GGBP Case Study Series

Chiansi Irrigation Project in Zambia

Related Chapter: Public-private collaboration

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Country: Zambia

Sector(s): Agriculture

Key words: Subsistence farming, public–private collaboration, livelihoods, patient capital

The Chiansi area in Zambia is characterized by poverty and underutilization of available resources. The water that could transform the livelihoods of subsistence farmers flows nearby in the Kafue River, but the cost of the irrigation system infrastructure that could make this water available to small-scale farmers is high and there is a lack of local capacity to design, finance, and implement the system. The objective of the project is to establish an equitable partnership between smallholder and commercial farmers in the project area, creating a centrally managed irrigated farming enterprise which will generate sustainable incomes for smallholder households.

Context

The project area is situated in the Kafue district of Zambia and has long been characterized by poverty and underutilization of available resources such as land, labor, and water. For subsistence farmers in this dry and dusty region 45 kilometers south of Zambia's capital Lusaka, the abundant source of water that could transform their livelihoods has never been far away. It flows nearby in the Kafue River. If this water were available for irrigation, the farmers would no longer have to rely solely on rain-fed irrigation. They could farm year-round for the first time.

The barrier was that small-scale, poor farmers, many of whom are regularly dependent on weekly food aid to subsist, could never afford the upfront cost of the irrigation system infrastructure that could make this water available to them. Neither was there the local capacity to design, finance or implement such a system.

However, an innovative idea was born. If it were possible to provide this irrigation, an economic case existed for commercial-scale farming on land, half of which was unused and could be contributed by smallholder farmers. The project could leverage the bulk water canal and pumping infrastructure constructed for the commercial farming operations to also provide free irrigation for the smallholder farmers' market garden plots.

The Chiansi irrigation project involved taking this idea from concept to implementation, initially through a pilot-scale project followed by a full-scale operation.

The core objective of the project is to establish an equitable partnership between smallholder and commercial farmers in the project area, creating a centrally managed irrigated farming enterprise which will generate sustainable incomes for smallholder households.

An innovative financing model is central to realizing this project. The key question is how to overcome the barriers to entry and kick-start sustainable commercial agriculture in a way that ensures that the principal beneficiaries are the smallholder farmers and their families living in the area. The answer is 'patient capital'. The effect of the injection of patient capital into the Chiansi project is to overcome the barriers to entry created by the need to fund one-off start-up costs and very long-life assets, and therefore to realize the large smallholder and wider economic benefits referred to above. In turn, this patient capital levers-in debt and equity from commercial sources, and the resulting enterprise is sustainable. The patient capital is only a one-off requirement and once repaid it can be reinvested elsewhere. However, without this capital, the investment cannot get started and none of the benefits could be realized.

Approach

There are multiple levels of public and private collaboration involved in bringing this project to fruition. On the public side there are two key principal international bodies, the Private Infrastructure Development Group (PIDG) and InfraCo Africa. PIDG is a donor group entity whose members include the development agencies of Australia, Austria, Germany, Ireland, the Netherlands, Sweden, Switzerland, the United Kingdom and the World Bank. InfraCo Africa is a donor-funded entity managed as a private sector infrastructure development company by eleQtra, a private development company. It acts as an honest broker seeking to create viable infrastructure investment opportunities that balance the interests of host governments, the national and international private sector and providers of finance. InfraCo Africa operates in low-income developing countries in Africa.

The existence of these funding and project development bodies and their search for good projects was instrumental. The genesis of the Chiansi project occurred in 2007 when a group of 126 smallholder farmers and four commercial farmers approached InfraCo with the concept of an irrigation project. This would utilize the water extraction rights which they had obtained from the Ministry of Water Affairs of Zambia (an important 'back story' public–private collaboration). The decision was made to test the concept with a pilot-scale project within the Chanyanya community.

In 2008, the pilot project was established involving a centrally managed farming operation under a jointly owned commercial farming company, the Chanyanya Infrastructure

Company (CIC), producing commercial crops under center pivot irrigation. The project includes a 148-hectare commercial farm and 8 hectares of market gardens for use by the community so each cooperative member has access to a 625-square meter market garden plot. The Chanyanya community holds equity in CIC, and has Board representation through the Chanyanya Smallholders Cooperative Society, a cooperative body representing the interests of the 126 smallholder framers participating in the project.

In addition to InfraCo Africa, the eleQtra development team and the finance partners (PIDG, the private Lundin Foundation, the Dutch development bank FMO, and the Emerging Africa Infrastructure Fund), other project development partners include the Chiansi Water Development Trust; the Chanyanya Smallholders Cooperative Society; the Magoba, Demu and Chikupi communities; and the Zambia Ministries of Finance and National Planning, Agriculture and Cooperatives, and Lands, and the Department of Water Affairs.

The expansion of the project is expected to match grant finance from the Facility for Infrastructure Development of the Netherlands (ORIO) (up to USD 10 million) with development finance institution (DFI) debt, additional patient capital, and an equity injection from private capital providers.

Outcomes

With the pilot project proving viable, the larger Chiansi project will now establish a joint commercial and outgrower farming operation through irrigation provision on 1,575 hectares of smallholder and commercially owned land, plus 150 hectares of market gardens. An experienced commercial farm operator will manage both the bulk water system and the farming operations, providing extension services to participating smallholders.

The overall Chiansi project is expected to generate returns large enough to provide the smallholders with stable, long-term incomes, as well as repaying the capital costs of the infrastructure and providing appropriate market-based returns to private sector investors in the project. The smallholders will obtain additional incomes by farming individually allocated, irrigated market garden plots provided by the project. The existing market garden plots at Chanyanya will be expanded to provide 2,500 square meters to each smallholder while additional market garden systems will be provided to neighbouring communities, bringing the total market garden area available to smallholders to 150 hectares.

Lessons

A key lesson of the Chiansi project is that the successful drawing together of multiple public-public, public-private, and private-private collaborations can be what it takes to take things from innovative idea to implemented project. The first phase of Chiansi happened because a large number of creative people contributed in multiple ways to help realize an idea that fundamentally made sense and had very high social value if it were able to be accomplished.

To assist other projects like Chiansi, it is critical to have more sources of reliable and affordable patient capital. DFIs and foundations are still much more focused on short-term returns and

5-7 years exit strategies than might be expected given their developmental remit.

Sufficient scale is needed to achieve healthy cash flows. Phase I has benefited the community and demonstrated the concept, but the small scale, undercapitalization and high overheads have been a challenge.

Non-governmental organizations or consultants with specific expertise are needed to assist smallholders who are accessing irrigation and participating in a commercial partnership for the first time. This expertise is difficult to find, can be expensive, and the process is time-consuming.

Further Information

Infraco: http://www.infracoafrica.com/projects-zambia-chiansiirrigation.asp

PIDG: http://www.pidg.org/impact/case-studies/chiansi-irrigation

References

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