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Field Study on:

Role of Female Farmers in Urban Agriculture in Khartoum State: Challenges and Opportunities

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ROLE OF FEMALE FARMERS IN URBAN AGRICULTURE IN KHARTOUM STATE

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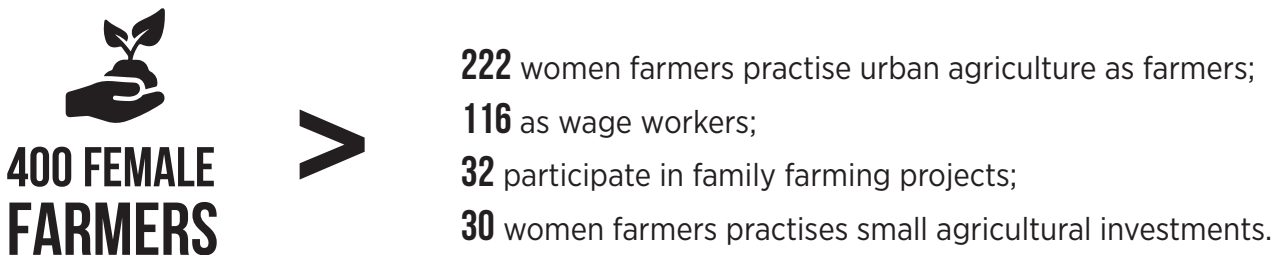
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• EXECUTIVE SUMMARY

The study aimed to shed light upon the role that women play in the rural agriculture in Khartoum State and also evaluating challenges and opportunities that face women in agriculture. The field study was conducted in four localities in Khartoum State in April 2018 by taking a random sample from **400** women farmers from different groups consist of four different categories as follows:



Data was collected by a team of **11** members of data collectors supervised by three researchers. The field work was performed in **22** areas of the localities of Omdurman, Karai, Bahri and East of The Nile and data was collected from four samples and through personal interviews and asking direct questions to the mentioned sample and then analyzing information by using ways of statistic analysis and the study concluded the following results:

- > The result of the study showed the contribution of women farmers with their different categories in the urban agriculture, the women farmers in the first category represent the real role of women in urban agriculture and they are spread in different areas of Khartoum State among them there are women farmers who belong to agricultural families and practice agriculture in their areas, there are also a group of women farmers who practised agriculture in different areas far from their place of residence, the contrast between the two groups is due to the economical and social background and controlling opportunities for resources and challenges.
- > It is discovered that waged women workers usually weak and more vulnerable to exploitation beside lack of opportunities to develop their way of life.
- > The study also showed that they are not envolved in decision-making and their lack of knowledge concerning public policies or ways of obtaining the required sources to alleviate poverty, their life is therefore confined to the poverty vicious circle.
- > Women farmers are rarely landowners despite their greater role in agricultural work. Some women farmers in the first group and the fourth group are partly involved in decision-making and have the opportunity to be empowered. The results showed that women farmers do not participate in development organizations and institutions. Women farmers perform most agricultural activities, with some assistance from waged labors to do some difficult agricultural activities. Most women farmers raise limited numbers of goats and sheep in their backyard for home consumption. These animals move freely around the house and nearby streets within the neighborhood and farm edges. There are no dairy animals due to lack of space.

- The participation of women in urban agriculture has contributed to the provision and diversification of fresh food for family members, especially improving the nutritional status. Most of the women farmers interviewed from different groups face obstacles and challenges that limit their effective role in urban agriculture, these include the lack of capital and the problem of land ownership. Lack of agricultural inputs, poor access to services, lack of formal education and exploitation of intermediaries, transport and marketing problems. Other challenges included poor road network and poor storage facilities. Most of the interviewed women farmers have limited opportunities to expand their agricultural activities and improve their livelihoods.
- The study concluded that women farmers in Khartoum State belong to different categories. Their invisible role in urban agriculture has led to a lack of recognition, with limited opportunities to improve their situation. In addition, the category of daily agricultural employment is the most vulnerable in urban agriculture. They are poor, isolated and struggling to meet daily needs, especially food.
- The exclusion of women farmers from access to inputs and services has been shown to have led to a decline in the standard of living of many agricultural families because women depend on income generated from agricultural activities to care for their families. Finally, the study concluded that women farmers in urban areas are not included in agricultural plans and agricultural support programs.



THE MAIN RECOMMENDATIONS

The following are some of the study recommendations:

- Establishing local forums to discuss the role of women in urban agriculture;
- Establishing an information and data base on opportunities and challenges for the role of women in urban agriculture, taking into account the effective dissemination of this information in order to inform public opinion;
- Empowering women farmers by providing them with the knowledge and access to their social protection rights;
- Providing a nutrition program for children in the study areas to bridge the nutritional gap, because good nutrition is especially important for children under 5 years of need for additional nutrients for growth and development.

• INTRODUCTION AND METHODOLOGY

Recently, lights have been shed upon urban and gender issues (*UNHABITAT 2010; FAO 2008*). Gender equality and social inclusion are of great significance in eradicating poverty, building a fair economy and sustainable development.

Some of the results of the studies show the importance of urban agriculture as a strategy for poverty alleviation, food security and social integration of disadvantaged groups. There has also been a long-standing debate about gender as a key factor in shaping urban agriculture.

It provides an analysis to understand the performance of the urban farming system. Urban agriculture has generally been described as a women's activity on the grounds that most urban farmers are women, especially in eastern and southern African cities. Even in West Africa, where studies have indicated that women are well represented and in some cases more than men (*Robert R. Simiyu, 2012*). Ultimately, the exclusion of women farmers from agricultural inputs and services turns women in agriculture into subsistence farmers who can only provide food for their families, while reducing their ability to raise income for themselves by selling agricultural products. *Hillary (2012)* found that excluding women from land ownership leads to a decrease in food security and reduced productivity. Similarly, *Al-Dees (2000)* noted that excluding women from access to natural resources leads to a decline in the standard of living of many agricultural families because women depend on the income they generate from agricultural activities to care for their families. The exclusion of women from policy-making in agriculture also increases women's ignorance of basic policies directed at the agricultural sector. Supporting women's participation in policy-making is a sure way to improve women's participation and contribution in defining and developing a food security project, and it can also help them realize their right to some agricultural inputs, for example, land. The World Water Day 2012 report stated that although women make up about 63% of the agricultural workforce worldwide, they still have limited participation and ownership rights in agriculture. It also states that if women are given more opportunities / rights on farms and agricultural technologies, both the family and the community will benefit. Various studies on agricultural labor have found that despite of Underemployment problems, the economic contribution of women to the family is more than half of household income (*Mencher; Saradamony, 1982*).

Data on urban agriculture in Khartoum State indicate a wide range of agricultural production systems ranging from domestic sufficiency to large-scale commercial agriculture. Crops grown in Khartoum State include a long list of vegetables, fruit trees, medicinal and aromatic plants and field crops. In addition, there are intensive animal production systems for milk, meat and poultry in and around Khartoum. With its unique location at the confluence of the Blue and White Nile, Khartoum State is an ideal location for food production and is fully geared to meet urban demands. In general, there is a lack of information on urban agriculture, as previous studies are fragmented and have limited time and space.

There is no specific study on the situation of women as farmers and their struggle to participate in a system that often fails to ensure gender equality and women's empowerment (*Daoud, Shadia, 2013*).

There is a need for a deeper understanding of the practices, motivations, problems and policy implications of Khartoum State specifically, with the emergence of a new type of gender and agriculture as a result of displacement, migration and urbanization. Research evidence is needed on the characteristics of urban women farmers, their age, socio-economic status and level of education, challenges and opportunities, as well as the impact of these factors on crop selection, field size and access.

PURPOSE OF THE STUDY

The study aims to clarify the contribution of women to urban agriculture and to analyze the challenges that limit their contribution as well as opportunities to improve their situation. The study also includes analyzing new gender patterns in agriculture resulting from migration and displacement.

SPECIAL GOALS

- Identifying the different categories of women farmers according to production patterns;
- Determining how the role of women in agriculture contributes to providing and improving household food security;
- Studying the role of urban agriculture in providing women farmers with basic or additional income;
- Studying the challenges that limit women farmers' contribution to urban agriculture;
- Studying gender roles within families such as shared responsibility, decision-making and cultural practices that affect their roles in agriculture;
- Studying the situation of women farmers working in wages;
- Exploring some opportunities to empower women farmers;
- Extracting some suggestions for future policies to empower women and improve their agricultural production in urban areas;
- Exploring the possibilities of the generalization of qualitative perspective in urban agricultural systems.

METHODOLOGY

The study relied on quantitative tools and how to achieve the objectives of the study and in order to get accurate data on the status of women in urban agriculture.

STUDY SAMPLE

The study used random sample in the application of the study, which numbered 400 women from different areas of the study population. The nature of women's invisible work in urban agriculture made it difficult to plan sampling methods to identify them. The research team made a plan with various steps to track women farmers spread throughout the state of Khartoum as follows:

- Local leaders were contacted in the areas of urban agriculture in Khartoum State;
- Benefitting from the graduates of the School of Development, Training and Rural Extension who reside in urban agriculture areas;
- Using of some agricultural extension staff from (Ministry of Agriculture, Department of Extension and Technology Transfer);
- Visiting the site by the study team;
- A joint meeting was held to draw the map on how to track women farmers (to decide on the location of women farmers);
- The study team and other partners agreed to divide women farmers into four categories to facilitate contact with them on the job.

SELECTION OF WOMEN FARMERS

The study divided women farmers into four segments, and a sample was intentionally taken from each slice using a non-random snowball model. (*See Table 1*)

Table 1: Categories of Women Farmers and Regions

Categories of women farmers	Area	Sample
Women farmers in urban areas	<ul style="list-style-type: none"> • South Omdurman • Al-Jammoiya area <ul style="list-style-type: none"> - Goz Nasser - Al Rashdab - Al Shegela - Al Salmaniya - Amor - Eid Alhad • East of The Nile <ul style="list-style-type: none"> - Osailab - Al Wifaq • Bahri <ul style="list-style-type: none"> - Al Gaily 	210
Women laborer's working in agriculture	<ul style="list-style-type: none"> - Al Gaily - Esailat - Al Halfaia - Al Gommoeia - Sorourab - Al Salha 	100

Categories of women farmers	Area	Sample
Women's Participation in Family Farming	• Omdurman Locality - Al Salha	32
The practice of agriculture as a small investment by women	• Bahri Locality - Wad Ramli	30

METHOD OF DATA COLLECTION

Four tools were used to collect data from the four categories of women farmers. The household survey questionnaire was used to collect quantitative data, and there are open questions to collect qualitative data through in-depth interviews with women working in agriculture. The questionnaire consists of open and closed questions in order to explore the roles that women play in the family, household and community agriculture. Field work was carried out by a team of 11 data collectors and three supervisors. A pre-field workshop was held to train data collectors on the use of study tools and pre-testing.

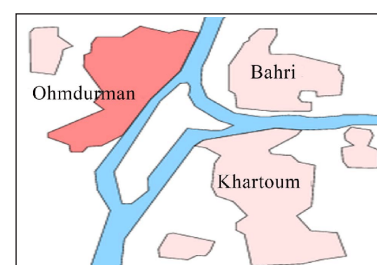
DATA ANALYSIS

The study data were analyzed using computer, where the data was processed and entered using the statistical analysis program SPSS with a focus on the calculation of frequencies and percentages.

ORGANIZATION OF THE REPORT

The report was organized into eight sections as follows:

- **Section 1:** Gender and urban agriculture in Khartoum State
- **Section 2:** Results of field survey with women farmers category I
- **Section 3:** Female agricultural waged women laborers: exclusion and vulnerability
- **Section 4:** Women's participation in the Family Farming Project
- **Section 5:** Institutional support for women farmers' family
- **Section 6:** Selected stories from some women farmers projects
- **Section 7:** Conclusion and Recommendations
- **Section 8:** Proposed strategy to include women farmers in urban agriculture in agricultural policies



Map 1: The triple city Khartoum, Khartoum Bahri & Omdurman

• SECTION 1: GENDER AND URBAN AGRICULTURE IN KHARTOUM STATE

Khartoum, the capital of Sudan, is located at the confluence of Blue Nile and White Nile (*Map 1*). The city has grown rapidly in recent years, and today its population is estimated at 7 million people including 2 million refugees. Khartoum is located in the semi-arid savannah belt in Sudan, with an average rainfall of 100-200 mm and a long dry season from September to June. A wide range of production systems can be found ranging from family self-sufficiency to large-scale commercial farming. Crops grown in Khartoum State include a long list of vegetables, fruit trees, medicinal and aromatic plants and field crops. In addition, intensive animal production systems for milk, meat and poultry work in and around Khartoum (*Kamal El-Siddiged, 2006*). Urban agriculture in Khartoum, Sudan, has contributed to meeting the increasing demand for food due to the steady increase of population, although resource consumption, spatial scale and evolution over time are not known (*J. Schumacher ed, 2009*).

There are different types of land used for urban agriculture in the state of Khartoum; they include: the land of the cliffs along the banks of the Nile River, which is flooded with river water, and where crops are grown without irrigation, as the soil is rich in silt and very fertile (*Figure 1*). Cultivated crops include leafy vegetables, onions, okra, garlic, radish, cabbage and lettuce. Al Ghurair is located next to the cliffs and is subject to moderate flooding. Its soil consists of alluvial sediments (*Fig. 2*). It is irrigated by groundwater (pumps). The crops are potatoes, tomatoes, onions, feed and fruits. The land of high furrows is located on the underside of the flood plain (*Figure 3*). They are of a sandy loam or mud soils with moderate salinity, which are used by public and private agricultural projects and agricultural cooperatives.



