

Tanzania

**Preparatory Survey on BOP Business
on Rental Service and Credit Sales of
Agricultural Machinery in Tanzania**

Executive Summary

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Abbreviations

Abbreviation	Word
AGITF	Agricultural Inputs Trust Fund
BOP	Base of Pyramid
CRDB	CRDB Bank
GDP	Gross Domestic Product
JICA	Japan International Cooperation Agency
MFI	Microfinance Institute
NAP	National Agriculture Policy
NMB	National Microfinance Bank
SACCOS	Savings and Credit Cooperative Societies
SUMAJKT	Shirika la Uzalishaji Mali la Jeshi la Kujenga Taifa
TIB	Tanzania Investment Bank

< Exchange rate s as of June 2014>

1 US Dollar (USD) = 101.68 Japanese Yen (Yen)

1 Tanzania shilling (Tsh) = 0.063 Japanese Yen (Yen)

1. Outline of the Survey

1.1 Objective of the Survey

The Preparatory Survey on BOP Business on Rental Service and Credit Sales of Agricultural Machinery in the United Republic of Tanzania, hereinafter “the Survey”, was conducted by SeedAfrica Ltd., hereinafter “SeedAfrica”, and Kaihatsu Management Consulting, Inc., hereinafter “KMC”, with support from Japan International Cooperation Agency (JICA).

The objectives of the Survey were summarized in the below box.

Objective of the Survey

- i) To study the feasibility of the three businesses planned by SeedAfrica*
 - a) Renting out agricultural machinery*
 - b) Credit sale of second-hand power tillers imported from Japan*
 - c) Maintenance of agricultural machinery*
- ii) To study the social impact of agricultural mechanization*
- iii) To study the social and market environment for the businesses in Tanzania*
- iv) To develop detail business plans*
- v) To consider possible future collaboration between the planned businesses and JICA*

The reasons for the above three services, a) renting out agricultural machinery to farmers, b) credit sale of second-hand power tillers imported from Japan, and c) maintenance of agricultural machinery, being required in Tanzania are summarized as follows:

1) Renting out agricultural machinery

The mechanization of agriculture is recognized as an important factor for the development of the agricultural sector, which absorbs the majority of the labor force in rural Tanzania. The National Agriculture Policy (NAP) in Tanzania emphasizes that agriculture has not been well mechanized in Tanzania, as 62 per cent of farmers cultivate their land using hoes instead of agricultural machinery. The reasons why agricultural machinery is not common in Tanzania are: i) agricultural machinery is expensive, ii) the purchasing power of farmers is weak, iii) the available agricultural mechanization technologies are not suitable for the current situation in rural area, iv) the number of skilled mechanics are insufficient, and v) after-sales service provided by dealers of agricultural machinery is insufficient.

Renting out agricultural machinery has started in some areas in Tanzania. However there is not

enough of this as there is not enough number of agricultural machinery, as well as it is poor quality of rental services due to breaking down and poor management. The Survey will find out whether SeedAfrica can overcome these issues and rent out agricultural machinery making a profit.

2) Credit sale of second-hand power tillers imported from Japan

According to NAP, the government of Tanzania has a policy of meeting financial needs for rural development in Tanzania by strengthening rural/community banks, Savings and Credit Cooperative Societies (SACCOS), and other financial institutions.

Three banks, namely CRDB Bank, National Microfinance Bank (NMB), and Tanzania Investment Bank (TIB) provide financial services in the agriculture sector. These banks provide financial support directly to farmers or through SACCOS and Microfinance Institute (MFI). In addition, two government organizations, the Agricultural Inputs Trust Fund (AGITF), under the Ministry of Agriculture, Food Security and Cooperatives, and the Shirika la Uzalishaji Mali la Jeshi La Kujenga Taifa (SUMAJKT) promote credit sale of agricultural machinery by providing loans to individuals and organizations.

Power tillers manufactured by Kubota Corporation (Kubota) are the most popular in Tanzania, even though they are more expensive than others. In Japan, many second-hand Kubota's power tillers are sold in good condition at a reasonable price. If SeedAfrica import Kubota's second-hand power tillers from Japan and sell them, farmers would be able to buy power tillers manufactured by Kubota in good condition at a lower price. In addition, if SeedAfrica can sell them on installment plans, farmers who cannot afford to pay the whole amount in advance also purchase the power tillers.

3) Maintenance services of agricultural machineries

Upgrading maintenance services is one of the essential factors needed to achieve agricultural mechanization in Tanzania. The government of Tanzania has been working to support and strengthen both human resource development and institutional development for this. However there are many problems with improving maintenance because: i) the educational level and technical level of mechanics are low; ii) the majority of spare parts distributed in Tanzania are not brand-name parts and their quality is quite poor; iii) brand-name parts sold in Tanzania are more expensive than those sold in Southeast Asia; and iv) purchasing brand-name parts in Tanzania sometimes takes time because authorized dealers do not keep all necessary spare parts in stock and have to import the parts from abroad. The Survey will evaluate the feasibility and

profitability of the maintenance for agricultural machinery in Tanzania.

