

PROJECT FOR SCALING UP

Guangxi Sustainable Sugarcane Farming



▲ A close up and distant view of pipelines that have been laid for drip irrigation in Guangxi Zhuang Autonomous Region.

Introduction

Guangxi Zhuang Autonomous Region plays a key role in the Chinese sugar industry, with more than 20 million people working in sugarcane agriculture and production. In China, as much as 60 percent of sugar production comes from the region. But Guangxi also suffers from droughts and flooding, which damage harvests and decrease productivity. In 2009, Guangxi and four other provinces of southwest China experienced a severe drought of historic proportions, which significantly impacted crop yields.

UNDP thus established a project in 2010 to improve irrigation in sugarcane fields. The project is an excellent example of scaling up: after initial pilot projects in Shangsi and other areas, UNDP finalized an efficient model of drip irrigation to provide regular irrigation in Jiangzhou. The project then became a case study for three types of scaling up: *expansion, replication and policy adoption.*

Sustainable Sugarcane Farming in Guangxi Province

The project began in Jiangzhou with 3200 mu (215 hectares) but was then *expanded* with local government help to 10,000 mu (650 hectares). Afterwards, the project was *replicated* in the province with the aim of reaching 300,000 mu (20 000 hectares). The project has begun to affect *policy* and is aimed to reach 1,000,000 mu, if not more.

Another core element of the project was its success as a private–public partnership. Funding was provided partly by The Coca-Cola Foundation. The project also serves as a starting point for the Coca-Cola system to promote sustainable sourcing and demonstrate its commitment to 100 percent sustainable global sourcing of key ingredients, including sugar, by 2020. Because Coca-Cola is a leader in the soft-drink industry, its influence will go beyond Coca-Cola.

Nevertheless, the core focus of the projects in Guangxi was to increase water use efficiency in sugarcane fields. This was found to be best achieved with drip irrigation, a system that can also be combined with fertilizing to reduce labour intensity and decrease pesticide use. The co-benefits of each project deserves a story in its own right – such as the provision of clean water, the recycling of sewage, the development of minority communities. Some of these co-benefits could be used on a case-by-case basis in scaling up projects.

In the distance, a water storage tank uses gravity to irrigate the sugar cane fields. Pipings (blue) are interspersed throughout the fields and are to be connected to complete the irrigation system.



Key Case Study: Xinhe in Jiangzhou District

Of central interest for scaling up projects was a pilot at Xinhe in Jiangzhou District, Chongzuo City, Guangxi, where efficient drip irrigation combined with fertilization was first used. It demonstrated the successful cooperation of UNDP with a private partner and local government.

This project involved 4 million RMB (656,000 USD) investment, of which 2 million RMB (328,000 USD) was from The Coca-Cola Foundation. At the heart of the project was the improvement of irrigation efficiency. Drip irrigation replaced old irrigation methods such as flood irrigation, string irrigation and other water-consuming irrigation methods. The implementation directly benefited 3,200 mu (210 hectares) of sugar fields, which not only saved a large quantity of water by reducing water use from 280 m³/mu (4,200m³/ha) to 150m³/mu (2,250m³/ha) but also increased efficiency from 25% to 68% .

Additional benefits include 896,000 m³ of wastewater use from Guangxi Chongzuo Guixiang Sugar Production Company; the integration of fertilization, which lowered labour intensity; the reduction in pesticide use by transferring water and fertilizer to the root of plants under a plastic film. In terms of social benefits, 308 people directly benefited from the project. Regarding economic benefits, 2.0 tonnes per mu (30 tonnes per hectare) more sugarcane can be produced, worth a total of 3.2 million RMB (\$530,000 USD).



We can reuse the wastewater [generated from our plant] to irrigate the sugarcane during periods of drought.

—Liang Bing, Deputy Manager, Manufacturing Department, Changling Sugar Manufacturing, Co., Ltd.



Factors important for scaling up

- Turning the project into a training centre so ideas can be shared with as large a group as possible. People from all over China, including the Governor of Guangxi, and the world have visited the project in Xinhe, which continues to attract many visitors.

Lessons learned

- Always look out for the subsidiary benefits of a project and consider which are scalable. Some great co-benefits from this project included:

- o A system of compensating farmers as land was consolidated;
- o Clean water brought to schools;
- o Recycled water from sugar mills reused in the fields providing them;
- o Production of fodder pallets from sugarcane bi-products;
- o Development of minority and border area communities.

However, it is not possible to replicate these in every project. Each project brings its own set of nuances and potential benefits.

Sustainable Sugarcane Farming in Guangxi Province

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Sugarcane is very important for Longzhou. Without it, farmers, government and sugarcane workers will all suffer.

—Deng Junping, Deputy Governor of Longzhou County

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A local farmer finalizes the lateral tubes of the irrigation systems. ▶



- We would have liked to have tracked the impact of the project more effectively. We realized that many visitors are keen to replicate the projects and are doing so, but a system is needed to elicit better feedback from inspired individuals and organizations in order to accurately assess the wider impact and offer assistance as needed.

Sustainability

This project is an archetype of a sustainable project. Water shortages are becoming increasingly prevalent around the world; without dramatic action, a serious global water crisis is imminent in the upcoming decades. Dramatic increases in efficiency, like those achieved in the current projects, will be essential in the future.

Moreover, the establishment of water recycling facilities at sugar factories was important for reducing water use, as well as ensuring cleaner rivers, and improving conditions for biodiversity.

Rural development and stability is an essential component of economic sustainability. The projects provided livelihoods and created resilience against droughts.

Additionally, the project in Longzhou County provided a self-water facility, further increasing the resilience of rural people.

Advice for others

Having an enthusiastic local partner is essential. The local government and party committee in Chongzuo were keen for progress, which greatly facilitated the scaling up of the project as well as solidifying optimism for future scale-ups. Local businesses, such as our partner Guangxi Chongzuo Sungain Sugar Mill Group, are also very important– their enthusiasm for reform helped begin the water recycling project.

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We hope we can share our experiences [of water management] with other countries such as Cambodia, Laos, Vietnam, even the countries in Africa, which have similar situations as China.

—Huang Zhi, Director,
Foreign Economic Cooperation,
Department of Commerce,
Guangxi

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