(Fig. 1) Cliffs land



(Fig. 2) Ghurair land



(Fig. 3) Land of high furrows

With its unique location at the confluence of the Blue and White Nile, Khartoum State is an ideal location for food production and is entirely geared to urban needs: crop production is practiced on 77,000 hectares in the 2005-2006 winter season. About 54% of this area is located in the urban part of the state. Larger crop production from semi-urban areas comes from private and cooperative projects. Most of the cultivated area in the 2005-2006 season was devoted to forage crops (55%), followed by vegetables (27.4%), fruits (6.4%), field crops (3.2) and spices (1.3%). (*Kamal El-Siddiged, 2006*).

THE ROLE OF WOMEN IN URBAN AGRICULTURE IN KHARTOUM STATE

The desk study indicates the lack of data on the contribution of women to urban agriculture in Khartoum State. Despite their important role, women farmers in Sudan are still largely excluded from access to empowerment tools that can enhance their productivity and livelihoods, namely funding (for improved seed purchase, hand tools and land, and savings/insurance to mitigate shocks and risks), Labor (for land preparation, agriculture and cleaning), and technical knowledge (about fertilizers, pesticides and other agricultural techniques for conservation) (*Kevane, Michael, 2006 and Daoud, Shadia, 2013*).

• SECTION 2:

RESULTS OF THE FIELD SURVEY WITH WOMEN FARMERS CATEGORY I

The study was conducted with 222 women farmers practicing agriculture in owned or leased lands. The study divided this group into two groups according to their ability to control and control resources.

THE FIRST GROUP

One hundred farmers from the Jammouiya area were interviewed who were farming in their places of residence.

SOCIO-ECONOMIC CHARACTERISTICS

Table 2 illustrates the socio-economic characteristics of women farmers. 78% of women farmers aged 15-55 years, 35% of women farmers are illiterate, 64% are currently married while 14% are single and 17% are widows. The majority of 53% of the women farmers interviewed were from nuclear families. In terms of household size, 82% of them have 6-10 people per household. It was also found that women farmers' families had a large number of children under the age of five. 25% of women farmers declare their families. 71% of women farmers depend on agriculture as their main source of income.

Table 2: Frequency distribution of women farmers by socio-economic characteristics

Socio-economic characteristics	Frequency	Percentage	Socio-economic characteristics	Frequency	Percentage
Age			Level of Education		
• 15-25	4	4	• Illiterate	33	33
• 26-35	26	26	• Primary	51	51
• 36-45	35	35	• Secondary	11	11
• 46-55	14	14	• University	5	5
• 56 and above	22	22			
Total	100	100	Total	100	100
Marital status			Family type		
• Not engaged	14	14	• Nuclear	53	53
• Married	63	63	• Extended	47	47
• Divorced	6	6			
• Widow	17	17			
Total	100	100	Total	100	100
Number of family members			Number of children		
• 6-10	82	82	• I do not have	0	0
• 11-15	12	12	• Less than 5	14	14
• 16-20	6	6	• 6-10	70	70
• more than 20	0	0	• 11-15	16	16
Total	100	100	Total	100	100
Who is the head of the family?			Source of income		
• Me	25	25	• Agriculture	71	71
• The husband	40	40	• Agriculture and other sources	29	29
• The father	30	30			
• The son	5	5			
Total	100	100	Total	100	100

TYPES AND PATTERN OF CULTIVATION

71% of women farmers practice full-time farming while only 29% practice part-time agriculture. Self-sufficiency farming is the main mode of cultivation, which is practiced by 76% of women farmers while 24% practice commercial farming on small farms and only 4% of women farmers practice mixed farming. (Figures 1, 2 and 3)

Figure 1:
Types of work in Agriculture

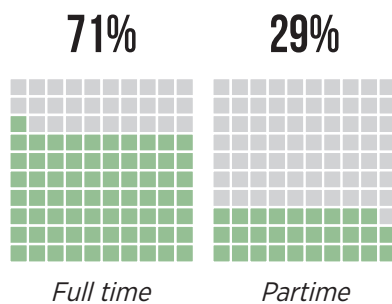


Figure 2:
Patterns of Agriculture

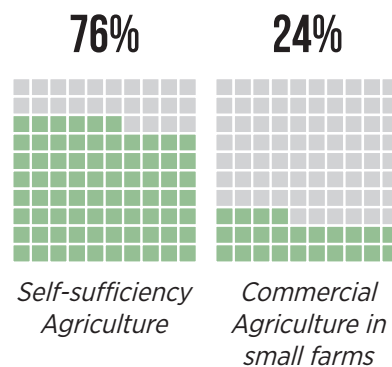
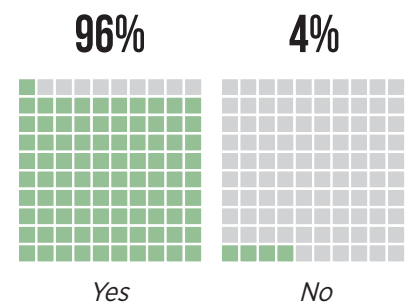


Figure 3:
Practicing mixed Agriculture



LAND OWNERSHIP AND SOURCE OF EMPLOYMENT

Women farmers use multiple ways to acquire land, 45% of them own land, 22% use family land, 22% rent the land and 11% use co-farming to acquire land. Most women farmers hire labor in addition to family labor, 27% of women farmers depend on family labor only. (Figures 4 and 5)

Figure 4: Land ownership

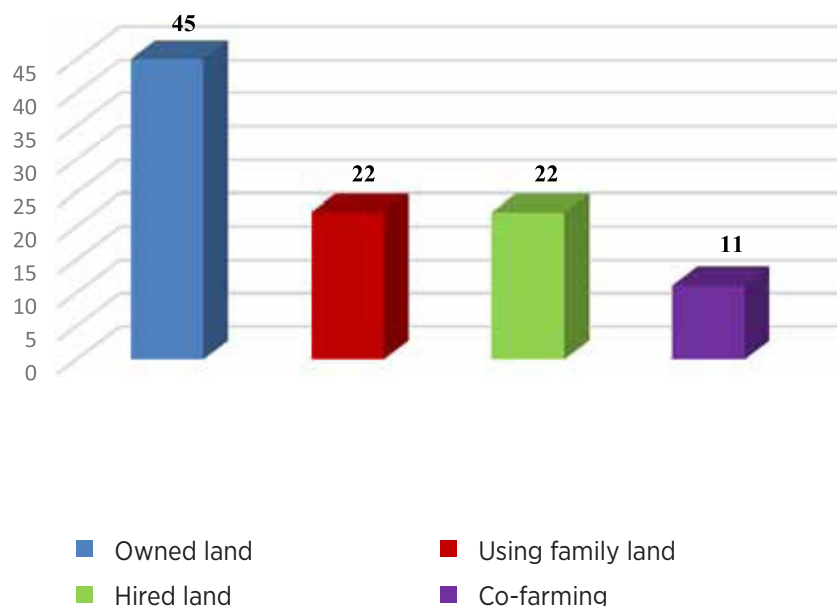
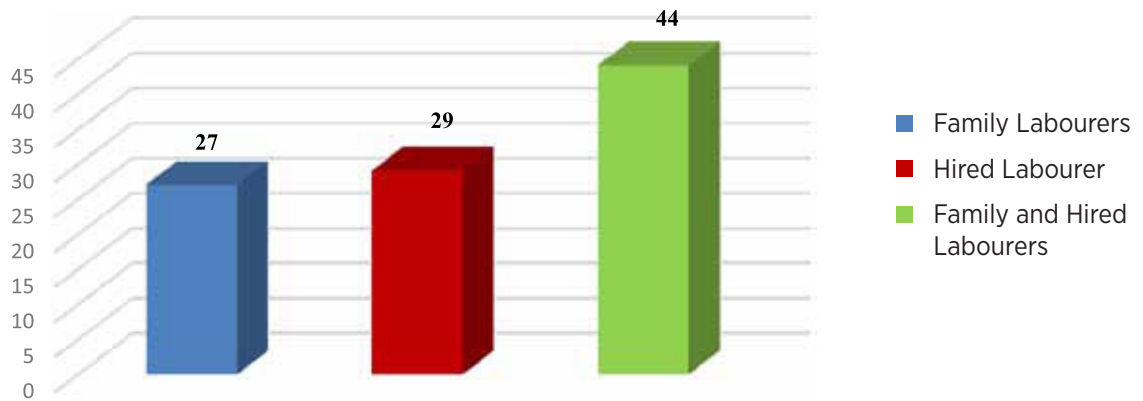


Figure 5: Source of Labourers



WATER SOURCE AND IRRIGATION PATTERN

Women farmers do not have problems irrigating their planting as shown in *Figure (6)*. There are 66% of irrigated agriculture from the Blue Nile and 30% of seasonal water while only 4% of groundwater. 50% of female farmers use diesel pumps to irrigate "Al Ghurair" and 30% use flood irrigation. (*Figure 7*)

Figure 6: Sources of Water

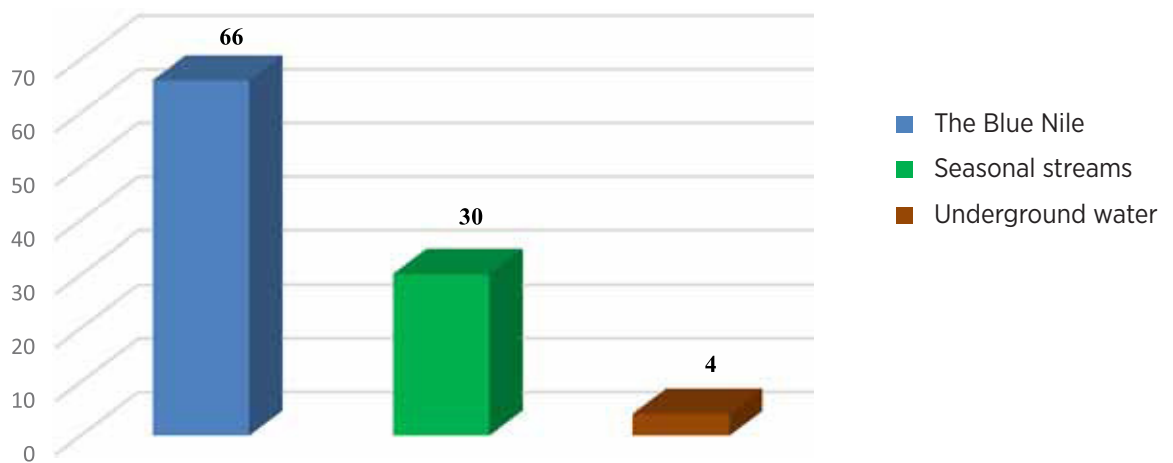
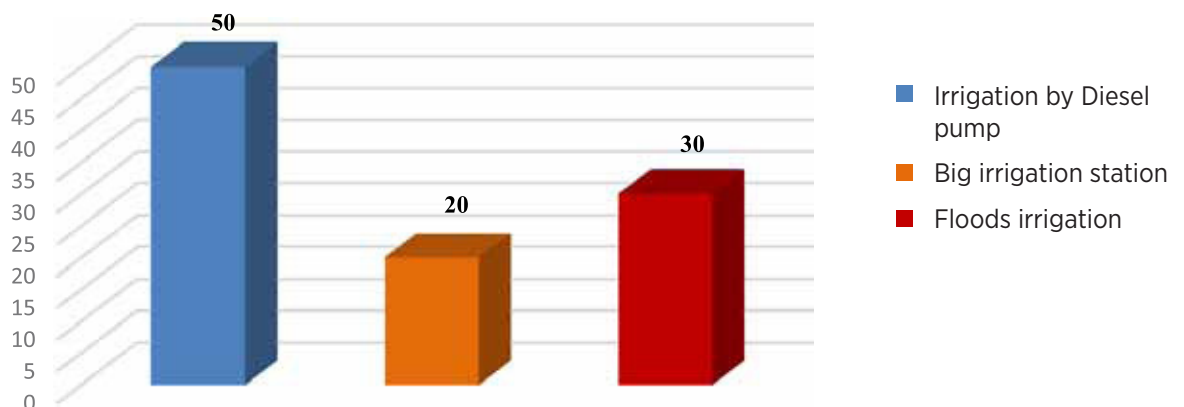


Figure 7: Irrigation Systems



CROPS AND ANIMAL PRODUCTION

Female farmers grow different types of crops, arranged as follows: okra and all types of vegetables (tomatoes, peppers, cucumbers, legumes (cowpea, Egyptian beans, kebkabi), corn and roselle). Animal production relatively large number of women farmers 84 % keep animals, where they keep about (3-5) small ruminants (such as lamb and goats) for domestic consumption. These animals graze freely around the streets of the neighborhood and farm parties. There are no dairy animals because there is no grazing space. (*Table 3*)

Table 3: Frequency distribution of women farmers based on animal production

Categories	Frequency	Percentage
Poultry kept inside the backyards	3	3
Goats kept inside the backyards	66	66
Poultry and Goats kept inside the backyards	15	15
No animals	16	16
Total	100	100

USE OF FERTILIZERS

Chemical fertilizers are used by 30% of women farmers while 70% use organic fertilizers. (*Figure 8*)

