



Low Emissions Development Program

A Self-Sustaining Fish Farm to Benefit the Economy and Environment



In Graaff-Reinet, a town in the Dr. Beyers Naudé Local Municipality of South Africa where 20 percent of households live below the poverty line, aquaculture has been making large strides to transform its citizens' economic futures. Through a joint study by the USAID South Africa Low Emissions Development (SA-LED) program and the Blue Karoo Trust, the small town is poised for a green economic boost.

In 2011, South Africa's Industrial Development Corporation led a collective effort to establish the Camdeboo Satellite Aquaculture Project (CSAP), an initiative to breed catfish commercially as a freshwater alternative to pilchards (sardines), in Graaff-Reinet. Overfishing had depleted pilchard stocks by about 80 percent since 2004, and CSAP could provide another reliable supply of fish with similar nutritional benefits.

The climate of the region is dry with unpredictable rainfall patterns, lends itself to aquaculture. At the time, Graaff-Reinet's unemployment rate was around 37 percent, with 42 percent of the community relying on government grants, so the town would greatly benefit from the potential associated jobs. Since 2011, this aquaculture project has grown into

the Blue Karoo Trust, a full-fledged facility with a hatchery, and training facilities for farmers and factory workers alike. This success prompted the Eastern Cape Department of Economic Development, Environmental Affairs, and Tourism (DEDEAT) to identify Blue Karoo as an opportunity for SA-LED support. As part of its broader support to accelerate green growth in South Africa SA-LED identifies spaces where low emissions projects can be implemented. It then brings local governments and the private sector together to collaborate on these activities, providing training, technical analysis, and assistance.

With strong momentum and municipal support, Blue Karoo was an ideal candidate to receive support from SA-LED. The aquaculture facility was nearing a point of full capacity and required guidance on how best to expand, keeping both economic and environmental incentives in mind.

In late 2016, SA-LED began a feasibility study for a waste water repair system. This could improve the efficiency of water usage, minimize environmental impact, and capitalize on opportunities for biogas generation. The biogas in theory could be used to

preheat water to keep the tunnels at a consistent temperature, an important requirement for the freshwater fish.

“We knew that all of this waste that comes from the Graaff-Reinet farm must be treated, but there were technical challenges. There was no capacity in the province to do this kind of work,” explained Stanley Semelane, manager of the Sustainable Energy department of DEDEAT. “We wanted to know: ‘Who can come in and assist us and test the organic content? Are we going to be able to generate biogas from this?’ That’s how SA-LED came in.”

The feasibility study will provide recommendations on whether it makes sense for the facility to take on this added dimension of biogas generation, as well as if the project could expand from 2 into as many as 14 tunnels.

Producing biogas will be enormously useful for the facility; it could essentially create a closed-loop system where the energy needed to breed the fish comes from the animals themselves. Beyond the environmental benefits, there are the numerous economic benefits: As of April 2015, the Blue Karoo Trust had already created over 3,920 jobs and provided a nutritious food source for nearly 275,000 people. There has been a special emphasis on providing training and certification for the local workers, especially women. Scaling up the facility could provide stable jobs for that many more citizens of Graaff-Reinet and the surrounding rural areas.

“With the skills that the people in this area are learning from this project, they can execute this kind of work anywhere they want to,” explained Mr. Semelane. “It’s a skill that cannot be taken away from them now. If you’re able to demonstrate job sustainability, that’s something that the government wants to invest in more.”

It’s important to recognize the unique avenue through which SA-LED set up this collaboration with Blue Karoo Trust — at the level of provincial government. The fact that the Eastern Cape Province, through DEDEAT, already had good relationships with its municipalities made it much easier to identify the aquaculture facility as a candidate for USAID support. As SA-LED progresses on its work with Dr. Beyers Naudé Local Municipality and other municipalities, these types of networks will continue to play a key role in strengthening South Africa’s ability to lower its emissions, mitigate the effects of climate change and support sustainable growth.

