

China Africa Rice Value Chain Development Initiative Under GSSDC Project

(Phase I March 2021 – May 2022)

Summary Report

May 2022



WFP Centre of Excellence for Rural Transformation
WFP Regional Centre of Excellence against Hunger and Malnutrition

Contents

1. Overview	2
2. Progress and Achievements	3
Deliverable 1: Needs Assessment	4
Deliverable 2: Technical Demonstration	5
Deliverable 3: Technical Training	6
Deliverable 4: Partnership Building	7
3. Findings of Phase I	8
4. Lessons Learned and Opportunities	100

1. Overview

Rice plays an important role in the food system. Improving the rice value chain, particularly in developing countries, would contribute to the resilience of sustainable food systems. In many African countries, rice is the main food crop, but these countries in general suffer from large deficits in production and processing technologies.

As the third largest rice producing country in West Africa, Côte d'Ivoire has made some progress in rice production. Notwithstanding, Côte d'Ivoire still relies heavily on imports to satisfy its growing domestic consumption. National rice production is below 50 percent of its demand over the last three decades and facing more challenges on post-harvest loss management.



To address the situation, in March 2021, WFP Centre of Excellence for Rural Transformation (WFP China COE) and WFP Regional Centre of Excellence against Hunger and Malnutrition (CERFAM) jointly launched the **China Africa Rice Value Chain Development Project**. This project is under the Global South-South Development Centre project, which was jointly initiated by United Nations Office for South-South Cooperation (UNOSSC) and China International Center for Economic and Technical Exchange (CICETE), aiming to facilitate South-South knowledge sharing, mutual-learning, as well as technology and expertise transfer on post-harvest loss management to enhance rice value chain through South-South Cooperation (SSC).

A seminar on China-Africa Rice Value Chain Enhancement was organized by WFP China COE, CERFAM, UNOSSC, CICETE and China-Africa Development Fund in June 2021. The event was funded by WFP China COE. More than 250 participants from 30 countries (Africa and beyond) joined the meeting discussion on-site and remotely. The Seminar serves as a platform for experts and practitioners of Rice Value Chain to discuss how to concretize efforts on China-Africa Rice Value Chain Enhancement counted with partners. This policy dialogue was a strong motivation and encouragement for African countries, including Côte d'Ivoire for rice value chain development, in particular, for post-harvest loss management.





Missions were taken to understand and analyse the local demands. A multi-stakeholders meeting was organised between the Ivorian Government, AricaRice, WFP Côte d'Ivoire, UNOSSC and CERFAM in July 2021. Furthermore, a diagnostic mission was conducted by CERFAM, WFP Côte d'Ivoire, AfricaRice and Agency for the Development of Rice Sector (ADERIZ) in November 2021. Based on the findings of these activities, the project team identified

the demonstration site location and local smallholders' needs.

To respond to local community's demands, agro-machinery such as threshers, milling machine and tractors were procured to equip pilot demonstration site and support the rice production and processing in the targeted communities. In Northern Côte d'Ivoire, an on-site post-harvest technical demonstration and trainings were co-organised by CERFAM, WFP Côte d'Ivoire and ADERIZ in November 2021, and an online training on rice post-harvest management with the approach **"train-the-trainers"** was held by WFP China COE and CERFAM with the support of Chinese experts from Jiangsu University and Henan Technology University in February 2022. A total of 614 local smallholders and their households joined this project and benefited from the technology transfer from the field demonstration and technical trainings.

Key Results

- ❖ Benefited **614** rice producers (**604 women** and 10 men) in **4** communities
- ❖ Covered **17.6** Hectare land area in north of Côte d'Ivoire
- ❖ **1** Diagnostic Report completed
- ❖ **1** demonstration site built with **6** agro-machines procured
- ❖ **2** technical training on rice value chain development conducted
- ❖ **4** experts from **2** Chinese universities invited to give lecture on rice processing, storage, and post-harvest loss management
- ❖ **43** participants attended the technical training
- ❖ **9** technical guidance on post-harvest loss management developed
- ❖ **1** China-Africa Rice Value Chain Development Synergy conveyed, with **13** Chinese and African technical partners attended

2. Progress and Achievements

Deliverable 1: Needs Assessment

Prior to the field demonstration, missions were conducted to map the rice value chain in Côte d'Ivoire and better understand the need of targeted groups. In June 2020, CERFAM visited a demonstration site, which was created by a group of Chinese experts in 1995. During the visit, the Chinese experts introduced their technical assistance and training in seed production, rice production and irrigation in the South



of Côte d'Ivoire. Another mission took place in the North of Côte d'Ivoire, where the targeted community located, allowing CERFAM to visit local communities, namely **Maramana, Kantara, Pitiangomon and Nankaha**, to conduct basic diagnosis for the project.



