Proposal

Developing the Agricultural Potential

of

‘Success’

Limpopo Province

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for

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Summary

It is proposed that approximately 100 hectares of communal agricultural land be developed for commercial farming in the Sekhukhuneland district of the Limpopo Province. Some of the advantages and disadvantages are considered. A simple irrigation system is proposed, as well as the possibility of some assistance from government. Finally a way forward is offered.

Background

On 14th November 2003, Nicholas Papenfus of Dams for Africa (DFA) and Antonius Lecuona of AMS Irrigation Systems visited the farm 'Success' on behalf of Public Domain (Pty) Ltd to investigate its potential for commercial farming.

The farm 'Success' is a block of prime agricultural land that is sandwiched between the asphalt road that goes to Mafefe and the Olifants river (see figure 1), and is situated about 30 km due east of Lebowakgoma, in Sekhukhuneland, Limpopo Province The farm consists of approximately 100 hectares of fertile land, and has a well developed system of concrete canals that supply the various communal plots with water. The water is perennial and flows from a catchment area of approximately 130 km^2 of mountainous terrain south of the Strydpoortberge, into the Tongwane river, which eventually flows into the Olifants river. Some of the water in the river is diverted into a 7km long concrete canal (recently rehabilitated by DFA) which terminates in a balancing dam situated near the lands (see figure 1). As water flows into the canal day and night, this means that daylight irrigation (assuming 12 hours of daylight) can consume water at twice the rate that it flows into the dam. The flow into the dam is estimated at 100 litres per second, so that water on the downstream side of the dam can be consumed at a rate of 200 litres per second. This is sufficient to irrigate 200 hectares of land. The water is divided at a point just below the dam such that 100 litres/sec flows to the farm 'Success' while the balance goes to another farm known as 'Grootfontein'.

Strengths and Opportunities

The advantages of developing this site for commercial farming are summarised as follows:

1. 100 hectares of relatively flat fertile soil
2. An abundant supply of gravity fed water. Furthermore, the southern boundary of the farm is adjacent to the Olifants river, should additional water be required.
3. Adjacent to an asphalt road
4. An overhead power line runs along the road. Installing a transformer on one of the poles will therefore be a simple matter.
5. Government tractors and all the associated implements are available at nearby Grootfonein.
6. There are also other buildings there that could be used as pack houses.
7. It should be possible to obtain some assistance from government, whereby in return for developing the farms into commercial enterprises, thereby generating jobs and stimulating the local economy, government pays to re-habilitate the damaged canals.
8. The farm lies within walking distance of two villages.

Weaknesses and Threats

There are also certain disadvantages associated with this site, which may be stated as follows:

1. Other than the system of canals, there is no other irrigation infrastructure in use. Flood irrigation is used exclusively, and the wasteful nature of this system limits the number of hectares that can be cultivated. It will therefore be necessary to invest in efficient irrigation systems, e.g. reservoirs adjacent canals, booster pumps, drip irrigation, sprinklers, etc.(see figure 2).
2. The hot summer climate means that shade netting is necessary if growth is not to be retarded.
3. There is no cold storage infrastructure.

4. The nearest metropolitan area is Polokwane, about 100km away, while Johanesburg is 360km away.
5. A new dam, Rooipoort dam, is currently under construction approximately 10 km downstream. Impounding of water is likely to start in approximately 7 years time, and will most probably inundate the entire farm. There is thus a fixed life cycle in this project.
6. Most of the farmers are either old men or women. Many of the younger men have migrated to the large cities, or alternatively work on the nearby Platinum mines. Approximately 20 new mines are scheduled to go into production in the region in the near future. It may therefore be necessary to make arrangements for labour to come from other areas. Also, the mines pay very well compared to agriculture, and this may lead to dissatisfaction in the workforce.
7. Even though the representatives of the farmers have indicated that the farmers are willing to make their land available for commercial farming, arriving at a written contract is likely to require skilful negotiation.