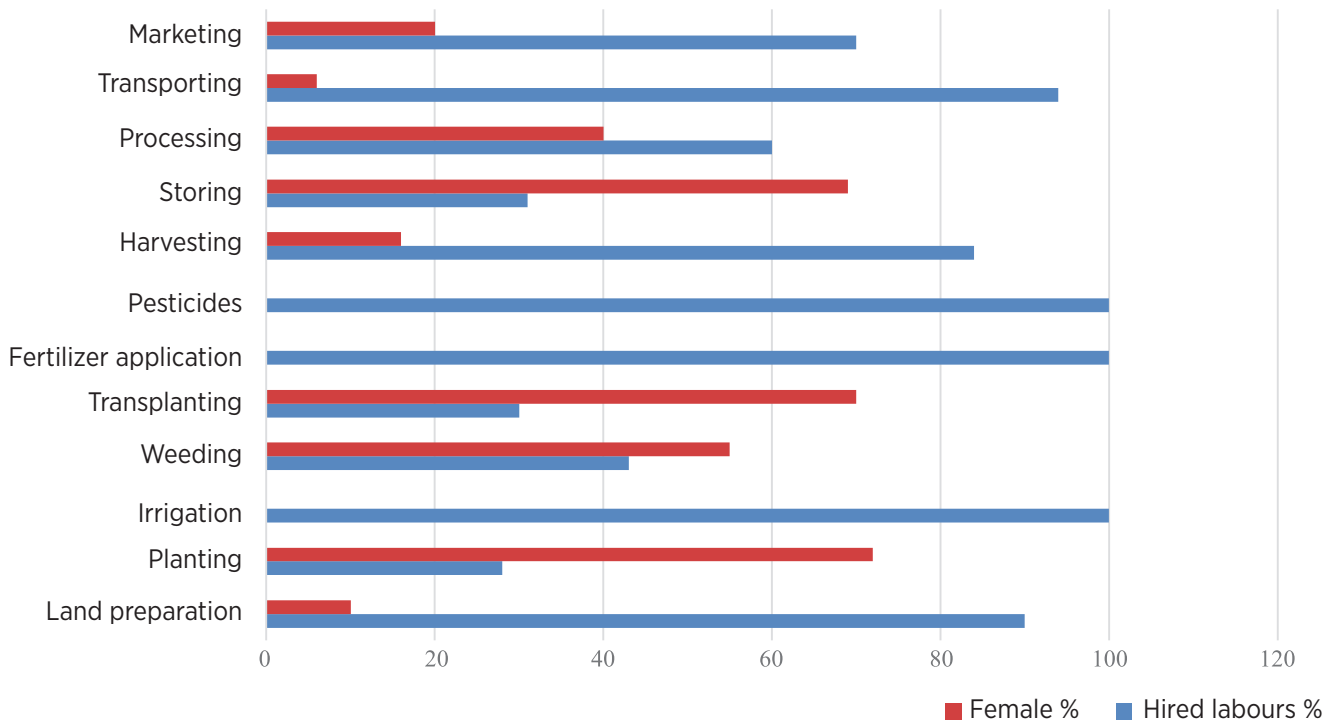
Figure 8: Type of used Fertilizer



RESPONSIBILITIES OF WOMEN FARMERS IN AGRICULTURE-RELATED ACTIVITIES

Most agricultural activities are performed in different ways. 90% of women hire workers to prepare land that depletes the energy most women cannot do themselves. (Figure 9)

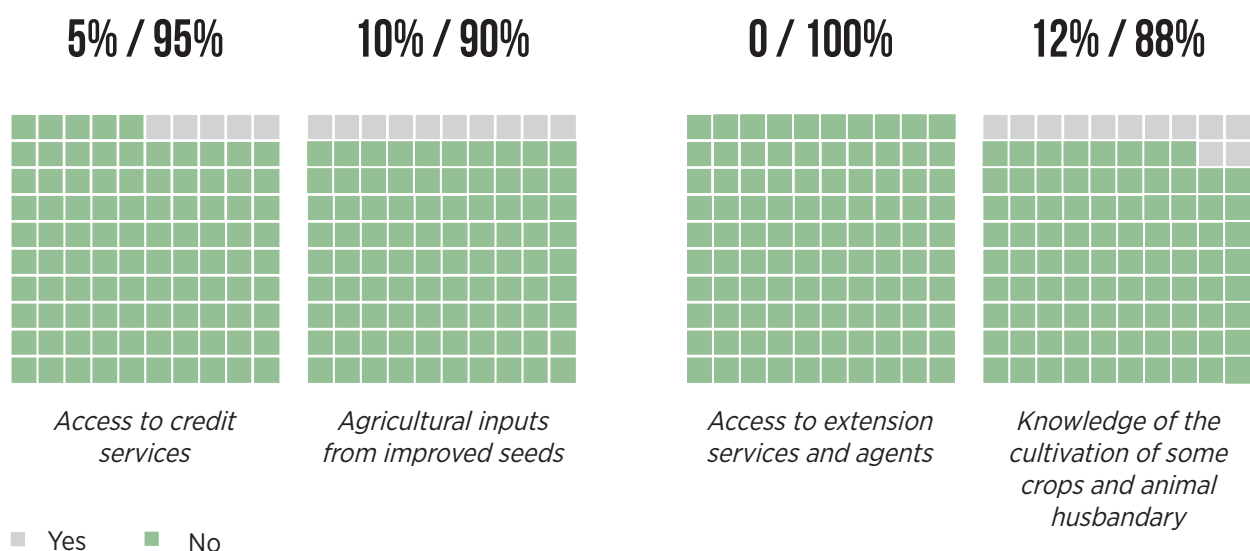
Figure 9: Tasks related to Urban Agriculture



ACCESS AND CONTROL OF RESOURCES

Figure (10) below shows that women farmers are excluded from agricultural inputs and services. Only 5% had access to development services, and 10% had access to improved seeds, while none of the women farmers had access to extension services.

Figure 10: Access to Inputs and Agricultural Services



THE BENEFITS OF URBAN AGRICULTURE

(Table 4) shows that women farmers benefited from urban agriculture specifically in the area of food security and income generation, as 40 % of women farmers showed their sufficiency in the income they received from urban agriculture.

Table 4: Frequency distribution of women farmers according to the benefits of urban agriculture

Categories	Frequency	Percentage
Benefitting from Urban Agriculture		
• Yes	70	70
• No	30	30
Total	100	100
Household Consumption- Food Security		
• Yes	82	82
• No	18	18
Total	100	100
Increase income		
• Yes	80	80
• No	20	20
Total	100	100
Satisfaction with income		
• Yes	40	40
• No	60	60
Total	100	100

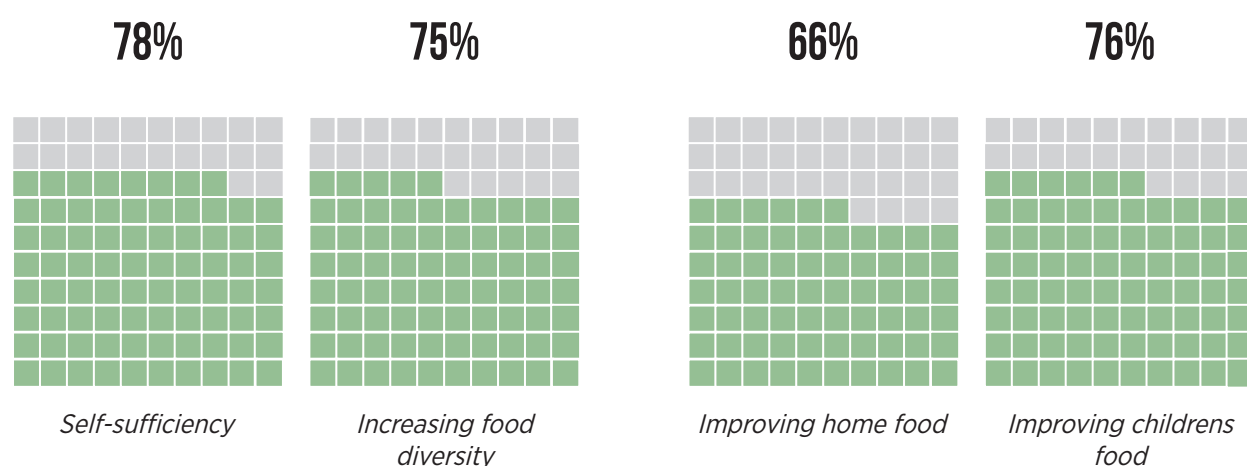
FOOD SECURITY AND NUTRITION

It was very difficult to judge the levels of nutrition from field visits and respondents without a proper survey. The earliest method that could be used for this purpose was to know the type of crops grown, assuming they were intended for consumption and the pattern of mono-cultivation of okra gives an indication that the diet consists largely of this crop. Urban agriculture has helped the poor face the scarcity of food and hunger. Growing crops or raising livestock in the backyard of homes or on untapped land has helped improve food sources and provide income for the urban poor.

Urban agriculture improves food security by providing healthy and abundant alternatives to purchased food, especially for poor households. Urban farming families also receive a wide range of nutritious foods such as vegetables and animal products

It was difficult to determine whether agriculture was associated with improved nutrition in children. The results in *Fig. 11* showed that 78% of women farmers had adequate food, while 66% of women farmers reported improvements in household food, 75% reported an increase in food diversity, and 76% reported an improvement in children's food.

Figure 11: The role of Urban Agriculture in Food Security



DECISION MAKING

(Table 5) indicates that decisions about whether or not to practice agriculture are made by women. Animal husbandry, consumption and distribution of food within households and how to produce and sell products are male decisions.

Table 5: Frequent distribution of women farmers according to their participation in decision-making tasks related to urban agriculture

Tasks related to urban agriculture	Males %	Females %	Both
Use of the land	66	24	10
What do they produce?	60	20	20
When do they produce?	60	10	30
Where do they produce?	80	10	10
Why do they produce?	20	70	10
How do they produce?	70	20	10
Animal breeding	0	80	20
Food consumption and division	0	100	0
Selling the products	60	20	20

INSTITUTIONAL SUPPORT

85% of the women farmers interviewed lack institutional and social support, while only 15% are involved in women's organizations. (Figure 12)

Figure 12: Women Organizations

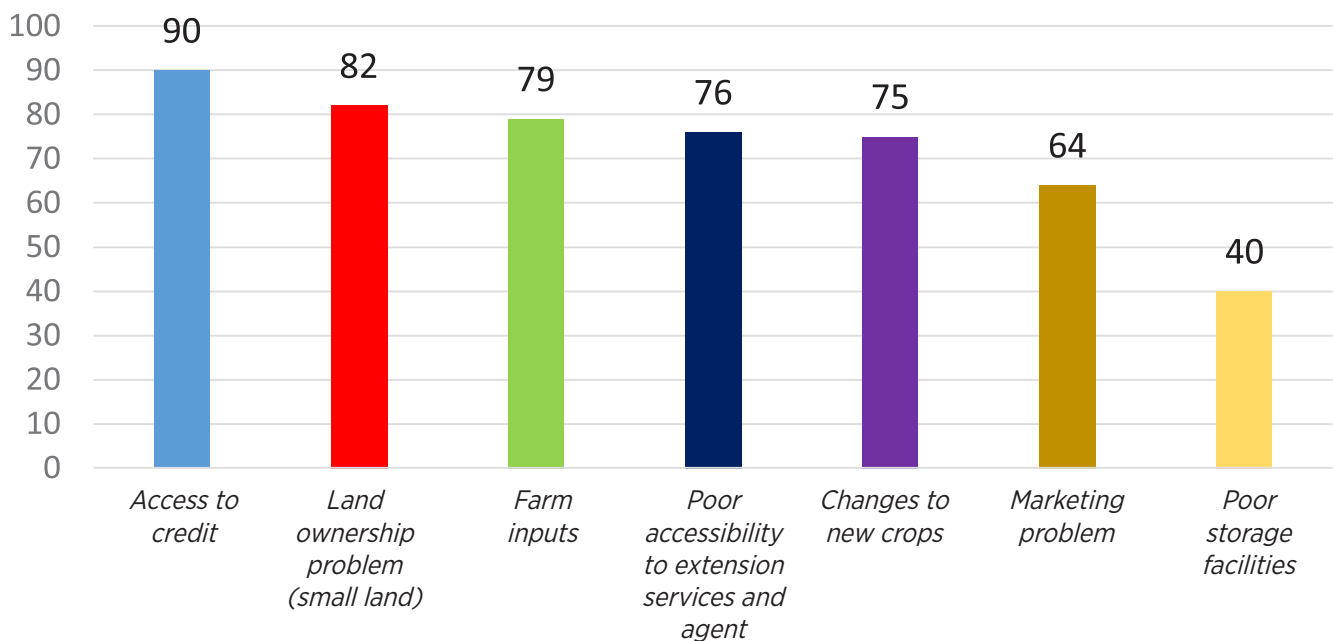


CHALLENGES AND OPPORTUNITIES

• Challenges facing women in Urban Agriculture

The challenges women farmers face in agricultural production vary from farmer to farmer and from place to place. The diagram below shows the order of some of the problems identified by women farmers in the study area. These include the lack of credit facilities, the problem of land ownership (small land), agricultural inputs, poor access to extension services, lack of formal education and the problem of intermediaries in marketing. There are other challenges including bad network, roads and services, problems with storage and marketing. (Figure 13)

Figure 13: Challenges facing women in Urban Agriculture



Box 1: Women farmers' voice regarding challenges

The voice of women farmers about challenges**Access to finance**

- The lack of banks and financial institutions in the region;
- There are no women's agricultural organizations that can help us get credit;
- Lack of agricultural cooperatives;
- We are isolated from the center (services);
- We fear the risk if our crops fail;
- We do not meet the criteria for obtaining loans;
- We can accept funding through agricultural regulations;
- We love getting a loan but don't know how;
- Challenges of increasing production;
- Lack of access to improved seeds or difficulty in accessing them;
- Lack of knowledge of the use of pesticides;
- Lack of agricultural extension;
- Irrigation time and methods;
- Lack of use of technical methods.

