This was the first harvest of batch one, where a further 537 fish are still available for harvest. The farm holds two more batches of fish in its system, totalling to 7 122 dusky kob fish, which will contribute to the first cycle of production of the system. The second harvesting of the first batch took place on Monday, 7 September 2015 where 162 fish with an average weight of 1,2kg were collected.



Kob loaded ready for transporting to the Oceanwise Food Processing Facility

"It was really good being part of the entire process, the quality of the dusky kob was good as we used floating feed. I look forward to the next harvest," said Thembinkosi Halana, Team Supervisor of the Hamburg Project.



Oceanwise employee gutting the fish while Siyazama workers observe. Hamburg kob alongside Oceanwise kob below.



UK Oceans Economy Investment Promotion Seminar

On 6 and 7 July 2015, a South African delegation participated in the UK Oceans Economy Investment Promotion Seminar. The delegation was led by the Deputy Minister of Transport, Ms Sindiswe Chikunga along with representatives from the various Operation Phakisa: Oceans Economy labs and national departments, including the Department of Agriculture, Forestry and Fisheries (DAFF).

The seminar was hosted in order to share developments from South Africa with the aim of creating a forum for dialogue on how the UK public entities and businesses could contribute through partnerships with South Africa to achieve the objectives of the programme. The seminar aimed to achieve the following:

- Create partnerships to support development and growth of the oceans economy;
- Encourage investments and/or exploration of investment opportunities in the oceans economy;
- Secure training, education, entrepreneurship, research and technology exchange partnerships.

Day one entailed site visits to a tilapia farm at Bridgwater College and aquaponics farm in Exeter, closing with discussions on training and skills collaboration with Plymouth University. Day two took the form of a seminar held at the South African House in Trafalgar Square, Central London.

Various stakeholders and the media were invited to attend these presentations.

Aquaculture was represented by Ms Lisa Geswindt from DAFF Fisheries, who gave an in-depth presentation highlighting the status of aquaculture in South Africa; the goals to be envisioned with Operation Phakisa and current projects in need of investments, including the Aquaculture Development Zones.

The general feedback was positive and it is envisaged that there will be continuous engagement with potential investors and stakeholders to support this initiative. Following this, a proposal on skills collaboration with Bridgwater College on Aquaculture resulted.



Aquaponics facility in South West London.



(Left to right) Mr Sobantu Tilayi of the South African Maritime Safety Authority, (behind) Mr Ismail Akhalwaya, Department of Planning, Monitoring and Evaluation, Mr Nick Jobling Chief Financial Officer, UK Met Office; Mr Orabile Motlhaga, SA High Commissioner in the UK and Mr Nisaar Mahomed, Trade and Investment of KwaZulu-Natal.



Learning about the Bridgwater tilapia farm. Lisa Geswindt, Aquaculture Operation Phakisa Delivery Unit at DAFF, Mr Obed Mlaba, South African High Commissioner in the UK, Nisaar Mahomed, Trade and Investment of KwaZulu-Natal and Sobantu Tilayi of the South African Maritime Safety Authority.

Project progress highlights

The follow Operation Phakisa projects have been progressing well during the period of reporting. All stakeholders are urged to share news on their project milestones and developments.

Abagold Abalone Farm

Abagold Pty (Ltd) is situated in Hermanus in the Western Cape and produces abalone at the most southern tip of Africa. The company exports their canned and dried abalone all over the world. The farm is progressing well without much assistance from Operation Phakisa, however the project is a leader within their sub-sector and serves as an ideal business model for growing the aquaculture sector sustainably in South Africa.

The project is ahead of schedule with the recent construction of the farm's expansion. Four unit buildings were erected and 640 of the 800 tanks have been placed. Three of the four units have had water and air distribution systems installed with spat placed in two of the grow-on production units.

The newly built fish feed plant has been operational since September 2015. This development significantly improves industry access to quality and affordable feed. The first batches of feed have been registered. The project was awarded the Friend of the Sea certification; the audit took place this year by an independent certification body and was found fully compliant with all the strict Friend of the Sea criteria. Abagold is the first abalone company worldwide to be awarded the certification. Certified products sold locally and internationally will bear the branded eco-label.