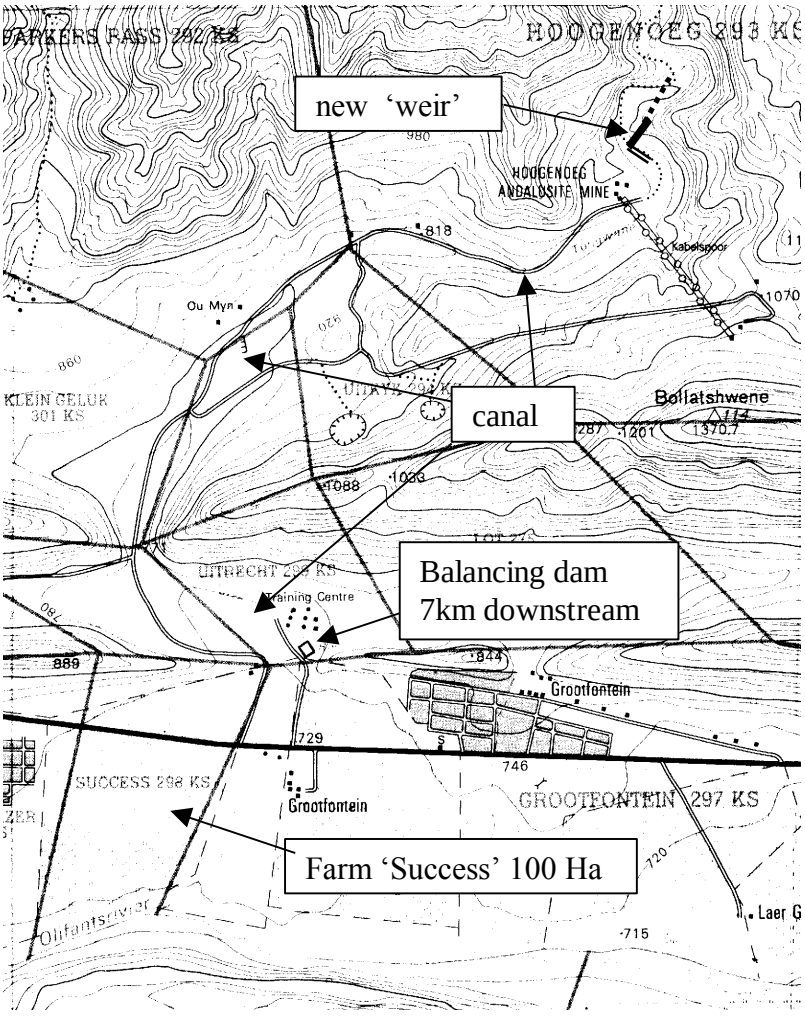


Figure 1 – Topographical map of the area. It shows the course of the 7km canal, the balancing dam, and the farm 'Success', sandwitched between the Mafefe road (asphalt) and the Olifants river.

Proposed Irrigation System

Given that farming operations are likely to cease in eight years when the new dam is complete, it makes sense to optimise the cost of the irrigation infrastructure. Given that there is already an extensive system of canals already in place, consideration should be given to installing a few

strategically placed reservoirs that will have the effect of minimising the cost of the main arterials (see figure 2). Depending on the crop to be planted either sprinklers or drip irrigation can be employed.

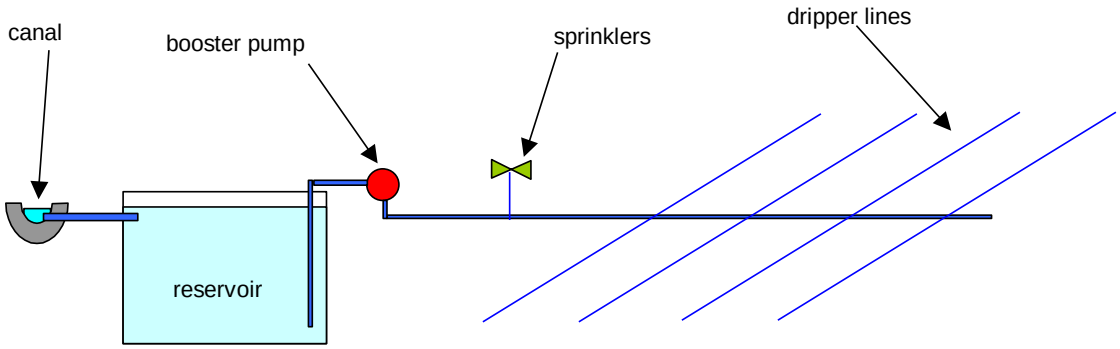


Figure 2 – Conceptual design of a simple irrigation system that utilizes the existing canal infrastructure. The size and number of reservoirs, pumps, number of dripper lines etc. will depend on the configuration of the canals and the available water.

