

EXECUTIVE SUMMARY

The WRC Baseline Study of the Contribution of Aquaculture to Rural Livelihoods in South Africa in 2004 revealed that despite having potential, rural aquaculture was almost nonexistent (Rouhani and Britz, 2004). This despite the existence of a number of state owned hatcheries and rural aquaculture projects that had been supported by Government. The project recommended that subsistence level aquaculture would not be viable due to the skills and resource constraints of the rural poor, and that the provincial agriculture departments should focus on promoting aquaculture as a profitable enterprise amongst emerging commercial farmers. Revitalisation of the state hatcheries was identified as a key intervention to create service centres or hubs to support community-public-private partnerships (CPPPs), training, technology transfer, fingerling supply, extension and other services in support of aquaculture development. This rationale formed the basis for the current WRC project entitled: *Participatory development of provincial aquaculture programmes for improved rural food security and livelihood alternatives*.

The project team under the leadership of Rhodes University held a series of consultations with the provincial departments of agriculture (PDAs) to establish the level of interest in establishing provincial aquaculture programmes in partnership with the WRC research management team. All provinces responded positively, although the Western Cape subsequently withdrew as the province already had an established and well resourced aquaculture policy and strategy process underway, led by the Department of Finance and Economic Affairs. Participatory action research (PAR) was chosen as an appropriate methodology for the project as it focuses on the effects of the researcher's direct actions of practice within a participatory community with the goal of improving the performance quality of the community or addressing an area of concern. The target community was provincial agriculture department staff responsible for aquaculture development within the participating provinces.

The first step in the engagement with the provinces was the drafting of provincial aquaculture strategies. This process was useful for establishing working relationships with the provincial personnel, and to understand the issues they faced in each province. Immediately apparent were the often severe organisational constraints under which the PDAs operated, which would ultimately become the main issue the project team had to contend with in the achievement of the project objectives. Draft provincial aquaculture strategies were developed in participative workshops for Limpopo, Mpumalanga, KwaZulu-Natal (KZN), Free State, Northern Cape and North West Province. However, only in Limpopo, Free State and Mpumalanga were the strategies formally taken forward and adopted by the PDAs. The Eastern Cape PDA, chose not to develop a provincial aquaculture strategy (PAS), indicating that it first wished to see a successfully implemented aquaculture project. The only provinces that made tangible progress in translating their PASs into projects were Limpopo and Free State. This was largely due to political support and stable and competent leadership within the PDAs. In the other provinces, PAS implementation was effectively halted by personnel changes, alleged financial irregularities, unwieldy procurement processes and a lack of skilled personnel.

Despite the poor progress of certain provinces in adopting a PAS, they remained interested in aquaculture development and the project team played a support role in promoting hatchery revitalisation in Limpopo (Turfloop Hatchery), Mpumalanga (Lydenburg and De Kuilen), KZN (Mkhathini), and Eastern Cape (Amalinda). The Turfloop hatchery was made operational again after many years of being dormant with support of from the Rhodes research team and the Limpopo University Aquaculture Unit. Despite the high potential for a trout production CPPP identified at Lydenburg and Mpumalanga, the Province did not respond to a proposal to revitalise these facilities to support small-scale farmer trout

production along the model used in the Western Cape. In KZN, the PDA was slow to respond to the opportunity at Makhathini, however by 2009 a budget and tender had been put out to revitalise the facility. In the Eastern Cape, the project team played a key role in supporting the establishment of a CPPP between the Eastern Cape government and an MK Veterans Trust which was developing the Amalinda provincial hatchery as an ornamental fish farm.

A major project focus was the training of provincial hatchery staff and extension officers. The training of hatchery staff can be deemed a success as their training was linked to hatchery revitalisation. However, the agricultural extension officers proved very difficult to access for regular training as they had many other duties, and did not fall under the direction of the provincial aquaculture managers. Several provinces' managers questioned why they should be trained when there were no aquaculture projects or farmers to serve. Thus, only the Limpopo extension officers received regular training. Mpumalanga sent extension officers on one course and the other provinces were not able to provide extension officers for training. This outcome indicates that provincial aquaculture projects should perhaps be staffed with dedicated aquaculture specialist extension personnel (as is the case in the Western Cape).

It was also evident from the outset of the project that the PDA managers responsible for aquaculture required aquaculture training at a more strategic level. Thus, a study tour of commercial aquaculture facilities was carried out, which greatly increased their insight into the sector's potential and their confidence in the province investing in support for aquaculture.