1.2 Outline of the Survey

1) Survey period

From April 2014 to October 2015

(From May 2014 to August 2015 in Tanzania)

2) Methodology

A pilot business has been set up to evaluate the feasibility and profitability of renting out agricultural machinery and credit sale of second-hand power tillers. A tractor and a combine harvester were purchased for the pilot business for rental of agricultural machinery, and rental services were provided by SeedAfrica on trial basis in the field. Six Kubota second-hand power tillers were imported from Japan and went on sale in Tanzania.

A needs study was conducted in order to study the social and market environment for the business in Tanzania, while the social impact study was conducted to study the social impact of agricultural mechanization. Both studies helped us to understand the current situation of the business's target, the Base of the Pyramid (BOP) group, which is the largest, but poorest socio-economic group, who live on less than US\$2.50 per day.

Face-to-face interviews using a structured questionnaire were used in the Needs Study and the Social Impact Study, in addition to desk research and individual interviews with relevant organizations and persons. The methodology for each objective is summarized in the table below.

Table 1: Methodology of the Survey

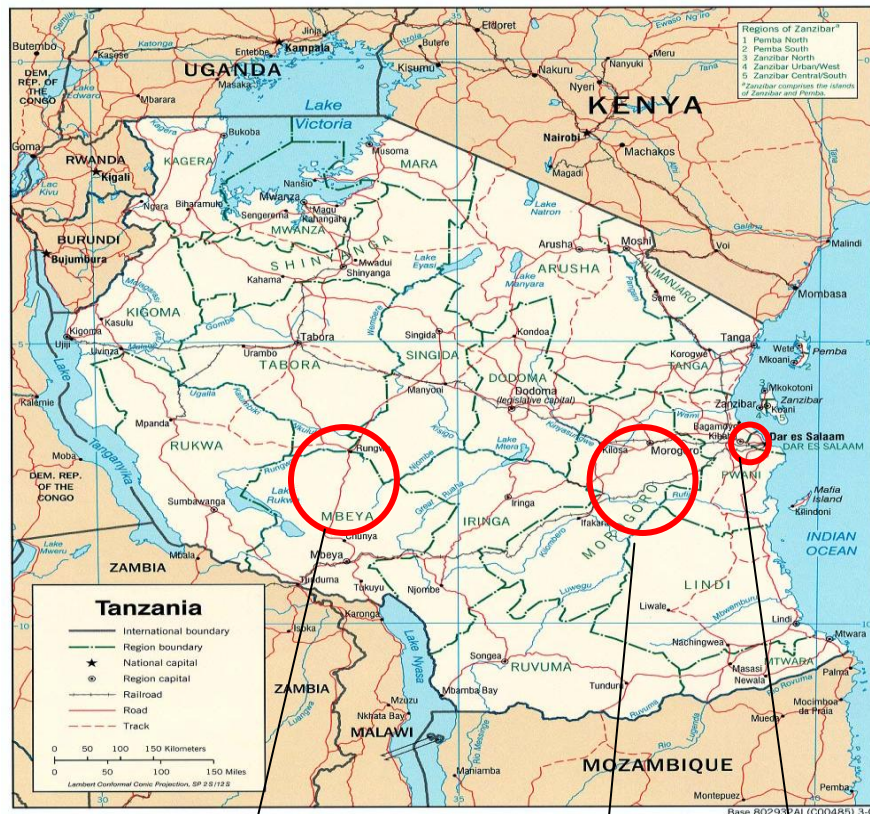
Objectives of the Survey	Major methods
i) To study feasibility of three businesses planned by SeedAfrica	
a) Renting out agricultural machinery	Pilot business, and interviews with relevant organizations and individuals
b) Credit sale of second-hand power tillers imported from Japan	Pilot business, and interviews with relevant organizations and individuals
c) Maintenance of agricultural machinery	Individual interviews with relevant organizations and individuals, and desk research
ii) To study social impact of agricultural mechanization	Social impact study (quantitative study)
iii) To study social and market environment for the businesses	Needs study (quantitative study), desk research, and individual interviews with relevant organizations
iv) To develop detailed business plan	Develop based on the outcomes of the Survey
v) To consider possible collaboration between the business and JICA in future	Desk research, and individual interview with JICA and other relevant organizations

3) Survey area

Part of the pilot business for rental services, the social impact study, and needs study were conducted in Mbarali district, Mbeya region. The pilot business for rental services was also conducted in Mvomero district, Morogoro region.