Figure 3 – A canal and field at success. Flood irrigation is used exclusively. The Olifants river is behind the trees in the background.

Government Assistance

DFA is in a position to raise the issue of government assistance, in terms of repairs to the existing canal structure, use of the packing shed, use of tractors and implements etc. The Limpopo Provincial Government are keenly interested in development in the province.

Proposed Course of Action

In moving from the present system of farming to a relatively large commercial venture, a suggested course of action is given below with an indication of responsibility:

1. The agronomist's report (AMS)
2. Market considerations (PD)
3. An evaluation of profitability (PD)
4. Negotiation with funders (PD)
5. Initial negotiation with farmers and government (DFA)
6. Establishment of farm management (new company)
7. Consolidation of farms (new company)
8. Installation of irrigation and other essential equipment and infrastructure (new company)
9. Training of employees (new company)
10. Commencement of farming operations (new company)

As a company known and trusted in the area, DFA would like to offer its services in relation to point 8.

Conclusion

Success in this project requires a win win scenario. This amounts to the investor receiving an adequate return from a commercial farming operation on the one hand, and a satisfactory compensation to the farmers who rent/lease their land on the other.

In the final analysis, the farm Success clearly has two very important plusses in its favour, the quality of the soil (confirmed by AMS), and a sufficient supply of cheap water.
All things considered, it appears that the combination of a large tract of fertile soil, with an abundant year round supply of water, justifies a careful investigation culminating in a business plan.

It is suggested that AMS do the initial agronomic investigation, Dams for Africa spearhead the facilitation with the community/government, and the cost of a suitable irrigation system, while Public Domain put together a business plan and thereafter find an enterprise interested in farming the land commercially.

Our Mission Statement

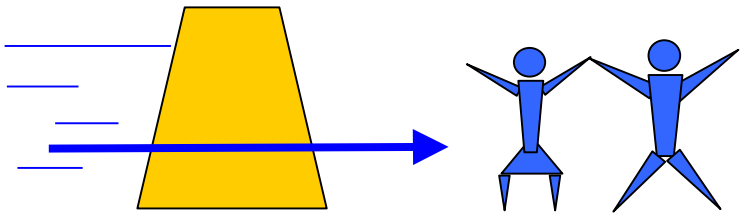
Empowering

rural communities

by building/rehabilitating

water related infrastructure

for agriculture



Dams for Africa

About Dams for Africa

Dams for Africa (Pty) Ltd design/construct/rehabilitate water related infrastructure to **empower communities** in remote rural areas. Typical projects include dam rehabilitation, canal, weir and reservoir construction, installation of pipelines and irrigation systems etc.

DFA recognises the need to be **flexible** and will tailor its involvement according to each need, from minor consultations to relatively large turnkey projects.

DFA's contribution to a **typical project** may take the form of an initial feasibility study, followed by design and/or construction.

Whenever practical **labour intensive** methods will be used in the construction process, sourced from local community.

DFA is also in a position to provide the necessary hydrological, topographical, geological, ecological and social impact **studies**, and attend to the technicalities and legalities associated with water related infrastructure.

Dams for Africa fully appreciates the need to **network** and co-operate with partners such as:

1. *Community based organizations* that are in touch with the needs of the resident population.

DFA is aware of the importance of *community involvement* and is, if required, prepared to participate in all stages of this process. This would include a response-to-need request as the first step, assistance with visualization, participation in negotiations, recruitment and training of local residents for the construction stage, facilitation of training in subsequent agriculture and irrigation, and ongoing mentoring as may be required.

2. *Donors/funders* including government and financial institutions.

DFA is prepared to participate in *fundraising* for worthwhile projects, and in the production of 'bankable' documentation.

3. *Training organizations* who teach on farming methods, produce marketing, and who know the value of ongoing mentoring.

DFA would like to know that its engineering contribution is placed in the hands of a motivated community that has been *equipped* with the necessary skills to put the water infrastructure to good use for many years to come.

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