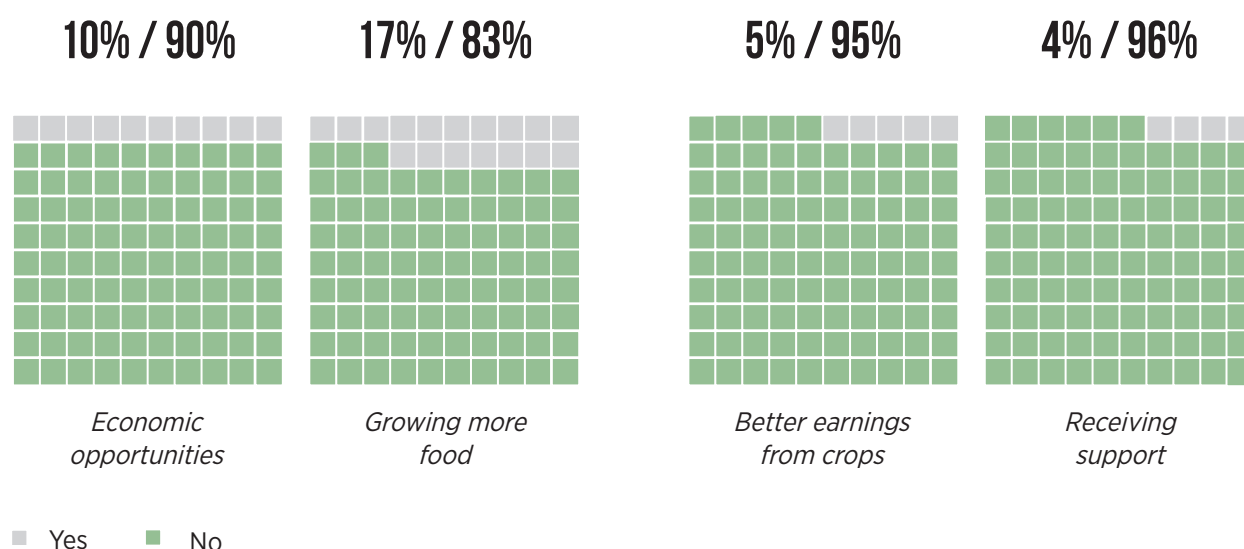
**Small land area**

- Small land area limits the cultivation of new crops;
- The land is not enough to grow what we need to meet our needs;
- The small land area prevents us from planting fruit trees;
- We don't have money to rent big land;
- The land is very small and has only one acre;
- Changes in new crops;
- Crop cultivation has a high economic return such as Egyptian beans;
- Change to cash crops;
- We have no information on crop prices;
- We have no knowledge to introduce new crops;
- Use of some techniques / technical packages;
- We are excluded from extension services.

• Opportunities

Women farmers had very limited opportunities to grow more food, while 40% of women farmers had very little opportunity to grow cash crops, and the majority did not receive support. (Figure 14)

Figure 14: The opportunities for women farmers in urban agriculture



THE FIRST CATEGORY THE SECOND GROUP

The following information was monitored and collected on 122 women farmers in 6 districts of Khartoum State.

• Social and Economic Qualities

Women farmers aged 15-55 years represented 91% of the sample and 67.2% were in quantities. Of these, 44.4% were married, 44.2% were unmarried, 10% were widows, 68% were from large families, and 88.5% were from 6-10 members. 28.7% of them support their families and agriculture is their main source of income. (Table 6)

Table 6: Frequency table and percentages of socio - economic characteristics of women farmers

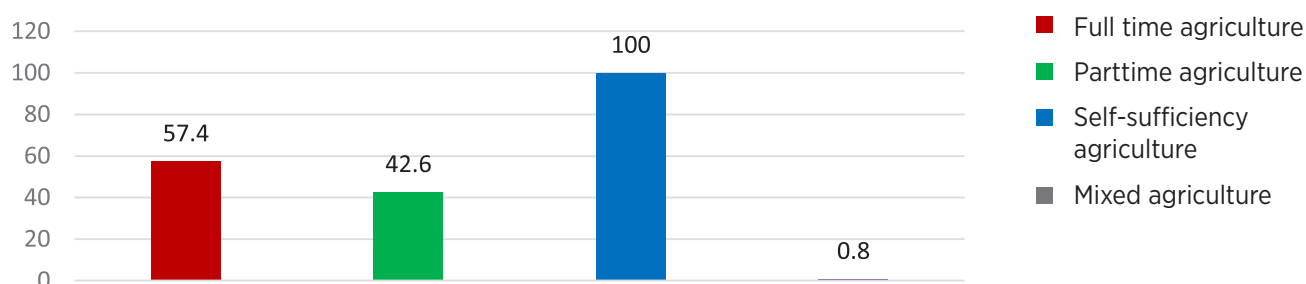
Socio-economic characteristics	Frequency	Percentage	Socio-economic characteristics	Frequency	Percentage
Age			Level of Education		
• 15-25	40	32.8	• Illiterate	82	67.1
• 26-35	38	31.1	• Primary	33	27
• 36-45	24	19.8	• Secondary	7	5.9
• 46-55	9	7.8	• University	0	0
• 56 and above	11	9			
Total	122	100	Total	122	100

Marital status <ul style="list-style-type: none"> • Not engaged • Married • Divorced • Widow 	57 57 2 6	44.2 44.2 1.6 4.9	Family type <ul style="list-style-type: none"> • Nuclear • Extended 	83 39	68 32
Total	122	100	Total	122	100
Number of family members <ul style="list-style-type: none"> • 6-10 • 11-15 • 16-20 • more than 20 	108 12 2 0	88.6 9.8 1.6 0	Number of children <ul style="list-style-type: none"> • No children • Less than 5 • 6-10 • 11-15 	90 20 12 0	73.8 16.4 6.8 0
Total	122	100	Total	122	100
Who is the head of the family? <ul style="list-style-type: none"> • Me • The husband • The father • The son 	35 39 40 8	28.7 32 32.8 6.5	Source of income <ul style="list-style-type: none"> • Agriculture • Agriculture and other sources 	60 62	49.1 50.9
Total	122	100	Total	122	100

• Types and Patterns of Agriculture

57.4% of the sample of women farmers are engaged in full-time agriculture while 42.6% of them are part-time farmers. Self-sufficiency agriculture is the main pattern for all women farmers at 100%, while 0.8% of women farmers practice mixed farming. (Figure 15)

Figure 15: Types and patterns of agriculture



• Land ownership and labor resources

Women farmers used several methods to obtain land, only 5.7% owned their land, while 6.6% used land belonging to their parents. 63.1% of women farmers who rent labor in addition to family labor in addition to 19.7% depend on family labor. (Figure 16 and 17)

Figure 16: Land ownership

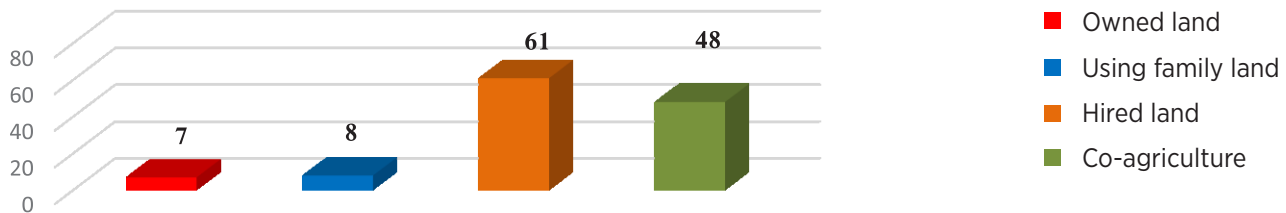
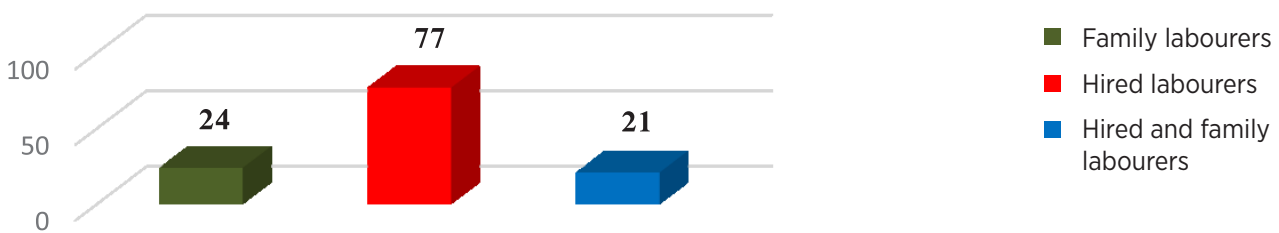


Figure 17: Sources of labours



WATER SOURCES AND IRRIGATION PATTERN

Wastewater irrigation is not a problem for women farmers. The study showed that 66% of them depend on irrigation from the Blue Nile, 40% rely on irrigation through seasonal rivers, and 4% will use groundwater. 63.1% of women farmers used diesel pumps to irrigate muddy land, while 36.9% of them managed flood irrigation. (Figure 18 and 19)

Figure 18: Sources of water

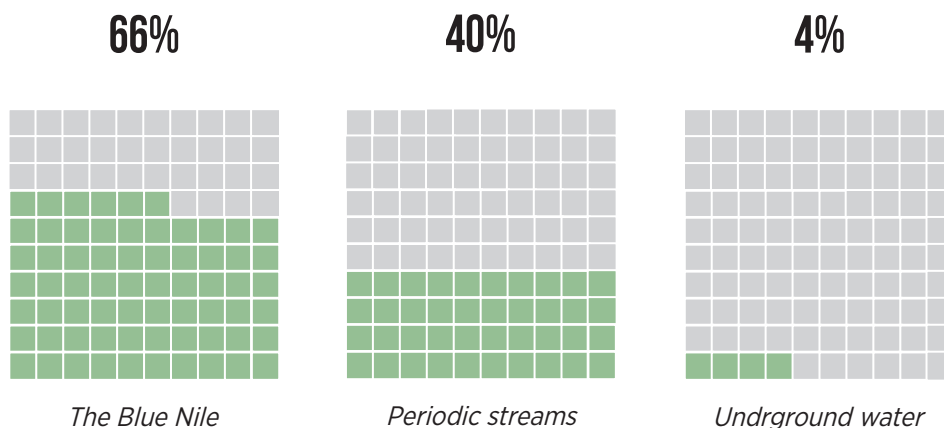



Figure 19: Irrigation systems



CROP AND ANIMAL PRODUCTION

• Crop Production

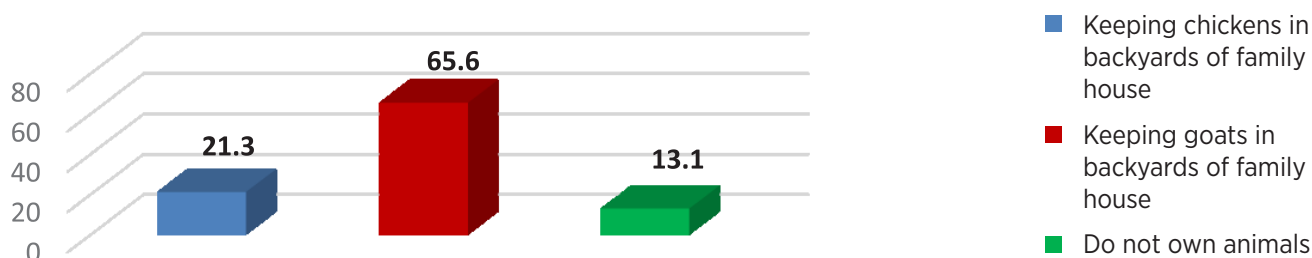
Box 2: Crops grown by women farmers

Crops grown by women farmers	
<p>Women farmers cultivate different types of crops In the following order:</p> <ul style="list-style-type: none"> • Okra; • Vegetables (tomatoes, calves, green peppers); • Briquettes (beans, Egyptian beans and Quebec); • Corn; • Feeds; • Roselle. 	
	

• Animal Production

A large number of women farmers (86.8%) raise animals. The number ranges between 3-5 small ruminants for sale or domestic use. These animals are left free in the vicinity of the house or streets near the house or in the vicinity of farms. There are no dairy animals due to the lack of grazing areas and the small spaces. (Figure 20)

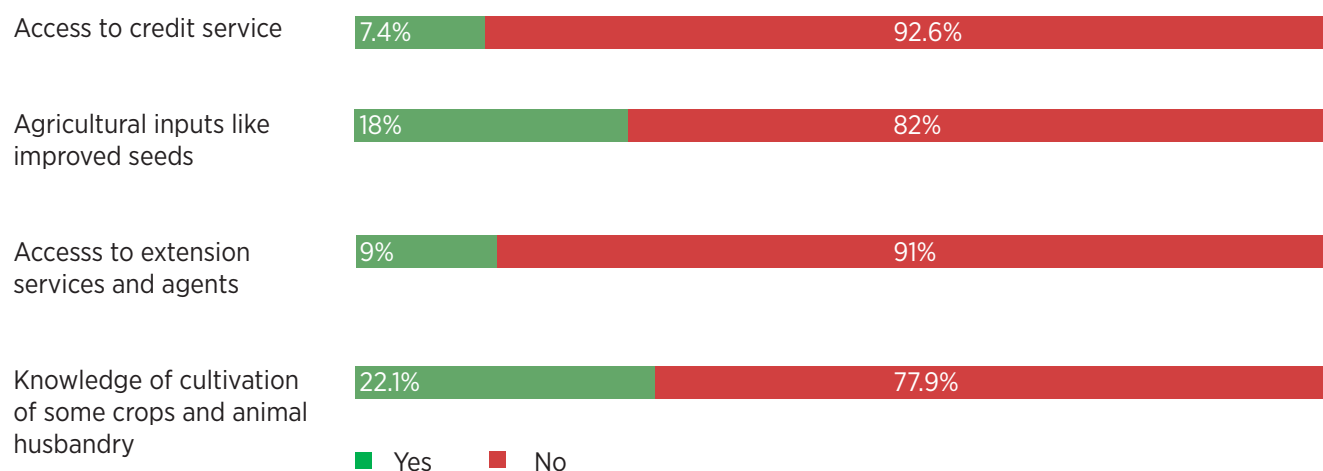
Figure 20: Animal production



ACCESS TO PRODUCTION INPUTS AND SERVICES

Figure (21) below illustrates the exception and exclusion experienced by women farmers in access to agricultural inputs and services. The study showed that 7.45% of women farmers received financial services, 18% of them received improved seeds and 9% of them received extension services.