In order to facilitate linkage between the private sector and government support for aquaculture, and realise the potential of the state hatcheries as development agents, a Public-Private-Partnership (PPP) model was developed which is similar to the operational PPP for Jonkershoek hatchery whereby Stellenbosch University has provided development support for the trout industry in the Western Cape. The first step in the strategy was for the provincial governments to revitalise the hatcheries to engage meaningfully with the private sector. This is a work in progress in Limpopo, Mpumalanga and KZN, however at Amalinda Hatchery in the Eastern Cape an operational PPP was established with support by the province and the project team.

In evaluating the project, it is clear that some of the project goals were not achieved due to organisational constraints within the PDAs. Of particular concern is that farmers were not effectively engaged with or support provided. This raises the question of whether the PDAs are the most appropriate public sector organisation for establishing a new sector such as aquaculture. Certainly, their unwieldy organisational structure, which is slow to respond to needs and frequently beset by dysfunction, is not conducive to meeting the needs of aspirant aquaculture enterprises.

The challenge for South Africa is thus how to provide government support for sector development that addresses the needs of aquaculture enterprise development, both large and small-scale. Aquaculture cannot be entirely private sector-driven as the transaction costs of pioneer farmers are too high and there are barriers they cannot overcome, such as access to suitably zoned land and water. On the other hand, the experience of South Africa's provincial hatcheries shows that Government, without private sector participation, is a poor driver of sector development. Thus the organisational challenge is to create a structure(s) whereby Government sets the development policy agenda and offers various forms of support and the private sector drives the actual production and market related aspects of project implementation through vehicles such as PPPs, or special purpose vehicles (e.g. the Western Cape Aquaculture Development Initiative (WCADI)) which are market driven and independent of the bureaucratic constraints of the PDAs.

However, even with the commercialisation of aquaculture, there is still a clear need for Government, particularly the PDAs, to play a role in supporting this industry by providing various services e.g. veterinary services, quality fingerlings, technical support, industrial investment incentives and bulk infrastructure services. This requires a more coordinated, cooperative governance approach which is well beyond the mandate of the PDAs.

Fortunately, the national departments of Agriculture, Forestry and Fisheries, Science and Technology and Trade and Industry have collaborated to formulate a national aquaculture strategy to be considered by Cabinet. The roll-out of such a strategy would provide much needed guidance and support to the PDAs and a key recommendation is that DAFF continue to fulfil the leading support role to the PDAs initiated in the present project. The major contribution of the current project can thus be seen as creating awareness and buy-in for supporting aquaculture within the PDAs, and a programme and strategies for provincial aquaculture capacity development. Despite the constraints experienced, the PDAs are committed to aquaculture development and the challenge is to address the sometimes severe organisational constraints within these departments. Linking the PDAs into broader cooperative governance arrangements, whereby they are empowered to deliver the support services within their mandate, will result in them playing a more effective support role.

It is therefore recommended that ongoing organisational and technical support be provided to the PDAs by the Department of Agriculture, Forestry and Fisheries (DAFF) to build on the foundation laid by this project. The interaction between DAFF and the PDAs needs to be formalised into a programme approach to plan the roll-out of the national aquaculture strategy. Specific recommendations are:

- Aquaculture development strategies should be market-driven and appropriate state supported special purpose vehicles such as PPPs or provincial aquaculture project promotion agencies should be established to drive public and private sector investment into projects such as Aquaculture Development Zones (ADZs).
- In terms of hatchery revitalisation, it is recommended that suitable NGO, University or economic development agencies facilitate this process in partnership with the PDAs to create viable, market driven service hubs which address the needs of rural farmers.
- The training of provincial PDA staff in aquaculture needs to continue at all levels.
- It is recommended that the Rhodes University initiative to train state vets in aquaculture in partnership with the OIE, and to establish a fish disease research diagnostic centre, be supported.
- The use of the Nile tilapia (classified as an alien invasive under the NEMBA regulations) within areas of its distribution needs to be agreed on and managed between by DAFF and the Department of Environmental Affairs.
- Aquaculture is a scarce skill in South Africa, and as such both DAFF and the PDA need to invest in tertiary training, including secondment or provision of bursaries. In terms of the next step, it is therefore recommended that DAFF convene a process with the PDAs to debate the final report recommendations, and agree on organisational structures, processes and support actions going forward.