

## Financing water for growth in Africa



### Smallholder farmers' irrigation project, Zambia

#### Summary

This is an irrigation project to serve a joint venture between a commercial farming enterprise and small-scale farmers in the Kafue district of Zambia. Small farmers lack the means to buy capital intensive irrigation equipment, and as a result their yields are low and they are effectively reduced to subsistence living. This project creatively combines the land which the small farmers own to form a commercially effective unit. As a quid pro quo to surrendering part of their land to the joint venture, the small scale farmers get access to irrigation, technical support and agronomy advice. Irrigation will allow two crops per year, and substantially higher yields.

This is a pilot project to test the viability of the concept.

#### The project

##### Description and opportunity of the project

In the past, donor efforts have largely focussed on smaller systems aimed at a few smallholder farmers operating individually whereas larger systems, having the potential for a sustainable commercial impact, have been left to commercial sources of finance. As usual, banks require that the farmers prove their organizational ability and farming success and provide collateral. Accordingly smallholder farmers, even when organized, have not been available to attract commercial finance for projects such as these.

The farmers have agreed to combine their 544 hectares of land in a landholder society which will enter into a long term lease for 80 % of their land with an independent commercial operating company. The commercial farming company will produce commercial crops on the land under separate management. The remaining 20% of the land will remain to be farmed directly by the smallholder farmer under the guidance of their cooperative society and USAID benefiting from the irrigation secured by the commercial farming company.

The proposed structure aims to avoid some of the reasons for failure of past efforts aimed at alleviating the plight of smallholder farmers by building on the concept of a centrally managed out-grower scheme.

Out-grower schemes have proven successful in the sugar industry by combining smallholders' land into a centrally managed organization where crop selection, working capital, inputs and harvesting are centrally managed even though farmers continue to work their land.

#### Technical features

The first stage of the project will involve the purchase and installation of irrigation infrastructure capable of supporting four 37 hectare pivots and land development for an area of 148 hectares of commercially farmed land that will produce wheat and soy. In addition irrigation infrastructure and land development will be provided to 60 hectares of land that will be cultivated by individual local farmers for their own food needs growing maize and irrigated vegetables as well as and sale of surplus crops.

The bulk water delivery system is expected to be taken from existing canals and pump installations but if current negotiations fail could require the construction of a separate pump and pipe system.

Contractors will be engaged to install bulk water supply network, irrigation systems, drainage network, electrical works and other required tasks (quotes are currently being solicited).

#### Social impact

The major social impact of the project will flow from greatly increased incomes which are expected to be derived from improved yields from the farmers' property. This will facilitate increased mobility, access to improved services such as electricity, as well as improved housing.

Secondly, there are indications that malnutrition affects many residents of the area at present. Irrigation will allow a much greater variety of crops including soya and vegetables, and it is expected that malnutrition will be eliminated in the community.

A Co-operative Society is being established to hold the leases to be given by the 120 farmers in the Chanyanya Village. It is planned that the individual farmer equity interest in the Cooperative Society will take into account the proportional the size of their individual current land holdings as well as its current utilization. This will strengthen existing social ties

and facilitate other cooperative and community-based initiatives.

### **Environmental impact**

An environmental impact study is complete for the first phase of the project and complies with IFC/FMO standards.

### **Feasibility**

#### **Legal, institutional and regulatory environment**

The Ministry of Agriculture of Zambia and the farmers have been working on this project since 2002 and have put together a detailed plan, with the assistance of USAID and InfraCo over the past 6 months. The project enjoys the active support of the Ministers of Lands, Energy and Commerce as well as Agriculture and has the support of the Zambia Empowerment Commission.

The concept of agricultural co-operatives is well known and widely accepted in Zambia, so no regulatory difficulties are expected in that respect. Similarly, the issues around land rights and titles are not expected to face any legal challenges. As a precaution it is hoped that USAID – PROFIT will continue their assistance for land titling, registration and, where necessary, relocation of houses belonging to farmers.

#### **Business environment**

The project is designed to bring the smallholders who are currently largely excluded from the cash economy into the mainstream of agricultural production and marketing. Three measures are being adopted to make this a reality.

The first is that an experienced commercial farmer residing in the area will run the commercial farming operation. The commercial farming company operation will be administered by Agricultural Advisors Inc., an agricultural consultancy based in Lusaka which will also oversee the commercial farmer's performance.

The pilot project is large enough to benefit from purchasing synergies, solid working capital management as well as adequate size to command market prices and assure efficient market access. In addition the commercial manager will hire several of the smallholder farmers to train and work with and who may eventually manage the commercial system.

Secondly, during the construction and implementation stage USAID, through its smallholder farmer assistance unit PROFIT, has agreed to work with the farmers to provide agricultural input and organizational support.

Lastly, Engineers Without Borders has agreed to second one of its experienced engineers to assist the small scale farmers with system installation and crop development and farming practices as well as market access during the first year of operation. It is expected he will live in Chanyanya village.

### **Economic and Financial analysis**

#### **Capital costs**

The pilot plan capital budget will allow for the installation of four centre pivots covering 37 hectares each, as well as the associated bulk water, land development and a dragline system for use by the small scale farmers.

The initial capital investment and working capital requirements for this pilot phase are expected to be \$1,195,113 (quotes are currently being solicited to confirm this number) which will finance all capital, working capital and construction needs.

#### **Operating costs**

Working capital needs during the first year will amount to \$300,000.

#### **Rate of return**

Rate of return for the project is in the range of 8-14% depending on crop mix, and eventual size of the final project.

#### **Development status**

The project has been under development since 2006. In early 2006 InfraCo was introduced to the area, and project momentum has increased over the past six months. USAID has also been an active partner in the project.

The first Phase of the project is under construction. Financial Closing is expected by end November 2007. The full commercial project will be developed over the next 12 months. InfraCo is keen to discuss the project with interested financing parties.

#### **Risk factors**

The primary risks facing the project are the cost of inputs and the variability in the price of outputs such

as wheat, soy and other food crops. Prices have been robust for most of this year.

The project is based on the normal practice of farmers obtaining loans for financing of inputs for the crops – mainly fertilizer and seeds. There is a risk (small) that such funds will not be available when required.

### Next steps

The following lists the steps which need to be completed for the project to be fully operational:

- The initial Phase 1 of the project is now under construction. The next steps are to (i) raise an additional \$2.5 million to complete the irrigation infrastructure for the 544 Hectares and (ii) prepare the design of a larger commercial operation of 2,500 Hectares in the same area surrounding the Phase 1 project.

### Project contacts

#### **InfraCo**

Richard PARRY

The Managing Director

InfraCo Management Services Limited

Eastgate House, 16/19 Eastcastle Street, London  
W1W 8DA, United Kingdom

Fax: +44 20 7323 6570

Tel: +44 870 735 1370

E-mail: richard.parry@infraco.com

*On the next page: aerial view of site with location of  
proposed irrigation pivots.*