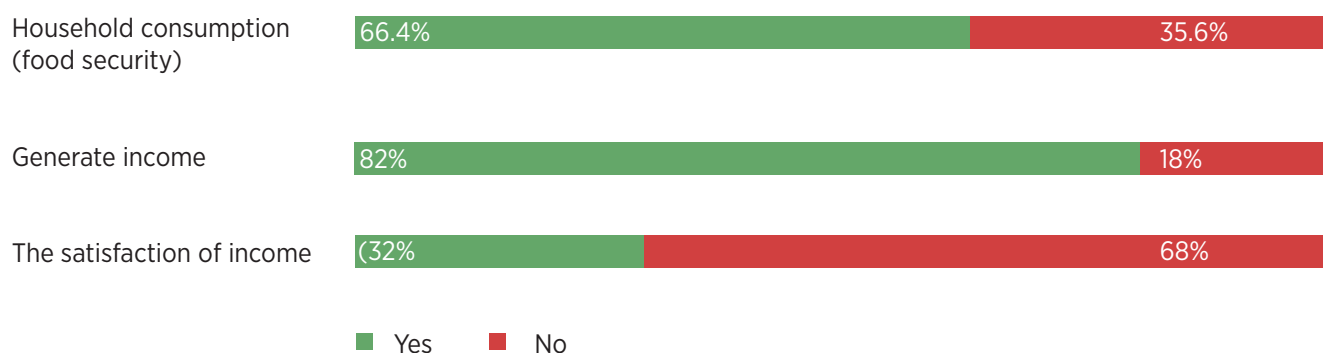
Figure 21: Access to inputs and agricultural services



BENEFITS OF URBAN AGRICULTURE

The study showed that urban agriculture has several benefits, especially in food security and increased income for women farmers, 32% of whom are satisfied and have improved their income from urban agriculture. (Figure 22)

Figure 22: Benefits of Urban Agriculture



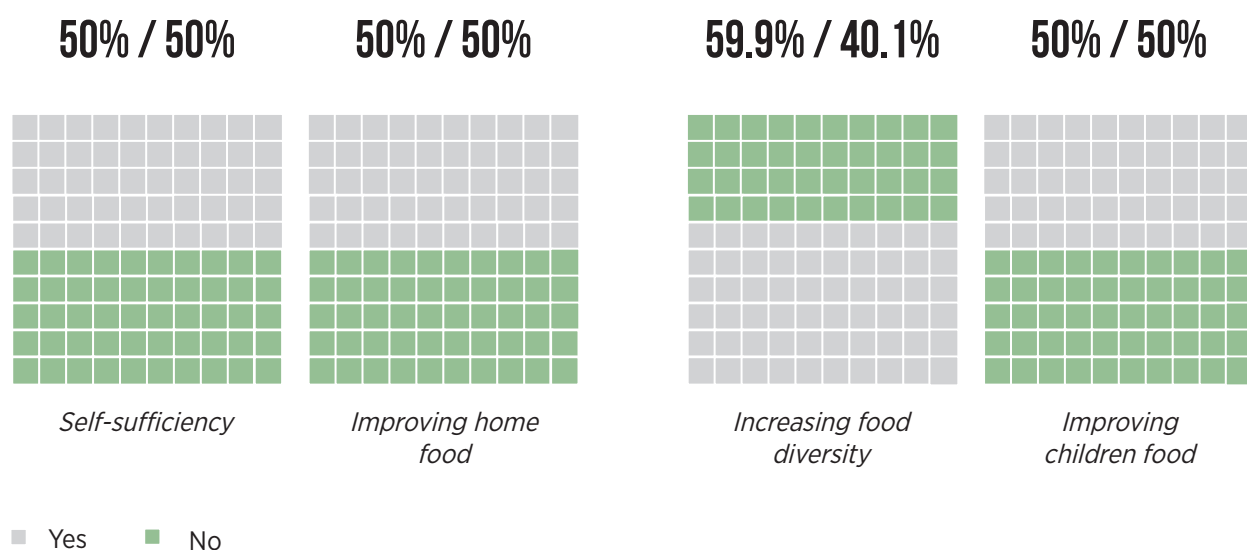
FOOD SECURITY AND NUTRITION

It was very difficult to judge the levels of nutrition in the sample of field visits without a good survey. However, the measurement used was according to the type of crop planted, assuming that these crops were grown for personal consumption. It is clear from the pattern of growing one crop (okra) that the meal consists of this crop.

Urban agriculture also helps poor people cope with food scarcity and hunger. This is available by growing crops and raising animals in the backyards of the house or in unreconciled areas. They improve food sources and provide income opportunities to poor urban households. Urban agriculture improves food security by providing healthy food and abundant alternatives to food sold, especially to poor households.

Urban farming households also have access to a variety of nutritious foods such as vegetables and animal products, but it has been difficult to establish a relationship between agriculture and improved nutritional status of children. As shown in *Table 18*, 50% of women farmers are self-sufficient Urban agriculture, while the other 50% showed improved livelihoods at the household level, and 59.9% indicated an increase in dietary diversity and 50% improvement in child nutrition.

Figure 23: The role of urban agriculture in food security



DECISION-MAKING

The study showed that 60% of women farmers are responsible for their decision to practice urban agriculture or not. They also decide on animal husbandry and their use and the distribution of food within the family. As for the use of land, what is produced, how and how to dispose of the sale proceeds, it is controlled by men.

Table 7: Frequency distribution and the percentage of decision-making for men and women on agriculture-related issues

Tasks related to urban agriculture	Males %	Females %	Both
Use of the land	80	10	10
What do they produce?	20	60	20
When do they produce?	30	40	30
Where do they produce?	20	60	20
Why do they produce?	20	70	10
How do they produce?	70	20	10
Animal breeding	0	80	20
Food consumption and division	0	100	0
Selling the products	20	60	30

INSTITUTIONAL SUPPORT

Lack of institutional support adversely affects women's practice of urban agriculture. The concept of urban agriculture, coupled with poverty, contributes to the loss of the voices of these women farmers. All the women farmers interviewed lacked institutional and social networking support, while only 5.7% were involved in women's organizations. 99.2% did not have informal civilian groups. (Figure 24)

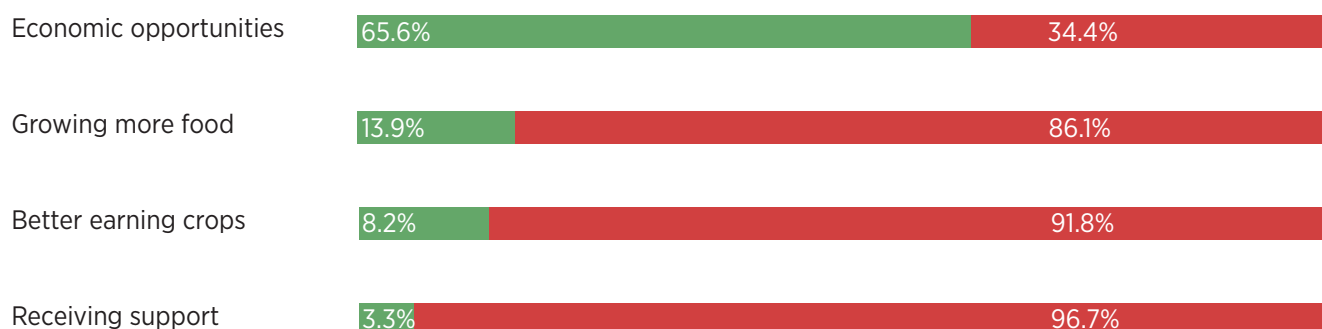
Figure 24: Women's Organization



OPPORTUNITIES

Women farmers have limited opportunities to grow food crops, while 40% have little opportunity to grow cash crops, the majority of which do not receive aid. (Figure 25)

Figure 25: Available opportunities in Urban Agriculture

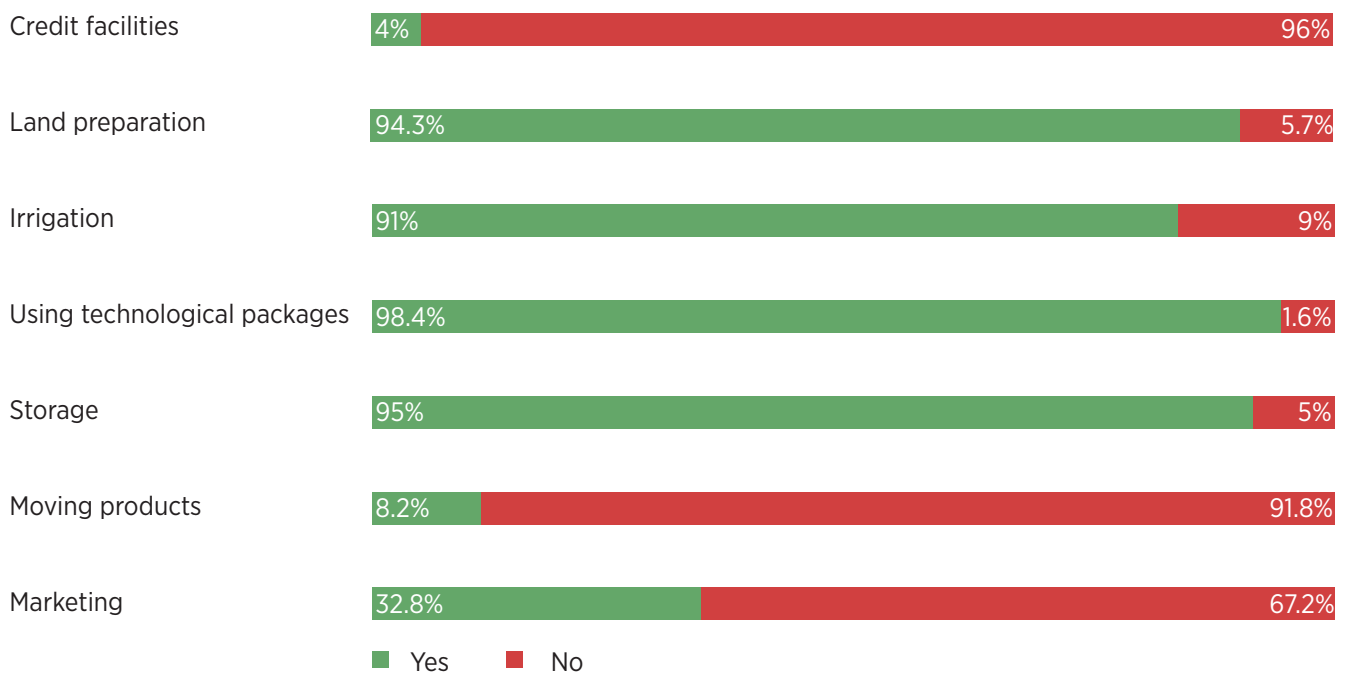


■ Yes ■ No

CHALLENGES

The challenges women farmers face in agricultural production vary from farmer to farmer and from site to site. The figure below reveals the order of some of the problems identified by women farmers in the field of study. These challenges include the lack of credit facilities, the problem of land ownership (small land), agricultural inputs, poor access to extension services, changes in new crops, and the lack of formal education and the problem of marketing intermediaries. Bad road network, poor storage facilities, and marketing problem.

Figure 26: Challenges in Urban Agriculture



• SECTION 3: FEMALE AGRICULTURAL WAGED WOMEN LABORERS: EXCLUSION AND VULNERABILITY

INTRODUCTION

A total of 116 female agricultural daily-waged laborers were interviewed using a deep interview.