A multi-stakeholder dialogue was organized on 30 July 2021 with the presence of the representatives from the UNOSSC, WFP China COE and CERFAM, ADERIZ, AfricaRice Center and WFP Côte d'Ivoire. During the dialogue, the Ivorian stakeholder presented the rice value chain in Côte d'Ivoire and its current state, including the strengths, weaknesses, opportunities and challenges. WFP China COE

explained what China could offer to Côte d'Ivoire in terms of support to the rice value chain development taking the entry point as post-harvest loss reduction.

Based on the information from these activities, some challenges have been identified that Côte d'Ivoire have been encountered in recent decades:

- Compared to rainfed rice, the proportion of irrigated rice is very low. Nevertheless, irrigated rice is very productive in terms of quality and quantity;
- Smallholder farmers in Côte d'Ivoire don't have access to high-quality inputs and certified seeds, affecting the quality and quantity of the rice production;
- The access to mechanization in rice production and processing is limited;
- The practices and facilities of harvest and post-harvest management are unsatisfying.



Based on the needs assessment, recommended actions are:




- Facilitate access to suitable and environmentally friendly fertilisers and plant protection products;
- Make mechanisation services available for operations (ploughing, planting, harvesting, hulling);
- Strengthen capacity in post-harvest management;
- Raise awareness on the added value of processed products;
- Strengthen awareness of farmers on technical patterns.

Deliverable 2: Technical Demonstration



A demonstration site was established in the local community, named as Korhogo. Smallholder producers in **Maramana, Kantara, Pitiangomon and Nankaha**, could witness and learn from the field demonstration. The demonstration site could also provide the venue and equipment for short-term trainings to local smallholders who would like to learn rice production and processing techniques.

To improve the rice production and processing capability of local smallholders, the project also provided them with agro-inputs and some machines. Three types of equipment were purchased, including walking tractor and milling machine made in China, and locally manufactured thresher. Regarding the post-harvest management, some tools and equipment, such as packaging bags, sickles, and tricycles, are also available to local communities.

Procurement List			
Type	Characteristic	Picture	Quantity
Walking Tractor	Engine type: ZS1115 Power (CV): 22 System: manual		2
Milling Machine	Engine type: DIESEL Power (CV): 15 CV System: manual		2
Rice threshers	Capacity: 750-900 kg/h Engine type: ZS1115 Power (CV): 20 CV System: manual		2

Deliverable 3: Technical Training

Two technical trainings on rice processing with the approach “train-the-trainers (TOT)” was organized. The TOT model targets the know-how transfers of affordable and applicable technologies to local partners, and further disseminated to smallholders.

3.1 Technical Training on Rice Post-harvest Losses Management

In November 2021, a 3-day thematic training on rice post-harvest loss management was organised by CERFAM and ADERIZ. A total of 22 participants attended in the training, representing National Agency for Support to Rural Development (ANADER), Ministry of State, Ministry of Agriculture and Rural Development (MINADER), Bureau of Development training and consultation (BFCD), local farm groups and smallholders.



The training was designed with in-classroom lecture and a field visit for practical demonstration.

The overall objective of the training was to enable participants to master rice harvesting and post-harvest operations with good practice. The specific outcomes of the training are:

- Determine the different levels of crop losses;
- Disseminate good pre-harvest and post-harvest operation techniques;
- Indicate appropriate and adapted technologies and equipment for post-harvest management.

3.2 Online Training on Operation and Rice Post-harvest Management

A 4-day online training was co-organised by WFP China COE and CERFAM, with technical assistance from Chinese rice experts of the Jiangsu University and the Henan University of Technology from the 14th to the 17th of the February 2022. The training focused on post-harvest management, primarily on the operation of equipment which was procured and equipped in the local community. For better understanding of the training contents, simultaneous interpretation in French was provided.



3.3 Technical Guidance

A set of technical guidance, including 9 volumes (5 in English and 4 in French) on Rice Post-harvest Loss Management was developed, based on the presentations and lectures delivered by Chinese experts during the online technical training. The technical guidance is themed by Use of Tractor, Rice Threshing, and Rice Drying Technology etc.



Deliverable 4: Partnership Building

A **China-Africa Rice Value Chain Development Synergy** is formed to build a regular exchange mechanism between researchers and stakeholders in China and Africa to enhance the partnership on rice value chain. Meeting themes could cover but are not limited to 1) seed-breeding 2) cultivation and production, 3) processing and storage, 4) standard quality assurance, and 5) supply chain and market access. It is expected that through such a regular exchange and information sharing channel, partnership could be forged, and efforts concerted, so that more support could be aggregated for rice value chain development in Africa to end food insecurity in the continent.



This rice value chain development synergy aims to:

- Share rice-related organisational engagements in China and Africa
- Exchange on experiences and lessons learned in rice value chain development
- Identify opportunities in Sino-African collaboration on rice value chain development at technical and policy levels
- Forge partnership between China and African countries in knowledge exchange and capacity strengthening

3. Findings of Phase I

- **Increase the efficiency of rice processing by mechanisation**

During the needs assessment mission in the north of Côte d'Ivoire, it was found that the rice sector is facing numerous technical constraints. Especially in the aspect of post-harvest losses, **up to 40% of production are wasted** due to inadequate post-harvest techniques, low processing capacity, underdeveloped storage facilities and infrastructure. Currently, the production and processing are mainly manual, which lead to low productivity and low yield (estimated at 0.25 tonne per person for one season).