The pilot business for credit sale of second-hand power tillers was planned to be conducted in a rural area, but finally was conducted in Dar es Salaam.

Individual interviews with government officers were mainly conducted in Dar es Salaam and Mbarali district, Mbeya region. In order to study market information for rental services, major paddy-producing areas were studied.



Mbarali district, Mbeya region (Ubaruku)

Mvomero district, Morogoro region (Dakawa)

Dar es Salaam

Figure 1 : Survey area

2. Outcome of the Survey

2.1 The current situation of BOP group

Although Tanzania has achieved almost six per cent annual economic growth between 2005 and 2012, the GDP per capita was only 628.9 USD in 2012. Tanzania is one of least less-developed countries, and the majority of rural people belong to the BOP group. About 39.1% of farmers live under the poverty line. The alleviation of poverty is one of the most important development issues in Tanzania.

According to the results of the needs study, the most popular agricultural machinery to own out of a power tiller, tractor, combine harvester, thresher, or rice planning machine was the power tiller; 124 out of 154 respondents (about 80%) said that they were willing to purchase a power tiller. The average amount that they were willing to pay for a power tiller was six million Tsh,

which is about the market price of a new Kubota power tiller. However the average amount that they could pay in advance was about two million Tsh. There is a gap between the amount that they are willing (and need) to pay, and what they can actually pay in advance. Regarding the rental of agricultural machinery, 54 per cent and 32 per cent of respondents were willing to rent a combine harvester and tractor respectively.

2.2 Pilot business

1) Renting out agricultural machinery

i) Tractor

The pilot business of rental service (tractor) was conducted from December 2013 to January 2014 in Mbarali district, Mbeya region. SeedAfrica could rent a tractor for their 60 percent of targeted acres in December 2013 and for their targeted acres in January 2014.

According to the pilot business, it was confirmed that: i) the rental fee per acre was relatively less than that of the combine harvester mentioned later; and ii) maintenance expenditure was high. These two issues, the low service fee per acre and high maintenance cost, will be crucial for the profitability of the tractor rental services.

ii) Combine harvester

The pilot business of renting out a combine harvester was conducted from June to August 2014. It was conducted in/nearby Highland Estate in Mbarali district, Mbeya region from June to mid-July 2014 and at Dakawa in Mvomero district, Morogoro region from late-July to August 2014.

SeedAfrica rented out the combine harvester on their targeted acres every month. The average rental fees differed from area to area. The difference affected the sales and profit of the business. A low rental fee was not problem in Highland Estate in Mbarali district, Mbeya region, because Highland Estate sets a high rental fee and other rental businesses have to follow that price. On the other hand, SeedAfrica has to compete with other businesses by cutting the rental fee in other areas based on the principles of competition.

Another problem was the combine harvester breaking down. Because of frequent breakdowns, service acres as well as sales had hit a growth ceiling. The combine harvester was not working for 14 days in June, 9 days in July, and 12 days in August. These breakdowns were caused by problems with the HST pump and the V-belt wearing out.

In order to make a profit after covering the salary of Japanese staff as well as fixed costs, the following must be achieved: i) reduce the number of days the equipment is out of order, ii) operate in areas where the rental fee is high, and iii) operate several machineries.

2) Credit sale of second-hand power tiller

Six second-hand power tillers manufactured by Kubota were imported from Japan and were sold in Dar es Salaam as pilot business for the credit sale of second-hand power tillers. The six second-hand power tillers (six to eight horsepower) were shipped from Japan in April 2014, and started being sold in Dar es Salaam from January 2015. Only three power tillers had been sold by now; the sales were lower than expected.

The reasons for poor sales could be: i) the horsepower of imported power tillers (six to eight horsepower) is lower than that of power tillers commonly distributed in Tanzania (14 to 16 horsepower); ii) attachments generally required generally in Tanzania, such as trailer and plow, were not included; iii) cheap brand-new power tillers made in India and China have been sold in Tanzania; and iv) spare parts of imported power tillers are not available.

2.3 Social impact study

The social impact study to evaluate the social impact of agricultural mechanization was conducted in Madibila district, Mbeya region in June 2014. Individual interviews with structured questionnaires were conducted, targeting farmers as well as agricultural laborers who may lose work because of agricultural mechanization. The major findings are summarized as follows:

< Major findings of the social impact study >

- Labor productivity improved statistically as the number of working days needed for paddy cultivation decreased due to use of agricultural machinery (power tiller and combine harvester).
- Land productivity and agriculture income (paddy) of the combine users improved statistically. The improvement in land productivity and agricultural income (paddy) were not caused by reduction of the production cost.
- As for other impacts, farmers recognized increased willingness to invest in paddy cultivation, increased willingness to expand the area of paddy land, increased rest time, and an increase in time for other activities.
- According to interviews with the farmers, usage of the combine harvester reduced the demand for labor. However according to interviews with the laborers, the number of

working days as a paddy laborer and income from labor work as a paddy laborer had not yet decreased. The direct negative impact on the laborers was not observed yet.