SOCIO-ECONOMIC CHARACTERISTICS

- The majority (71.6%) of the workers interviewed were under 40 years of age;
- Their literacy rate was low, 62.1% were illiterate and only 1.2% had completed secondary school;
- 51.7% of agricultural workers are married while 48.3% are single (divorced and widowed). 60% of the workers interviewed have recently been displaced from different parts of Sudan, especially in Darfur and South Kordofan (conflict zones);
- The majority of working women belonged to large families, 66.4% of whom had family sizes ranging from 10 to 12 while 8.6% of them had more than 12 families;
- The majority (60.3%) of the women interviewed are families of their families, while 39.7% of the house holds are headed by fathers and husbands;
- About 48.3% of agricultural workers are housewives before doing this work, 30.3% are women farmers in their area, while 16.3 are doing the same work. (*Table 8*)

Table 8: Frequency distribution of women 's employment according to socio - economic characteristics

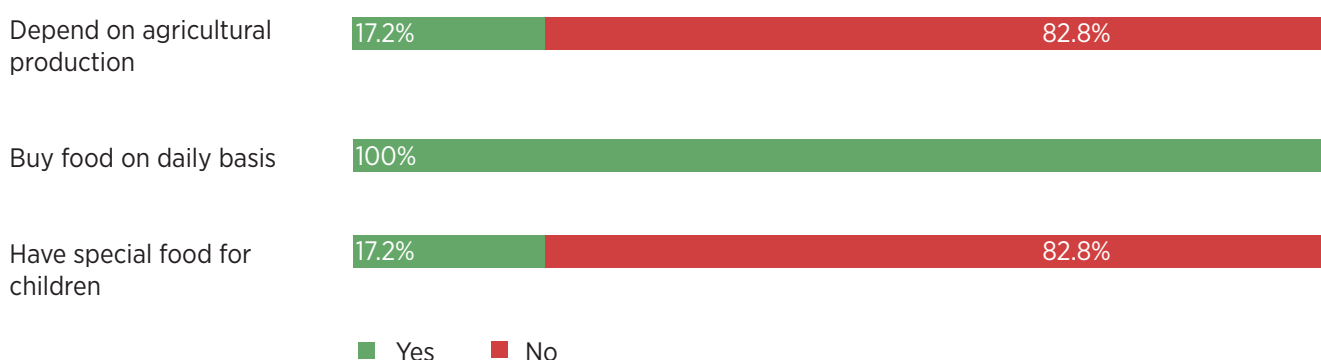
Question	Frequency	Percentage	Question	Frequency	Percentage
Age			Level of Education		
• Less than 20	21	18.1	• Illiterate	42	36.2
• 21-30	35	30.2	• Literate	72	62.1
• 31-40	27	23.3	• University graduates	2	1.7
• 41-50	17	14.6			
• 51 and above	16	13.8			
Total	116	100	Total	116	100

Marital status <ul style="list-style-type: none"> • Single • Married • Divorced • Widow • Separated 	38 60 3 12 3	32.8 51.7 2.6 10.3 2.6	Original horne <ul style="list-style-type: none"> • Khartoum • Darfur • Kordofan • Gazira • Northern State 	40 43 25 4 4	34.4 37.2 21.6 3.4 3.4
Total	116	100	Total	116	100
Family size <ul style="list-style-type: none"> • Less than 10 • 10-12 • more than 12 	29 77 10	25 66.4 8.6	Head of the family <ul style="list-style-type: none"> • Herself • husband or father 	70 46	60.3 39.7
Total	116	100	Total	116	100
What was your job before that? <ul style="list-style-type: none"> • Agricultural worker • Farmer • Housewife • Other 	19 35 56 6	16.3 30.3 48.3 5.2			
Total	116	100			

FOOD SECURITY

All agricultural workers interviewed are poor and receive food on a daily basis, and most of them work overtime to get food. All the women farmers interviewed had no special food for their children and had difficulties in providing food for their families, especially children. (Figure 27)

Figure 27: Food security



PARTICIPATION OF WOMEN FARMERS IN WOMEN'S ORGANIZATIONS

The study pointed to the exclusion of paid workers from the institutions and organizations representing them. There were never all women workers involved in women's organizations. (Figure 28)

Figure 28: Women's Organization

No 100%

CASE STUDIES

This section presents five case studies on the situation of women agricultural workers, weaknesses, challenges and opportunities.

Box 3: Case study (1) Non-waged employees in agriculture in Al-Sururab area

Unwaged agricultural workers - Al Sarurab (Karari Locality)

Sororab is an agricultural area famous for onion production. There are 16 agricultural workers working to clean and harvest onions. Their wages are paid in kind like onions. They are displaced from different tribes from all over Sudan, living far from the Sururab area. All come from poor, excluded families who practice simple jobs to support their families.

Job description

Women work hard without cash. One man also said, *"A man doing the same job has been paid."* Most women have been involved in this work for the past 20 years, and some young women have recently joined. Work takes time and consumes energy, as the average working hours is 5 hours per shift, some women work in two shifts (10 hours a day).

Problems facing women working in agriculture without wages

- It's hard work walking a long distance to get to the workplace;
- It's hard work but how can we complain?
- I use a donkey because I don't have the means for transportation;
- Sometimes I have difficulties marketing our products;
- Work need to stay all day (5 hours), when finished, come back to the house where I do all the housework;
- Working hours are from 9 am to 5 pm, and we live far away and arrive almost at night to our homes.

Reasons for doing this work

- We have no land to practice farming;
- We are very poor and need to support our families;
- We are displaced without property;
- This is the only alternative work available to us;

- Work is available all year round;
- I work during school holidays to pay for my school;
- Other family members doing the same work. All the women interviewed had a family member doing agricultural work: most were female;
- I have five members of my family working as agricultural workers;
- We as a family practice this work to meet our needs;
- Small income because we sell products at low prices;
- We hope to work three shifts to increase more income to support our poor families;
- We use most of our income to buy food (food is very expensive);
- I have goats to secure milk for my children;
- I have five goats that help me increase income and provide milk for my children.

Impact of work on socio-economic empowerment

- Without this work we would not be able to survive;
- It's hard work but at least we can get something that supports our families;
- This work gave me a daily income;
- I buy food for my children from this work.

Suggestions for improving work status and relationships

- Owners must involve us in the agricultural process to get good pay;
- Providing a small plot of land for collective farming;
- To improve harvesting techniques to facilitate difficult work.

Box 4: Case study (2) Halfaya locality

Al Halfaia Locality

Women waged farmers were interviewed at a small farm and garden in Halfaia Locality. The main crops grown are vegetables and fruits (citrus and guava). They live in slums far from farms and have no social services. Most of the displaced population are from Darfur and South Kordofan states.

Job description

Women have been doing this work for about 12 years, while few have started work just three years ago. Working is very difficult with a low return as one woman said: *"Work is tough but it's provides us with in income, a waste of energy and time consuming. Hand weeding is the hardest, harvesting takes time and effort, and we work 12 hours the day"*.

Reasons for working as an agricultural labor wage

- We need this work to support our families;
- We are poor and need daily income to survive;
- We have no other alternative work;
- This is the only work available to us;
- We cannot work as farmers because we do not have access to land;
- Family members do the same work. The majority of the women interviewed indicated that their family members participated in this work, especially females;

- Ten members of my family are doing this work;
- Four of my daughters work as agricultural workers;
- We are a big family we have to work to meet our daily needs.

Labor contribution to increase their “income”

“Income / yield is low, we get 100 pounds of work for the whole day, and sometimes the farm owner gives us some vegetables (tomatoes, onions, potatoes) from the product, but that’s not enough to keep our families so one woman said: *“We work every day to increase income”*.”

Contribute to social and economic empowerment

- We feel different because we have our own income;
- We donate some products to our neighbors during social events.

Contribute to food security

- We buy food on a daily basis;
- Our food is enriched with fresh vegetables and fruits such as potatoes, carrots, tomatoes and lemon.

Role of animals in food security

Some women raise goats and poultry to feed their families. *“I keep some goats to provide milk for my children and increase income, and the animals we keep support our income and food,”* said one woman.

Box 5: Case study (3) Waged workers from the Tama Tribe displaced from Darfur States

Waged workers from the Tama Tribe displaced from Darfur States

The agricultural areas in Jaili contain many gardens and farms that produce crops and fruits for marketing. Most agricultural workers live in slums (unplanned residential areas with no water and electricity services) locally called kombo.

Job description

Female workers are involved in all farm operations on the farm, and farm owners provide transportation to the labor force. Agricultural workers have been doing this work for 15 years.

Some paid workers stated that:

- It’s hard work and time-consuming;
- I have been working as a wage worker for ten years;
- I recently participated in this work because I moved from Darfur last month;
- We do not stay in the same work for a long period of time, but we change the work a lot;
- Harvesting and collecting tomatoes is hard work.

The women mentioned the following statements explaining why they participated in this work:

- This work is our only source of livelihood;
- We thought we couldn’t stay;
- This work provides us with a daily income and without it we cannot survive;
- The wage we get from work is low;

- Yield is very low compared to hard work;
- Payment depends on the number of hours worked (morning 4 hours for 60 pounds while the afternoon is 2 hours for 30 pounds);
- Most of our family members are involved in this work to meet our needs.

Contribution to increase income:

- This work is our only source;
- This work gives us money to buy food on a daily basis;
- Wages are very low but meet our minimum needs;
- Contribution to food security is clear and substantial;
- We buy our food on a daily basis;
- We don't have animals because we are poor;
- We are having difficulties feeding our children.

Contributing to socio-economic empowerment

- We have money to contribute to social events;
- We are improving our social solidarity;
- We have money to support our children's education.

Box 6: Case study (4) Women workers with daily wage in okra harvest (Salha area)

Daily Waged workers in the harvest of okra (Salha Area)

Okra is the main crop grown and is considered the food source and source of income for women working in a valid area.

Job description

Women here work as day laborers, working on a shift basis, and most are displaced from different states of Sudan. They do not have transportation. Some women commented on their suffering with transportation and hard work.

- We come all the way from our house on foot;
- I use a donkey to get to my workplace;
- Women have been doing this work for the last 15-25 years;
- The average hard-working hours is about 7 hours a day;
- Harvesting okra is hard work but we have no other alternatives;
- We need to work to meet our daily needs;
- We don't have the land to work as farmers;
- We inherited this work from our mothers and grandmothers and this is the only work we know;
- This work helped us secure food for our children;
- Most of our family members are involved in this work;
- I have five members of my family who work with wages - in harvesting okra, all female.

The women explained that the problem they faced as daily wage workers was in the following terms:

- We go long distances inside the farms;
- Wages are low;
- We don't have time off at work;
- We arrive at our house very late at the end of the day;
- Our work contributes to providing food for our families;
- We buy our food on a daily basis;
- We spend most of our income on buying foods.

Box 7: Case study (5) Esilat - East of the Nile locality

Esilat - East of the Nile locality

The agricultural workers are displaced women from Darfur and live in different suburbs of the city.

Job description

They harvest crops and fruit, and the owners of these farms provide transportation to collect workers from the area, some of whom come on foot. Most of them recently joined this work in periods ranging from 1 to 3 years.

Women cited various reasons for working as agricultural workers:

- In our regions we were women farmers;
- This is the only work available to us;
- Women in the region are not doing this work;
- We don't have the land to work as farmers;
- Most women work in one shift from 8 am to 2 pm;
- Pay depends on working hours, 60 pounds in the morning shift, and 30 pounds in the afternoon;
- All family members participate in the work;
- Work contributes to increased income to purchase our basic needs.

Contribute to food security

- Most Women keep goats to supplement their diet and increase income;
- We buy our food on a daily basis;
- Goats provide our children with milk.

Economic and Social Empowerment

- We have at least a daily income;
- We pay share in social events;
- We don't need to borrow from other people.

Box 8: Opportunities and Challenges of waged workers

Opportunities and Challenges of waged workers**Opportunities**

Some women reported that there was a limited opportunity that paid employment could provide.

These opportunities are as follows:

- We have no opportunities to improve ourselves, we only work without pay;
- We can't work as farmers because we don't have the land;
- Work provides us with the opportunity to have different types of food.

Challenges

The study also found that women farmers from the four categories had very limited opportunities for inclusion and empowerment. It can be said that women's agricultural labor is one of the most vulnerable groups in urban agriculture. They are poor and isolated and barely meet their daily needs, especially food. Lack of income is directly reflected in food shortages among women agricultural laborers (money is needed to buy food), making their children more vulnerable to malnutrition. Moreover, the increasing food insecurity among the urban poor and the growing problems of access to affordable fresh nutritious food have largely not been observed by the municipal authorities.

The following responses from women indicated their poverty and vulnerability:

- We face difficulties to meet the needs of our children;
- We spend a lot of time outside our house;
- Sometimes we can't provide all meals to our family members;
- We live in an isolated area;
- We are heavily loaded with household chores in addition to our work in agriculture;
- We walk long distances to collect wood and water;
- We do not receive any kind of support;
- We are not socially acceptable one girl said there is no one who marries a woman working as an agricultural worker;
- I hope I can return to Darfur to practice agriculture.



• SECTION 4: WOMEN'S PARTICIPATION IN THE FAMILY FARMING PROJECT

INTRODUCTION

The Family Farming Project was initiated by the Ministry of Agriculture as an agricultural project to secure food and increase income for poor families, especially female-headed households. The project covered thousands of families in Khartoum State.