In terms of mechanisation, the local smallholder farmers are constrained by insufficient financial capital to purchase agro-machinery. With the current rice processing system, it faces challenges of high processing cost, low output and unfavourable quality.

Supported by this project, with using walking tractor, thresher and milling machines, it is estimated that the yield at the demonstration site is estimated **up to 3.5 tons per hectare**, reaching 61.6 tons for 17.6 hectares of land in total per season (11 tons for 17.6 hectares in the season 2020-2021).

Taking into consideration of post-harvest losses and processing, the project could produce 26.4 tons of threshed rice, which will be packaged and sold in local markets. It is estimated that the rice will be sold at 632 USD per ton and 16,685 USD in total and greatly increase the income of smallholder farmers.

- **Strong demand for technical cooperation**

Based on the post-survey of online training, strong local demand is focus on technical knowledge and skills, especially in **drying, processing and storage**. According to the participants, knowledge acquired from the training can be applied within the context of the North of Côte d'Ivoire.

However, certain constraints in applying the skills learned from the demonstration and training include adaptive tractors and harvesting machine to the north of Ivory Coast. Machinery maintenance remains as one of technical concerns.

For future trainings, a greater number of the participants wished to deepen their knowledge on rice processing, followed by production and harvesting. Those who wished to deepen their knowledge in production desired to learn about the earth, the tiller, inputs and the different varieties of rice. Technical cooperation is a strong need to share useful technical practices with the technicians and local farmers.

- **Enhance technical exchange between academic partners**

China-Africa Rice Value Chain Development Synergy is a joint endeavour of WFP China COE and CERFAM to gather like-minded academic and institutional collaborators to enhance the rice value chain development in Africa.

Through South-South Cooperation, the experience and lessons learned at technical and policy level from China could assist the African rice stakeholders in addressing some of the challenges encountered in the past few decades, by leveraging the Chinese good practices in rice production, processing, post-harvest management and market access.

Moreover, Chinese experts could learn about the context of African rice value chain and thus propose more effective and efficient solutions to their African counterparts.

Therefore, such regular exchange mechanism of Synergy will be required to foster the knowledge transfer and discussion between the Chinese and African stakeholders in rice value chain.



4. Lessons Learned and Opportunities

- **Field-level engagement**

Due to the glooming COVID-19 pandemic, the South-South Cooperation activities are strictly constrained. Knowledge transfer and exchange between Chinese and Ivorian could only be conducted remotely in the format of webinar. Even an on-site training and field demonstration played a bigger role in the project, field instruction and technical guidance by Chinese experts would be still in need.

For agriculture demonstration project, field engagement is important. If travel restriction still poses a big constraint, virtual study tour could provide know-how transfer with abundance of visual information as an alternative of field instruction. Experts can demonstrate appropriate operation of agro-machineries and processing techniques in videos.

As the latest endeavours of WFP China COE, WFP-China South-South Cooperation Knowledge Sharing Platform and Cloud school could provide in-depth, comprehensive and continuous courses on knowledge of value chain development, including the rice sector.

- **Further support to local producers on rice production and processing**

The local communities face challenges in the preparation of rice production, including access to inputs, land preparation, seeding system and water management. As reflected by the low productivity per hectare in the target communities, it is recommended to provide further support for both production and processing, storage and packaging, which could contribute to higher production with better post-harvest management.

- **Gender equality**

WFP has committed to tackling gender inequalities to meet the specific food security and nutrition needs. According to Côte d'Ivoire's National Institute of Statistics, **women make up almost 70 percent of the agricultural labour force**, but only 3 per cent of women own the land that they cultivate. Women remain disproportionately disadvantaged when it comes to their access other productive agricultural resources such as improved inputs, appropriate technologies, information, credit, and markets.



For this project, women farmers are greatly involved in the implementation, **with 97% of the beneficiaries are women, that is 604 out of 614 beneficiaries are women farmers**. For the future implementation, women farmer groups could be further empowered through technology transfer and capacity building.

- **Sustain the impact of first phase implementation**



The project helped local farmers increase their output and reduce loss in northern Côte d'Ivoire. The demonstration and trainings could be promoted wider in the country and even to other countries in West Africa to support the local smallholders for rice value chain development.

The demonstration result of the project could be expanded further with more external support, e.g. continuous funding and technical support from UNOSSC and WFP.

- **Engage Chinese experts based in Côte d'Ivoire to support the project activities**

Due to the travel restriction in China, face-to-face workshop and exchange are still unforeseen in near future. However, the presence of Chinese experts based in the region could be leveraged to create synergies and complementarities in the knowledge exchange and technical training. To better coordinate with the Chinese experts based in Côte d'Ivoire, it is recommended to engage them to the next phase of project for both design and implementation.