- However the laborers were anxious about a decrease in demand for labor.

3. Business plan/decision on launching the business

Based on the outcome of the studies, improvement in the operating ratio of agricultural machinery is one of the crucial factors for sustainable expansion of renting out agricultural machinery. In order to improve the operating ratio, available and reliable maintenance is essential. Therefore renting out agricultural machinery and maintenance of agricultural machinery are mutually complementary.

It is better to start with the maintenance business. However the business requires a certain amount of investment even if the business starts with mobile car maintenance, which requires relatively small investment. Therefore first SeedAfrica will start an import business for agricultural machinery, spare parts, and so on, to establish the base of business in Tanzania and surrounding countries. After that, the maintenance business will be started. If renting out agricultural machinery is profitable after SeedAfrica has successfully started maintenance of agricultural machinery, the rental business will be started.

3.1 Renting out agricultural machinery

Renting out agricultural machinery is suspended for a while. The reasons are: i) the maintenance business needs to be established first to confirm the profitability of renting out agricultural machinery, and ii) the profitability of agricultural machinery rental may decrease because of serious competition in the field. Once the base of the maintenance service is established, a decision on launching the rental business will be taken depending on the business environment at the time.

3.2 Credit sale of second-hand power tillers

The pilot study of credit sale of second-hand power tillers confirmed that the market demand for Japanese second-hand power tillers in Tanzania had decreased. However SeedAfrica will continue importing highly profitable, highly marketable and easy-to-handle products, including second-hand agricultural machinery such as water pumps and generators, bicycles, and other products.

3.3 Maintenance of agricultural machinery

The maintenance of agricultural machinery will be kept under review. The business requires a

certain amount of investment even if the business starts with mobile car maintenance, which requires relatively low investment. Therefore first SeedAfrica will start importing agricultural machinery, spare parts, and so on, to establish the base of business in Tanzania and surrounding countries, and later start the maintenance service.

4. Consideration of environmental and social impact

People who earn their livelihood from working as agricultural laborers may get a negative impact from agricultural mechanization. The social impact study asked 36 agricultural laborers what they would do if demand for agricultural labor decreases. About half the respondents said that they would cultivate their own land, while 22.2 per cent of respondents said that they would start a small business. 19.4 per cent said that they would be laborers in other areas.

A new irrigation scheme has been constructed in the study area. If agricultural laborers can get their own irrigated land thanks to the new irrigation scheme and can shift from being agricultural laborers to farmers, the negative impact of agricultural mechanization, e.g. loss of work opportunities as agriculture laborers, can be mitigated. Otherwise entrepreneur training could help the workforce to change from agriculture laborers to entrepreneurs, which could be more productive for the economy. The loss of work for agriculture laborers is a sensitive issue. Careful attention needs to be paid to the social impact.

5. Development effect of the business

Although the number of power tillers, tractors, and combine harvesters has been increasing in Tanzania, it is still limited. Renting out agricultural machinery is one of the effective ways to fill the gap between demand and supply, but it is not yet available in all agricultural areas. Therefore if SeedAfrica can rent out agricultural machinery in effective ways, it will help farmers who need to rent machinery.

The level of maintenance is poor in Tanzania. Supply of spare parts is one of the crucial issues. Using third-party spare parts frequently causes agricultural machinery to break down. If SeedAfrica can provide maintenance with Japanese quality and affordable prices, it will help SeedAfrica's rental services as well as owners of agricultural machinery.

Based on this situation, the following can be the development indicators of the business.

- i) Rental service for agricultural machinery
 - The number of beneficiaries
 - The acreage
- ii) Import business of second-hand agricultural machinery, spare parts, and so on
 - The number of machines sold
 - The operating ratio of machines sold one year after sale
- iii) Maintenance of agricultural machinery
 - Number of services provided by skilled mechanics
 - The operating ratio of the machines one year later after maintenance

6. Possible collaboration between the business and JICA

The Japanese government set up the basic policy of assistance for Tanzania as “Promoting economic and social development towards sustainable economic growth and poverty reduction”, and has been supporting economic and social development along with their national strategy targeting economic growth and poverty reduction. In order to realize economic growth with poverty reduction, the agriculture sector, which absorbs three-quarters of the labor force and brings remarkable impact on economic growth, is recognized as one of the key sectors in Tanzania. The Japanese government puts a high priority on increasing paddy production in the agriculture sector.

Since this business is targeting an irrigated paddy-producing area, SeedAfrica can proceed with the business efficiently and effectively by sharing information with JICA on irrigated paddy producing areas and other information on paddy production.