DEMOGRAPHIC INFORMATION FOR WOMEN PARTICIPATING IN FAMILY FARMING

Levels of education ranged from women targeted by the project from not attending school to those with higher education certificates such as university degrees or professional certificates. The survey indicates that they are housewives and therefore spend a lot of time at home, where women can devote more time to growing crops, even if the work is divided daily into a number of short periods of time. (Table 9)

Table 9: Profile of women participating in family farming

Demographic Data	Percentage	Demographic Data	Percentage
Age <ul style="list-style-type: none"> • 25-29 • 30-34 • 35-39 • 40-44 • 45 and above 	6.3 0 28.1 25 40.6	Level of Education <ul style="list-style-type: none"> • Illiterate • Primary • Secondary • University graduates 	40.6 15.6 25 21.8
Total	100	Total	100
Place of Origin <ul style="list-style-type: none"> • Region • Emigrated 	6.3 93.7	Position <ul style="list-style-type: none"> • Housewife • Normal worker 	100 0
Total	100	Total	100
Size of the family <ul style="list-style-type: none"> • 3-5 • 6-8 • more than 8 	12.5 56.3 31.2	Head of the family <ul style="list-style-type: none"> • Me • The father • Other 	68.8 28.1 3.1
Total	100	Total	100

AGRICULTURE ACTIVITIES AND ACCESS TO INPUTS

Women grow very small areas in their homes. The crops are okra and legumes. The majority of women received seeds from Eve; the majority used organic fertilizers. They employ very few hired workers. They did not have access to finance, and most of them used production for household consumption. (Table 10)

Table 10: Agricultural activities and access to inputs

Agricultural Activity	Percentage	Agricultural Activity	Percentage
Cultivated Area <ul style="list-style-type: none"> • Less than 15sqm • 15-20 • More than 20 	56.3 12.5 31.2	Crops <ul style="list-style-type: none"> • Okra • Legumes • Other vegetables 	53.1 0 46.9
Total	100	Total	100
Source of seeds <ul style="list-style-type: none"> • Produced in my farm • Market • Eve organization 	25 18.8 56.2	Source of manure <ul style="list-style-type: none"> • Natural organic • Chemicals 	100 0
Total	100	Total	100
Agricultural employment <ul style="list-style-type: none"> • Family work • Hired labor 	87.5 12.5	Access to finance <ul style="list-style-type: none"> • Yes • No 	18.7 81.3
Total	100	Total	100
Use of products <ul style="list-style-type: none"> • Food • Marketing 	90.6 9.4		
Total	100		

AGRICULTURAL KNOWLEDGE AND PRACTICE

About 78% of the women interviewed had previous agricultural knowledge, the majority of whom were trained. (Table 11)

Table 11: Agricultural knowledge and practices

Knowledge and agricultural practice	Percentage
Previous work on agriculture <ul style="list-style-type: none"> • Yes • No 	78.1 21.9
Total	100
Training in agriculture <ul style="list-style-type: none"> • Yes • No 	71.9 21.9
Total	100
Institutional training provided by <ul style="list-style-type: none"> • Ministry of Agriculture • Eve Organization • Prior experiences 	25 46.9 28.1
Total	100

WOMEN BENEFIT FROM FAMILY FARMING

Women reported improved family nutrition and empowerment to decide the benefits of family farming.

Box 9: Food security

Family food security
<p>The women interviewed indicated that most of their agricultural products were used to provide food for their families. They also have access to a large supply of food and food products.</p> <ul style="list-style-type: none"> – Now we use healthy organic food; – You can't find fresh food anywhere; – There are many items available; – We donated food to very poor families; – The product enriches our food with fresh vegetables; – Okra and legumes are used as a staple food and are available to us almost free of charge; – We save money used to pay most of our food especially with high food prices; – We value urban agriculture as a source of fresh food to complement what is bought from the market; – We do not have special food for our children, but now some families started using carrots to feed children.

Box 10: Empowerment and decision making

Empowerment for decision making

The project provides an opportunity for women to practice decision-making.

Women expressed this opportunity with the following statements:

- For the first time, I have the freedom to choose what to plant;
- We have freedom of movement to obtain the necessary agricultural inputs;
- We have our own business;
- Women individually manage their own agricultural activities;
- We decide for ourselves how we use our products to market or use them for food;
- For the first time we participate in the marketing process;
- We have control over the benefits of production; such as cash income, food and other products (for domestic consumption, sales or exchange).

Box 11: Challenges and suggestions to improve the condition of women farmers for the family project

Challenges and suggestions for improving the situation of women farmers in domestic agriculture

The challenges faced by regulators and farmers must be understood and addressed if urban parks are to become widespread and profitable.

Many planners and farmers face obstacles, including soil pollutants, lack of water and climate change.

Women agreed that water shortages and safety are the biggest obstacles to their agricultural production and jeopardize their sustainability.

OPPORTUNITIES FOR WOMEN FARMERS IN THE FAMILY PROJECT

- The experience gained in decision-making can be utilized to organize women in community organizations (CBO) to increase income for individuals and workers-owned companies.

The project provides:

- Food production for domestic consumption, which additionally reduces spending on food purchases;
- Empowering women can motivate them to go beyond food production for domestic use only;
- The project provides recreational opportunities and social network for participating women. Family farming projects can be an opportunity to integrate women farmers to provide an additional source of income and can help reduce poverty and food insecurity. Furthermore, it provides food security for the growing urban population, especially for poor households living in slums and who may spend up to 80 % of their income on food;
- This project has the ability of benefits diversity.

CATEGORY IV: WOMEN FARMERS WHO PRACTISES URBAN AGRICULTURE AS AN INVESTMENT ON A SMALL-SCALE

This part of the study deals with the status of 30 women farmers engaged in urban agricultural investment from Wad Ramli, Bahri locality.

• Background and general remarks

The area is administratively under the administrative unit in Al-Jaili, which includes a number of villages, such as Qarri, Wasi, and Al-Ramli, Tamaniyat, and it is an agricultural area and most of its lands are located along the River Nile and its islands. All people there have been farming for generations. The main crops are lemon, oranges, guava, onions, potatoes, tomatoes, beans, legumes and fodder such as Alfafasa and Abu Sabaeen. People keep small animals like goats, sheep and chickens.

• Socio-economic characteristics of urban women farmers

The study revealed that approximately 93.7% of women farmers fall within the age group of 30 to 50 years, 26.7% of whom are illiterate and the same percentage have completed their university education. Moreover, 53.3% of them are married and 40% are widows; household size varies from 5-10 persons per household; 76% of them are housewives (*Table 12*).

Table 12: Frequency distribution of women farmers by economic and social characteristics

Categories	Frequency	Percentage	Categories	Frequency	Percentage
Age			Education		
• Less than 30	2	6.7	• Illiterate	8	26.7
• 30-40	2	6.7	• Primary	10	33.3
• 40-50	10	53.3	• Secondary	4	13.3
• 50 and above	10	53.3	• University graduates	8	26.7
Total		100	Total		100
Marital status			Occupation		
• Married	16	53.3	• Housewife	23	76.7
• Bachelorette	2	6.7	• Employee	7	23.3
• Widow	12	40			
Total		100	Total		100
Family Size					
• Less than 5	8	23.7			
• 5-9	16	55.3			
• 10 or more	6	20			
Total		100			

• Agricultural work

The majority of women farmers (about 66.7 per cent of those interviewed) practice agriculture in full time. Most women inherited farmland in "cliffs" and islands from their husbands and fathers. The land area is about 1-2 acres. Two quintuples (43.3%) of women farmers who participated in a small investment project 26 years ago, while 36.7% started this project less than 10 years ago, in order to increase income in addition to self-sufficiency of household food. More than half of the women farmers (53.3%) received their products from mixed farming and 46.7% of them only from agriculture. They mostly funded their own project while others received funding from their relatives. Most women farmers (93%) rely on hired labor from women. Three-quarters (75.3%) of women farmers sell their products on the market, while sometimes they sell their products within the household. (Table 13)

Table 13: Distribution of Women Farmers by Agriculture Characteristics (a number of 30)

Agriculture features	Frequency	Percentage	Agriculture features	Frequency	Percentage
Type of agricultural production <ul style="list-style-type: none"> • Work full time • Part-time work 	20 10	66.7 33.2	Experience in Agriculture <ul style="list-style-type: none"> • Less than 10 years • 10-14 years • 15-19 years • More than 20 years 	10 9 5 6	33.3 30 16.7 20
Total		100	Total		100
Starting the investment project <ul style="list-style-type: none"> • Less than 10 years • 10-14 years • 15-19 years • More than 20 years 	11 7 6 6	36.7 23.3 20 20	Reasons for introducing production <ul style="list-style-type: none"> • Investment • Food self-sufficiency 	22 8	73.3 26.7
Total		100	Total		100
The nature of land Ownership <ul style="list-style-type: none"> • I own land • The land belongs to the family 	23 7	76.7 23.3	Nature of the project <ul style="list-style-type: none"> • Agriculture • Common agriculture 	14 16	46.7 53.3
Total		100	Total		100

Funding Source			Type of Agricultural Labor		
• Relatives	9	30	• Waged labor	28	93.3
• By myself	21	70	• Family labor	2	6.7
Total		100	Total		100
Use of fertilizers			Marketing channels		
• Organic fertilizers	25	83.3	• Near the market	22	73.3
• Chemical fertilizers	5	16.7	• Inside the house	8	26.7
Total		100	Total		100

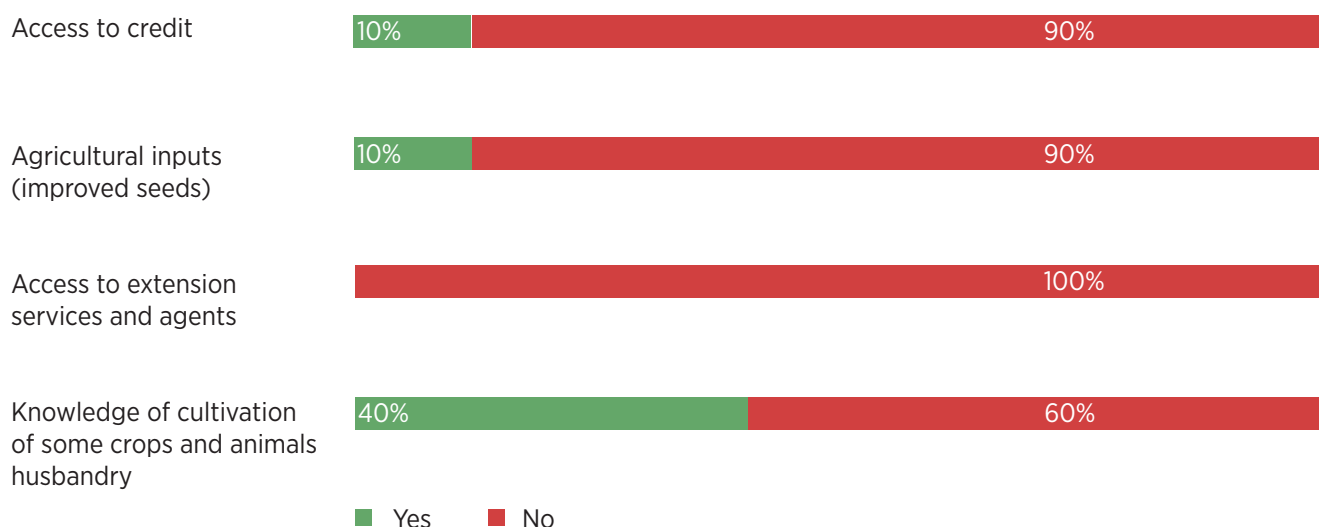
Box 12: Products of small projects

Small Enterprise Products
Crops – Potatoes/Tomatoes/Onions/Lentils/Okra/Eggplant/Watermelon/Mint Animal Production – Chickens are kept in the backyards of family homes; – Goats are kept inside small farms; – Chickens, goats, and backyards are maintained for family homes.

THE EXCLUSION OF WOMEN FARMERS IN INVESTMENT PROJECTS FROM INPUTS AND AGRICULTURAL SERVICE

Women farmers investing in urban agriculture are excluded from supporting inputs and services (*Figure 29*) illustrates the exclusion of agricultural inputs such as seeds, improved fertilizers, agricultural support, credit services, extension and training.

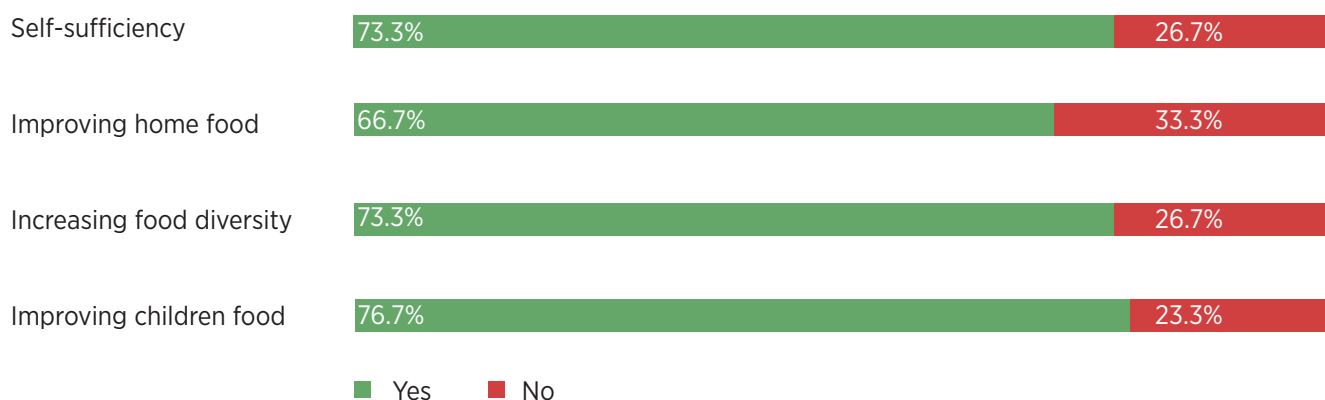
Figure 29: Access to agricultural services and inputs



THE ROLE OF THE PROJECT IN FOOD SECURITY

Small businesses contributed to providing food to the families of the women farmers interviewed and most of them became self-sufficient. By providing food directly, or by providing purchasing power for other food needs. In addition to improving the types of household foods and the introduction of new varieties have improved the nutrition of children. (Figure 30)

Figure 30: Food security



• SECTION 5: INSTITUTIONAL SUPPORT FOR WOMEN FARMERS' FAMILY

INTRODUCTION

Only 23.3% of women farmers have institutional support and family and social networks (Figure 31), while only 10% of women have practised in women's organizations.

Figure 31: Access to institutional support



OPPORTUNITIES FOR WOMEN FARMERS IN AGRICULTURAL INVESTMENT

Women farmers identified the following opportunities to improve their role in small investment in urban agriculture: Most respondents recognize the importance of organic production without agro-chemicals.

- There is great solidarity in the society where women live;
- There is a great desire in agricultural work;
- Diversity of agricultural production among plants and animals;
- Growing feed crops as an investment;

- Dependence on agricultural and household financing due to the lack of funding institutions in the region;
- Reliance mostly on hired labor, especially female workers, especially in the harvest.