Construction of the abalone farm



Fish feed plant

Doringbaai Abalone Farm

Doringbaai Abalone (Pty) Ltd farm is an abalone grow-out facility and hatchery in Doringbaai on the West Coast of South Africa. The community own a 35% share in the company to ensure sustainability and upliftment. In 2015, a decision was taken to expand the farm due to the high demand of abalone in the market. The objective of the expansion is to increase the carrying capacity of the farm from 30 tons to 50 tons of abalone over the next two years.

Over the last quarter, Doringbaai Abalone successfully secured a long-term lease with the Department of Public Works and the Environmental Impact Assessment (EIA) is currently underway. The farm has sourced funding from the Aquaculture Development and Enhancement Programme (ADEP) to the value of R960 000 for the expansion. Another highlight was the Industrial Development Corporation (IDC) funding received to the value of R6, 9 million.



Current operations



Grown out abalone

DST KZN Aquaculture Development Project (Richards Bay)

The DST KZN Aquaculture Development Project is a collaborative undertaking between the Department of Science and Technology (DST), the Department of Agriculture, Forestry and Fisheries (DAFF) and Stellenbosch University to determine the technical, environmental and financial feasibility of farming dusky kob, *Argyrosomus japonicus* in sea cages in Richards Bay in KwaZulu-Natal. The pilot project is funded by DST and production commenced in August 2015 with an initial stocking of 25 000 dusky kob fingerlings. A second batch of fingerlings will be stocked in January 2016. The project was accepted as an Operation Phakisa project in 2014.

The purpose of the pilot project is to evaluate dusky kob growth rates, feed conversion ratios and fish survival under commercial sea cage culture conditions and to ultimately contribute to the establishment of a full commercial dusky kob sea cage farm and hatchery in Richards Bay. The dusky kob life cycle has been closed and the species appears to be well suited to marine aquaculture, as it grows fast, has a good yield, and are tolerant of a wide range of temperature and salinity conditions.

The pilot project involves the grow-out of a single batch of fish to a targeted weight of 1.5 kg. The estimated production during the pilot project is 60 tons (over a 14 month period), with cultured fish being processed and marketed to determine routes to market. The fish is being grown in 50m circumference cages deployed at a nearshore site in the Richards Bay harbour. The cage system consists of four surface gravity type fish cages moored in a 4 x 1 drag embedment anchor based mooring grid. Rigorous environmental monitoring is being conducted by an independent environmental practitioner with oversight from DAFF.



Photograph showing two of four sea cages installed in Richards Bay Harbour for the DST KZN Aquaculture Development. The smaller octagonal cage is a 5m diameter inflatable fingerling cage.

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Photograph showing 5g dusky kob fingerlings being released into an inflatable fingerling cage in August 2015. The fingerlings were produced by Pure Ocean Aquaculture in East London and Mtunzini Fish Farm in Mtunzini.



Photograph showing Mr Tshepo Vilakazi skippering one of the project's three workboats. Tshepo is currently enrolled for an aquaculture certificate course at Stellenbosch University.

Saldanha Bay Oyster Company

Saldanha Bay Oyster Company (Pty) Ltd is a land based site situated in Saldanha Bay in the Western Cape. The aim of the expansion project is to increase the annual production to 10 million oysters per year. The company is a leader in the South African oyster market and delivers a delicately sweet flavoured oyster which makes it one of the top choices for both South African and international palates.

As early as 1984, Saldanha Bay was recognised as a prime location for oyster growing. Its unpolluted tides, cold Benguela current and high plankton content make it an ideal growing ground for the Pacific oyster seeds. The oysters from the company easily reach weights of between 65g and 120g.

Significant progress has been made with the expansion project under Operation Phakisa; this includes lease space which has been approved by the Department of Public Works and long-term leases signed off by Transnet National Ports Authority (TNPA). The projects also received funding from ADEP to the value of 1, 9 million.

Under the stimulus of Operation Phakisa and facilitation by both DAFF and the NRCS, the company has recently been approved as an exporter to both Mainland China and Taiwan, a development which has the potential to greatly increase exports in the near future.



Boat purchased with ADEP funding



Oyster farm in Saldanha Bay





The approach to project selection is guided by 3 principles and 4 evaluation criteria

Evaluation Criteria



Projects deemed more



(25)

Operation Phakisa Aquaculture projects submission process (2/2)



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