CHALLENGES

Box 13: The challenges of women farmers' investment project

The challenges of women farmers investment project

- Small Business Management Software;
- Small area illustrating the intensification of production;
- Weak marketing channels;
- Lack of improved seeds;
- Lack of funding sources / channels;
- Pest control;
- High input prices;
- Water blockage and intermittent flow;
- Poor productivity due to lack of improved seeds and seedlings exclusion from agricultural inputs and services;
- Lack of adequate training in business management and insufficient income;
- Resources are not available to help women farmers work more efficiently through their non-profit business management skills as well as agricultural production skills.



• SECTION 6: SELECTED STORIES FROM SOME WOMEN FARMERS PROJECTS

These stories show success stories, opportunities, experiences and challenges for some of the women farmers interviewed.

• The First story

I am a lady who is 45 years old and was born in Wad Ramli. We are farmers who practice agriculture for many generations. I have been the breadwinner since my husband's death, and I have 7 children. Agriculture is my only skill (20 years of experience in agriculture). Investing in agriculture was the only way to increase income. I started my project 10 years ago on a small piece of land I inherited from my husband. My brothers initially financed me. At the time, I used family labor, but now my projects have expanded, and I hired some female labor. Plant vegetables, legumes and fodder and keep some poultry. My family helped me market my products. The return is relatively satisfactory, but the good thing is enough food for my family.

The benefits of this project are as follows:

- I managed to teach my kids;
- I have fresh and nutritious food and my children are healthy;
- We even share food with our neighbors, and this creates a kind of social capital and solidarity;
- I have freedom of movement.

Despite the benefits I gained from the project, there are several challenges for me:

- Lack of credit is a major challenge to improving my investment;
- I do not have information on product prices, sometimes exploited by brokers;
- I want to own a large land to develop agricultural projects to employ poor women and help them find a suitable source of livelihood.

• The Second story

This project started a year ago and it offers a very good opportunity to practice agriculture and secure food as food has become very expensive. I love it because I grow what my family eats, fresh food for me, my family and the community. My own food gives me some kind of strength and gives people dignity.

The small land determines the production of more food as the size of our house is small it is best given us the space outside the house managed by a group of women to facilitate access to credit and markets. It is better to organize an agricultural cooperative to learn basic business skills and obtain loans to boost production.

• The Third story

I do all the work. I wake up at dawn, before anyone else at home, I prepare food and then send the children to school. Then, go to work in the fields, go home and wash everyone's clothes at home. I should also save time for cleaning and other housework. Farms are not our names - women are never referred to as farmers, the term is restricted to men only. The term commonly referred to as women is "farm worker". I work 16 hours a day. Despite my hard work, we are generally excluded from the decision-making process within the farm, families and communities.

- **The Fourth story**

As a widow, Aisha is the breadwinner for her family, and she must ensure that her family survives by growing her own small piece of land. Like most of the other women in her community, Aisha has been unable to tolerate the pests that plowed her field for most of her life. This means that from the small amount of crops that have grown, much of it went to pay the men who hired them to plow their field. In order to earn extra income she worked as a daily worker for other farms.

- **The Fifth story**

Fatima strives to care for her family and earn a living on her family's farm, inherited from her father. To support her children independently she thinks to increased productivity and income from sales of her products. With this money, she was also able to rent another hectare of land to increase her income.

- **The Sixth story**

Fatima, a 60-year-old woman with two parcels of land, was born as a farmer and said we have been farming for a long time. My mother did it too, and I do it, and my daughter and my step-daughter will do it too. But what we need and cherish as our own identity. As farmers, our voices are often unheard of.

- **The Seventh story**

Nafisa is a poor farmer working hard in her family practicing self-sufficiency farming (subsistence) without pay (unpaid work). She said that women farmers in our region perform most of the major agricultural jobs, from sowing to harvesting, but we have less access to resources than males. She hopes to have her own farm to increase income and improve their livelihood.

- **The Eighth story**

I am a 42-year-old woman from Al Jumuiya district, Omdurman, I live with my three children. I got married twenty years ago in the eleventh year of our marriage my husband died. I work hard to meet the needs of my big family. At this early age the family became a family who made serious decisions regarding agriculture and family affairs. My children left school to work as family farm-workers. I have a small piece of land (3 acres) I plant with my children for home food consumption. In addition, I collect some income by working as an agricultural worker on a large farm. Despite the hard work I still cannot meet all the needs of my family and therefore I live in poverty. My heavy burden of manual labor and psychological pressure increased the incidence of the disease and the deterioration of my health. I am having the following problems because of my husband's death.

- Loneliness;
- Insufficient funds available to manage family affairs;
- Isolation and exclusion.

• The Ninth story

Khadija is 39 years old and has been working in agriculture for 15 years. She wakes up before dawn to cook the food of her three children and her husband, milks her goats, sends her children to school and spends the rest of her day in a one-acre plot of land just outside her house. The money obtained from the product is the sole source of income for the family and is the sole breadwinner. However, they do not have any rights to land. Khadija is among many women farmers in Sudan who receive little appreciation. (Without land ownership, women receive little credit and are often prevented from government schemes aimed at supporting farmers.

• The Tenth story

I am a 45-year-old woman from Bahri Locality, Khartoum State, I live in a family of four children, my grandmother, father and mother of my husband. My husband left us ten years ago and stopped sending money three years ago. I am the breadwinner. My grandmother and the mother of my husband are not healthy, so I have to take charge of all family and agricultural responsibilities. I have to work hard to keep my four children in school. My daughter has left school, to give her brothers the opportunity to continue their education.

My work requires being outdoors, so my daughters have become responsible for all housework. I have an opportunity to make decisions regarding agricultural and household activities. I feel empowered to participate in community activities. I would like to organize women's groups. I still have difficulties because of my husband's absence, such as- insufficient money to meet the needs of my family specifically to keep my sons in school.

- It is difficult to employ hard labor agriculture;
- Lack of credit;
- Insufficient time for recreational activities.

• The Eleventh Story

I am divorced and I am 42 years old and I have five children. Before the divorce, I did not go out to the fields very often — I stay at home and take care of my children. My workload has increased, and I must take care of many other things that men do usually. Apart from doing normal household chores and childcare, now I have to work in agricultural fields, take care of cattle, and manage all works. I feel that case.



• SECTION 7: CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION

- The study concluded that women farmers in Khartoum State belong to different categories. Their visible participation is not fully recognized, resulting in their not being included in agricultural programs and services.
- The study revealed that women farmers have all agricultural activities from preparing the land to harvest. Some women farmers hire workers to prepare the land because manual work is difficult for them.
- Participation of women in urban agriculture has contributed to improving household food security by providing quantitative and qualitative food for family members, especially children.
- It can be said that waged agricultural labor is one of the most vulnerable groups in urban agriculture. They are poor and isolated and barely meet their daily needs, especially food. Lack of income directly translates into food shortages among female agricultural laborers (money is needed to buy food) where their children are at risk of malnutrition.
- The findings of this study revealed that most women farmers of different groups face a set of challenges that have resulted in the lack of expansion and improvement of agricultural production, such as lack of access to agricultural inputs and financing and restricting access to land.
- The study also found that women farmers from the four categories have limited opportunities for development and empowerment. The study showed that all women farmers were excluded from the four categories of training and extension. This has exacerbated the lack of technical knowledge to solve most of their agricultural problems.
- The study indicated that most women farmers in the urban areas of the four categories are not well organized and therefore lack the channels and power to express their needs. This limits the representation of their interests in urban policy-making and planning at different levels and hinders their participation in development programs. Well-functioning farmers' organizations can negotiate land, adequate tenure arrangements and access to credit. These organizations may also take roles in training and expanding farmers, infrastructure development, manufacturing and marketing.
- The results of the study indicate that women are in a better position to make decisions because of urban agriculture. Although women should not be generalized as a homogeneous group because of their differences on the basis of socio-economic status, decision-making on urban agriculture seems to intersect these differences. This shows that urban agriculture increases women's contribution to the livelihood of their families, an indicator of their social and economic empowerment. By giving women the ability to contribute to household food requirements, urban agriculture is an important social empowerment strategy.

RECOMMENDATIONS

• General recommendations

- Establishing working groups of researchers, scientists, government leaders, policy makers and farmers' groups to agree on joint recommendations for the development and support of women farmers in Khartoum State.
- Establishing an effective information base that is extremely important to raise awareness among the general public, policy makers, donors and local civil society actors on the importance of a comprehensive urban women farmers strategy and action plan in Sudan. This information should also be disseminated effectively in order to inform public debate.
- Working with civil society partners to increase demand for empowering women farmers and hold governments accountable for carrying out their responsibilities; Reduce exclusion by linking vulnerable farmers to social protection programs. Working in partnership with other agencies that have already implemented social protection programs to reduce experimentation and maximize learning and application of the lesson.
- Supporting the provision of nutrition programs for children in the study areas in order to bridge the gap in nutrient intake, because good nutrition is especially important for children under five who need additional nutrients for growth and development. Along with these high requirements, children need to provide healthy and nutritious meals at least twice a day. This makes it important to support healthy eating habits among families. This can be achieved through community-based nutrition education programme.

• Specific recommendations

- Wage farm workers are more vulnerable and excluded - and need special programs to empower through:
 - Create a strong enabling environment for gender equality through awareness, policy assistance and technical assistance;
 - Implement projects and programs that support equal access to resources and services, opinion and representation;
 - Ensure that waged women become visible to government policy makers and social protection programs;
 - Empowering them by providing them with the knowledge and skills needed to work on and claim their social protection.
- The work of women farmers in small agricultural investment can be enhanced by upgrading projects that increase income and save. And provide them with leadership and managerial skills to manage their business. Linking them with agricultural extension programme.
- Women farmers should be linked to the Agricultural Extension Program to acquire technical knowledge to improve their role in food security. They should be organized into groups to facilitate their access to finance and the marketing of their products. It is clear from this result that women need to be adequately funded to expand their farms. Mixed farming should be encouraged to enrich family food and nutrition.

- Women farmers should be encouraged to take decision-making trends through mobilization and awareness-raising. Civic organizations working in the regions should be linked to women farmers through networks and partnerships.
- Women farmers should target successful women storytellers to be active in society.
- Family farming projects should be encouraged to utilize land outside the home to establish collective family farming for groups of families headed by a widow to secure food and increase income. This type of project should be linked to social welfare.

• **SECTION 8: PROPOSED STRATEGY TO INCLUDE WOMEN FARMERS IN URBAN AGRICULTURE IN AGRICULTURAL POLICIES**

OBJECTIVES

- Design different strategies to meet the needs of different categories of women farmers;
- Include the role of women in urban agriculture in agricultural extension services;
- Expand partnerships among government institutions, development partners, community-based organizations and the private sector to respond to the needs and priorities of women farmers in the urban sector;
- Development of diverse competencies of staff and partners in addressing gender gaps and gender awareness programs in urban agriculture.

INTRODUCTION

Advantages to be taken into account when making the strategy:

- Improving the agricultural information system. Upgrading the current level and adding indicators to monitor the work of women farmers in urban agriculture as well as quality. Consider using other sources that provide data on the situation of women farmers to supplement management data on gender agriculture.
- It is proposed that the Ministry of Agriculture develop a policy of regular resource mobilization and monitoring to implement the urban agriculture policy.
- Promote community participation in enhancing the role of women farmers in urban agriculture. The strategy recommends regular monitoring with an evaluation carried out at the end of each year to ensure improved achievements in the role of women farmers in urban agriculture.

POLITICS AND ORDER

- Gender equality is important for agricultural development and achieving sustainable development goals. The Gender Unit of the Ministry of Agriculture should advocate for gender mainstreaming and gender equality to ensure women's participation at all levels and stages of agricultural decision-making through:
 - Facilitating women's access to agricultural services and adapting these services to their needs;
 - Working with relevant stakeholders to ensure that the selection and introduction of agricultural techniques is gender-sensitive and responsive to gender-specific needs;
 - Training of various stakeholders in agriculture at national and state levels;
 - Forming forums for women and gender equality at all levels;
 - Strengthening partnerships and cooperation with research institutions;
 - Detailed guidance and tools to illustrate how to integrate women into the urban agricultural research study.
- Evidence from around the world, as well as field-tested guidelines, should be provided. Knowledge and study of women working in urban food production are important elements of policy makers, planners, researchers and practitioners working in urban agriculture programs.
- The existence of an integrated set of services, targeting both production and marketing and addressing social constraints, is the main feature of agricultural projects that succeed in raising the productivity of women farmers.

PARTNERSHIPS

- The active participation of all partners, including community leaders, the private sector and academic institutions;
- Establishing a working committee to identify the political gap on gender and agriculture.

INTERFERENCES

- Organizing (116 wage-earning women) - identified through study - in groups to serve as focal points for tracking areas for displaced women to work, were organized to empower them;
- Supporting the organization of 220 women farmers in women's agricultural groups. These groups help productive women overcome constraints and meet the requirements of production inputs;
- Women farmers need training on how to feed children under five;
- Supporting the Ministry of Agriculture in cooperation with the Social Welfare to conduct a number of workshops on urban agriculture, gender and social exclusion;

- Supporting the Gender Unit in the Ministry of Agriculture to organize a workshop on empowering women farmers in food security and nutrition;
- Supporting development of post-harvest training for urban women farmers;
- Building capacity of agricultural extension staff on social protection approaches;
- Establishing a mechanism for coordination and integration among different actors promoting gender equality in agriculture;
- Conducting a capacity assessment for the Gender Unit in Agriculture to identify and clarify the human resources required to lead policy analysis, planning and decision-making into actions;
- Training in credit and business management targeting women entrepreneurs;
- Supporting poor families in providing more food for their children.

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